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The Role of Education in Organization and Development of Economics in Azerbaijan

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Abstract *There have been different views on the subject since the emergence of economics. As economic science develops, approaches to its subject have also changed. In modern times, the economy is regarded as a science that studies the lawfulness and legitimacy of the effective use of limited resources so as to meet the endless needs of people (Lawrence et al., 2001). Every society must have knowledge to be able to answer three main questions underlying the organization of economics such as, What goods should be produced being aware of limitation of each community resource? How to produce it? and for whom? The organization of the economy that meets these three questions is related to education. Future development of social institutions in developed countries depends on qualitative education. Along with education; there is also a great way of managing human capital. In this article are analyzed the role of education in organization and development of economics in Azerbaijan.*

Key words Education, economic development, Azerbaijan, managing human capital

JEL Codes: I25, N30, D80

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1. Introduction

While researching the relationship between education and the economy, such a question arises. Education pushes economy, or vice versa. The studies show that states are normally ranked according to their economic power. The key to economics is technology; the key to technology is technique. The key to technology is science, and the key to science is in education, i.e. our economy is another form of our education. In other words, the relationship between education and economy is similar to the conventional container law in physics. The first and last ring of this progressive chain is economy with education. Economics and education mean life, whereas high economics and quality education mean prosperous life. Intermediate rings of this chain (technology, science) are also very important. There is a high demand for the product in the modern economy: the product must be non-metallic, not energy-efficient, but with science capacity.

At the beginning of the 90s in the last century Oleg Bogomolov, the well-known Russian academic, said: "Physics has its own laws. When it is not followed, Chernobyl's event happens. Economy also has its own laws, and when it is not followed, bigger tremors occur." Economy of the XXI century relies on science and high technology. So, you need to leverage high technology for progress. Agile technology, unmanned technology is a form of modern technology.

2. Human Development Concept and Education: Its history, theory and methodological aspects

Science and education are one of the key factors that enable each individual to shape their own future, to acquire the necessary knowledge, skills, attitudes and values. In modern times, the sustainable development and education system should be viewed as a unified system, not as a separate issue, because the main means of sustainable development are the most advanced education system in each country.

Future development of social institutions in developed countries depends on qualitative education. For example, one of the Japanese government's annual reports says, "... Japan sees the development of its new technology at a higher level of education and an increase in the intellectual level of the Japanese, the sole wealth of the country. All this is the basis of the Japanese economy's existence and development".

From the historical point of view, there are different ways of organizing the economic system to respond to the above mentioned three aspects of the organization of the economy to improve people's well-being: free market economy, team economy, mixed economy, and modern market-based relationships based on liberal values. These methods and mechanisms of organizing economic activity are based on different economic theories and concepts.

Free market economy is based on classical economic theory. The basis of this theory is microeconomics founded by Adam Smith. It is considered here that the enterprise is the core of the economic system and the state's interference in the

economy is inadmissible. "Invisible hand" ensures the market's effectiveness and contributes organizations improve their overall well-being by pursuing their own interests. However, in the beginning of the twentieth century, or more exactly during the Great Depression of 1927-1933, the classical theory did not respond the fundamental questions of the economy, and the search for a new theory began.

All important decisions about production and distribution in the team economy, which are completely different from the free market economy, are accepted by the state. Theoretical basis of this method of organizing the economic system was Marxism. Here, production and distribution was carried out by the state-approved directive plans. However, the collapse of the former Soviet Union has shown that the team economy is not an effective way of responding to fundamental issues of the economy.

Combined economy means management that combines free market economy and elements of team economy. This method did not exist until 1936 when macroeconomics did not exist. In 1936, John Maynard Keynes published a revolutionary book titled "The General Theory of Employment, Interest and Money" (Smith, 1999) in the United States while searching for a way out from the hardships in England and the USA, which drowned in the storm of "Great Depression", with about 25 percent of the unemployment's labor force. Keynes showed that the state could play an important role in the regulation of the economy. Keynes considered the tax and budget policy as a key to macroeconomic regulation.

Then, in the context of modern market relations, economic theories and concepts have emerged. For example, in the 80's of the twentieth century, the monetarist conception of Milton Friedman became more and more actual when the world was on the verge of inflation. M. Friedmen, in contrast to C.M. Keynes, demonstrated a more prominent role of monetary policy in macroeconomic regulation.

Thus, the evolution of economic life has led to the emergence of new theories and concepts. The Human Development Concept, proposed by the United Nations Development Program, can be specifically mentioned in this regard (Strunk and White, 1979). Several indexes have been created to measure various aspects of human development. Since 1990, the UN has prepared human development reports. Such reports have been prepared for the first time in Azerbaijan since 1995 (Van der Geer *et al.*, 2000).

The Human Development Index is calculated based on three key indices (Strunk and White, 1979).

Education Level Index (ELI)

Medium lifetime Index (MLTI)

Gross Domestic Product Index per capita characterizing Medium lifetime Index (GDPI).

These indices are calculated by the formula:

$$Index = \frac{x_i - x_i^{min}}{x_i^{max} - x_i^{min}} