

CORRELATION BETWEEN ECONOMIC EDUCATION EXPENDITURES AND GDP GROWTH IN UZBEKISTAN

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Abstract. *This article is devoted to the research of economic education as a system, its diversification, powering the conditions of competition environment in the sphere. Moreover, the research aims to determine the scientific and methodological aspects of the economic education effectiveness.*

Key words: *education system; economic education; education expenditures; effectiveness of education.*

1. Introduction

From early years of independence, Uzbekistan gave high priority to education over the other sectors of the national economy. In fact, systematic reforms took place to enhance capacity and structure of educational system. Still consecutive works are going on in the system, many research institutions, international organizations and number of government projects are involved to betterment of the system. However, we believe education is open area to invest ideas, work for development and make direct impact to economic growth of country. By the fact, researches show that over the year's relationship between education and economic emerged as a new the field of study that called economics of education, which covers all aspects of education.

According to Weil, education is another form of capital that is no less critical as a means of production – human capital. With investments in human capital, such as education, three major economic effects can be expected: [12]

- increased expenses as the accumulation of human capital requires investments just as physical capital does;
- increased productivity as people gain characteristics that enable them to produce more output and hence;
- return on investment in the form of higher incomes.

When we analyze human capital investments, we see that they entail an investment cost, just as any investment does. In European countries, most education expenditure takes the form of government consumption, although some costs are also borne by individuals. These investments can be rather costly. EU governments spent between 3% and 8% of GDP on education in 2005, the average being 5% [13]. It has been estimated that the total costs, including opportunity costs, of education are as much as double the direct costs [14]. Including opportunity costs investments in education can be estimated to have been around 10% of GDP in the EU countries in 2005. In comparison investments in physical capital were 20% of GDP [15].

Economy-wide, the effect of human capital on incomes has been estimated to be rather significant: 65% of wages paid in developed countries is payments to human capital and only 35% to raw labor. [12] The higher productivity of well-educated workers is one of the factors that explain higher GDPs and, therefore, higher incomes in developed countries. A strong correlation between GDP and education is clearly visible among the countries of the world. However, how much of a high GDP is explained by education is still open question. After all, it is also possible that rich countries can simply afford more education.

Weil point out that positive externalities from human capital are one explanation for why governments are involved in education. If people were left on their own, they would not take into account the full social benefit of education – in other words the rise in the output and wages of others – so the amount they would choose to obtain would be lower than the social optimum. [12]

According to Guisán, education has a positive influence on economic growth also reducing excesses in fertility average rates, creating a social environment that improve productive investment, making workers more productive and voters more prepared to choose a good government and promote reasonable socio-economic policies. The international co-operation should improve also, where needed, better quality in education contents of human values, promoting respect to peace, human rights and equality for women, as well as the learning of one or more widely spoken world languages to avoid isolation and promoting the access to a greater wealth of information.[12]

OECD researches show that even during the economic downturn, labor income growth among tertiary graduates generated a positive impact on GDP of more than half a percentage point per year (between 2008 and 2010). While GDP shrank by almost 4% across OECD countries in 2009, labour income growth among tertiary graduates still made a positive contribution to GDP of 0.4% [16].

Understanding importance of facts above, over the years of independence, it has been developed new educational concept, based on this education concept the process of organization and development of economical education in Uzbekistan is highly intensified.

It is important note that new faculties and higher education institutions specialized on economical education has been established. In fact, along with government educational institution number of new non-government educational institutions is increased. Besides, new government educational standards, study programs, complex of literature on learning and methodology are developed. Content of professor and teaching staff is restructured and extended. All these processes are deepening accordingly to needs of society, government and economy. Currently, major important tendency in Uzbekistan is enhancing the capability and effectiveness of economical education. Since the expenditures of economical education is increasing, the pay back of the expenditures and development of resources of educational processes are becoming challenging.

2. Structural transformations and institutional improvement of economical education

In the course of economic growth and structural transformations in the real sector of the national economy in Uzbekistan, structural development and institutional improvement are gradually taking place in the system of economic education of the country.

Structural changes in the system of economic education can be divided into institutional structural changes, sectoral structural changes, changes in the structural composition of educational service market, as well as territorial and structural changes of economic education [2,4,7,8].

The institutional structural changes of economic education must include the core of organizing economic education, central and regional directions of its administration, changes aimed at its organizational and legal improvement.

The sectoral structural changes include the processes of diversification in the structure of areas and specializations of education. In other words, increase in the number of areas and specializations, changes in their ratio, enrollment indicators, as well as the number of graduates and their ratio reflect the changes in the sectoral structure.

Changes in the territorial structure of economic education reflect the significance of the country's regions in economic education, elevation of their role and functions in its development.

The said changes which are taking place in all directions, eventually, define the impact of quantitative and qualitative indicators of economic education on the indicators of social-economic development of society.

The factors which impact on the dynamic and scales of structural movements and thus highlight the structural changes can be clustered into political, social and economic groups. Also it is expedient to separately analyze the institutional and market factors.

Political factors of economic education include political stability in the country, reflection of political reforms on the process of education, conceptual approach to the sphere of education, as well as political tasks set before education, namely, economic education in enhancing the system of public administration. These political factors can be separately viewed both as objective and subjective factors since practice and experience show that structural changes in education may be

implemented through personal and individual initiatives or inaction of a certain administrative official or in other cases within formed socio-political mindset of a group of administrative staff [7].

Objective political factors may include the ever-improving political system of Uzbekistan, in particular, an objective reflection of the country's Constitution, activity of political institution and political processes in the core of educational system [1].

The social factors have a high level of impact on the structural changes observed in the educational system. They can directly impact on the substance and essence of educational reforms since the education has a social nature in itself. Changes in social structure of the population, level of literacy, changes in the structure of people's incomes and expenditures, inequality among the population, raising social significance of economic cadres, long-standing social values or flaws and a number of similar aspects strongly influence the changes in the structure of economic education system.

The main economic factors of structural changes taking place in the system of economic education include the ratio change among various branches of real sector of the economy, supply and demand change in the employment market, as well as changing needs of consumers of economic education services i.e. businesses and organizations in economic cadres.

Improvement of Uzbekistan's national economic education system in the conditions of market transformation and changes in its internal structural composition can be viewed as dynamic and stable. So far, these changes have already formed their specific principles and in general the observable trends comply with basic needs of members of society.

3. Current state of national educational system and its modernization

It is worth noting that Uzbekistan funds its educational system on a well-targeted basis. Over the years of independence, the country adopted and has successfully implemented two large-scale national programs – the National Program of Cadres Training adopted back in 1996 and aimed to create a completely new system of secondary special and vocational education in the first place. In 2004 Uzbekistan adopted the National State Program for Developing School Education for the years 2004-2009. Their target indicators envisioned allocation of significant state resources for the educational system, as well as investment expenditures for constructing new secondary special and vocational education institutions, arming them with modern training equipment, constructing new general secondary schools, their capital reconstruction and equipping [2,3,4].

Modernization of material and technical basis of economic education in this process allows for its qualitative improvement and eventually will broaden the opportunities for the development of its core basis.

During 1997-2006, Uzbekistan channeled in average 9-10 percent of its GDP and 23-29 percent of its budget expenditures to its educational system. These indices have been maintained at same level for the last 3-4 years [9].

The system of economic education now covers 32 institutes of higher learning – universities, institutes and academies, over 10 specialized scientific-research institutes and centers, vocational colleges specializing in more than 100 sectors of the economy. At the same time, 14 publishing houses which provide scientific, scientific-methodological, teaching-methodological information resources for the system of economic education, over 20 scientific and popular magazines, more than 40 newspapers can in broad sense be viewed as part of the economic education system [9,10].

According to available data for 2010, the same year 7743 students majored in the areas covered by the system of economic education. The number of graduates with master's degree made up 1842 graduates. Of this 75 percent of graduates with bachelor's degree i.e. 5763 majored in economics (2478 graduates majored in different sectors and branches), management (1292 graduates), accounting and audit (970 graduates), finance (1025 graduates). It is notable that almost third (30,1 percent) of the graduates studied at the Tashkent State University of Economics (1232 graduates) and the Tashkent Institute of Finance (1161 graduates) [4,9].

In other words, these two institutes of higher learning provide a significant part of educational services offered by the system of economic education. Generally speaking, 40 percent of the graduates studied in the university system and 60 – in the system of the institute.

Analysis of data for 2005-2010 shows that there was a partial decrease in the number of graduates. For example, in 2005 the total number of graduates made up 7961 while in 2010 it totaled 7638 graduates which is only 95,9 percent of that of 2005. In this period, change in the number of grant-basis (free of charge education) graduates made up 68 graduates or 1,03 percent. During the period covered by the research, there has been a change of share of economic education in the system of higher learning. Particularly, in 2005-2010 the total number of graduates majoring in economics (divided by sectors) changed from 35,1 to 31,6 percent; in management from 16,9 to 17,0 percent; in accounting and audit from 12,1 to 12,7 percent; in finance from 13,6 to 13,4 percent. Meanwhile, the share of banking lowered from 5,6 to 5,2. During this period there was an increase in the number of graduates majoring in business and agro-economics which recorded growth from 1,7 to 2,5 percent and from 0,0 to 2,7 percent respectively [9].

Analysis of occurring changes and the policy of structural transformations were enhanced in the wake of the adoption by the government of Uzbekistan of the National program for mitigating and eliminating the consequences of the 2008 global financial-economic crisis and subsequent inventory of cadres at the institutes of higher learning. In this process, during 2008-2010, the share of economic specializations in the total number of enrollment to the institutes of higher learning significantly decreased averaging 4-7 percent [5].

The major part of master's degree graduates of economic education system i.e. 60 percent have majored in 39 specializations in 6 major areas. In particular, 161 graduates majored in international economic relations, 94 in regional economy, 289 in sectoral economy (sectors and branches), 273 in management, 171 in accounting, audit and economic analysis, 106 in financial markets and stock markets[9,10].

In other words, the majority of both bachelor's and master's degree graduates i.e. 60-75 percent majored in 4-8 specializations of economic education.

This shows that the country's economic education system is facing a lop-sided specialization. Certainly, this trend has emerged during the last 6-10 years due to the needs of the employment market and within available potential for training economic specialists. Next stages suggest enhancement of this composition and acceleration of diversification processes. Modernization of production, diversification of industry and foreign trade, localization, development of small business and private entrepreneurship will, no doubt, make serious changes in the process of training economic cadres. Small business and entrepreneurship are given significant importance in forming modern structures, which can meet the rapidly changing market requirements, creating new jobs, raising incomes of the population and improving the climate of competition.

Analysis of provisional clustering of master's degree specializations into four blocks shows significant changes in the structure of economic education. In particular, during 2008-2010, the total number of graduates increased by 124,16 percent. Namely, general economics specializations grew by 45,7 percent, international economic relations and foreign economic relations – by 182,1 percent, finance, financing, financial market transactions – by 123,7 percent, other specializations – by 116,4 percent. It is worth noting that demand of real and financial sectors of the economy for highly qualified specialists, diversification of economic education, as well as the processes of linking them to trends of the employment market reflect the accomplishments secured in training specialists with master's degree in the system of economic education[10].

4. Growing demand for economical education and its implications

Analyses show that, in the academic years 2005-2009, there has been an overall decrease in the number of enrollments to the economic specializations.

Especially, the inventory of cadres was launched in 2008 to enhance links between educational system and trends of the employment market. This led to revision of areas and specializations of economic education and subsequent decrease in the number of enrollments. Particularly, there has been a drastic reduction in the number of grant-based enrollments. It is directly connected to staff and personnel optimization policy pursued by public institutions and enterprises.

In 2005-2009, the number of grant-based enrollments fell by 21 percent while contract-based (paid) enrollments partially exceeded the planned indicators. However, in practice there was a 6,6 percent decrease. It can be attributed to gradual distancing from the practice of extra enrollment. At the same time, the number of enrollees fell by 3 thousand people. It can be explained by growing demand to other specializations and aggravating problems with employment faced by the graduates of certain economic specializations (for example, economics, banking, management) [10].

The enrollment numbers to the master's degree courses reflect the trends similar to the bachelor's degree courses. In 2005-2009, the total number of enrollees decreased by 259 people. During this period the budget-based enrollment plan was reduced by 22,2 percent while the contract-based enrollment plan – by 22,35 percent. These measures were taken after a centralized examination of the needs and demands of enterprises and organizations operating in the real sector of the economy[10].

Certainly, it would be wrong to assess and make analytical conclusions with regard to the economy's needs in specialists purely from public sector's point of view. Economic education falls under overall social needs of society as other areas of education. On the other hand, economic education significantly contributes to raising the overall literacy level of members of society, enhancing their social-economic activity, raising their awareness about tasks and objectives of social-economic and political reforms, broadening the opportunities for putting forward and implementing the entrepreneurial initiatives. From this point of view, it is expedient to approach the process of contract-based economic education in compliance with the principles of economic liberalization with taking into account the needs of the population and private sector.

These deliberations can easily be applied not only to higher economic education, but secondary special and vocational stages of the economic education system as well. The fact that in recent years the secondary special and vocational education are given priority before higher education can be explained by following:

- there is a firm harmonious correlation among secondary special, vocational and general secondary education. Thus comprehensive coverage of 9th grade graduates with this system of education is an important direction of the state's educational and employment policy;
- present economic and social spheres have a high demand for a labor force with vocational training;
- the system of secondary special and vocational education has already encompassed each and every district of the country and its organization and current expenditures can be made on the basis of local conditions;
- vocational education can relieve the social burden on employment, unemployment, employment market and so on.

Secondary special and vocational education system provides training on 14 economic specializations, which correspond to main sectors and branches of the national economy [10]. According to data for the year 2010, there is disparity in distribution of graduates in terms of specialization. For instance, finance, banking and accounting graduates make up 82 percent of the total number of graduates. Due to narrow segment of such specializations as accounting, statistics, management (divided by spheres), marketing, trade, international business, customs, taxes and taxation, insurance, exchange broker, stock market specialist leads to small number of graduates in these specializations [9, 10, 11].

Analyses show that in 2007-2009, the number of enrollments to economic specializations grew significantly. During this period, the number of enrolled students increased from 47461 to 78589 which made up 165,6 percent growth. These indicators are the result of full-scale implementation of a 9-year general secondary education and the policy of enrollment of school graduates to vocational colleges [9].

The enrollment ratio is traditionally high in finance, banking and accounting. These three specializations account for 84,4 percent of total number of enrollments.

Significance of the system of economic education, particularly, its secondary special and vocational phase in the country's social-economic development and its impact on the process of development is growing with each year. Training modern and highly qualified specialists, formation of uninterrupted system of their retraining, creating the educational system meeting international

standards and its enhancement, raising the students' legal, spiritual, economic awareness along with their professional skills are set as a paramount goal of reforms undergoing in this sphere [7]. In other words, strengthening the labor component of competitive goods and services production depends in many ways on forming a modern labor resource stratum with secondary special and vocational education.

Mastering one or several professions through sectoral and specialized education, as well as harmonious development of general subject-based theoretical education with consideration of developmental trends of the economy is set as a priority in Uzbekistan.

Improvement of the system of financing secondary special and vocational education, namely, development of its multiple-choice (from budgetary and extra-budgetary sources) system, ensuring reasonable utilization and supervision over budgetary funds, broadening the opportunities for independent self-financing of educational institutes, comprehensive support of attraction of private and foreign investments to the educational sphere are among important directions of economic basis of educational programs underway now in the country [2,3].

However, so far the opportunities on management and systemic development of the said aspects are not fully tapped. Its modern mechanism which is yet to form is not being fully implemented.

Peculiarities of formation and development of the economic education system are reflected on the changes taking place now in its structural components.

5. Analysis of economical education market and growth of its expenditures

Educational expenditures and their coverage shall assume a significant importance in addressing the problems of ensuring a direct correlation between trends of economic education market and the system of economic education. In recent years, growth of economic education expenditures is creating a problem of their coverage since the educational process requires paying significant attention to resource development. Meanwhile, it requires safeguarding a necessary level and quality of education, as well establishing a stable system of training competitive cadres in new social-economic conditions.

Analyses show that bringing the educational reforms in par with the Program requires increasing the volumes of current expenditures. In 2000, the average amount of expenses for per student at vocational colleges made up 60,0 thousand Uzbek soums, while in 2009 it totaled 346,0 thousand Uzbek soums. At the same time, from 2001 to 2009, the volumes of annually allocated funds for vocational colleges grew by 56-60 percent and by 56-58 percent for academic lyceums [9].

It is also notable that Uzbekistan is also increasing the volumes of financial resources spent per student. To establish the correlation between financial expenditures spent per student and the rates of GDP growth, we have calculated the correlation density. For that we have used the formula put forward by the English statisticians Francis Galton and Karl Pearson [6].

$$r_{xy} = \frac{xy - \frac{x}{n} \frac{y}{n}}{\left(x^2 - \frac{(x)^2}{n} \right) \left(y^2 - \frac{(y)^2}{n} \right)} \quad (1)$$

where: r_{xy} – linear coefficient of correlation;
 x – factor value;
 y – result value.

It is known that correlation coefficient accepts a values from -1 to +1. The negative value displays feedback while positive value display a linear link. There is no link at $r = 0$.

To qualitatively assess the correlation, we have used the Cheddok scale. According to it, if the correlation coefficient is below 0,3 the correlation density is low, if it is between 0,3-0,5 – medium, if between 0,5-0,7 – noticeable, if between 0,7-0,9 – strong and if it is above 0,9 – extra strong.

By putting values to the said formula we can calculate the correlation density between these two indicators:

$$r_{xy} = \frac{17,57}{26,70} = 0,658052$$

Analyses show that during the period covered by the research, the coefficient of expenditure per student and GDP made up 0,65. In other words, there is a noticeably density of correlation between these two indicators i.e. growth of per student expenditure is in par with GDP growth.

Table 1

Procedure of calculating the correlation density between per student expenditure and gross domestic product [10]

Years	GDP extra growth rate (%) (y)	Extra growth rate of expenditures per one student (%) (x)	$y - y$	$x - x$	$x - x * (y - y)$	$(y - y)^2$	$(x - x)^2$	y^2	x^2	$x*y$
2001	4,20	1,53	-2,75	-13,04	35,85	7,56	169,98	17,64	2,35	6,44
2002	4,00	-9,62	-2,95	-24,19	71,37	8,70	585,26	16,00	92,59	-38,49
2003	4,20	17,35	-2,75	2,78	-7,63	7,56	7,71	17,64	300,89	72,85
2004	7,70	29,60	0,75	15,03	11,27	0,56	215,81	59,29	875,98	227,90
2005	7,00	9,59	0,05	-4,98	-0,25	0,00	24,83	49,00	91,91	67,11
2006	7,30	17,59	0,35	3,02	1,06	0,12	9,14	53,29	309,49	128,42
2007	9,50	40,71	2,55	26,14	66,66	6,50	683,45	90,15	1657,54	386,77
2008	9,00	21,36	2,05	6,79	13,92	4,20	46,08	81,00	456,17	192,22
2009	8,10	11,18	1,15	-3,39	-3,90	1,32	11,50	65,61	124,97	90,55
2010	8,50	6,41	1,55	-8,16	-12,64	2,40	66,52	72,25	41,14	54,52
Σ	69,50	145,70	0,00	0,00	175,70	38,95	1830,27	521,97	3953,02	1188,3

Source: The Ministry of Higher and Secondary Special Education of the Republic of Uzbekistan [10].

However, a number measures need to be taken to raise the efficiency of economic education. Growth of expenditures in secondary special and vocational education creates the problem of covering those expenditures. In its turn, it requires using flexible methods in financing education. They should safeguard the stable system of training highly qualified and competitive cadres.

6. Conclusions. Introducing foreign best practices to improving economic education is one of important priorities. We believe, the priority directions of attracting foreign investments to the development of secondary special and vocational education must include the following:

- establishment of joint educational institutions with leading foreign universities;
- attraction of foreign pedagogues, economic scholars and methodologists on mutually beneficial terms for retraining and developing particular specializations at secondary special and vocational institutes;
- giving incentives to sending local teachers, pedagogues, economic scholars through public and non-government organizations to foreign research institutions and think tanks for retraining;
- joint implementation of research projects on different areas of economics which have significant importance to the country.
- giving incentives to implementing the innovative initiatives of students of secondary special and vocational institutes, as well as pedagogues and economic scholars through grants and soft loans and so on.

Conflicts of Interest. The authors declare no conflict of interest.

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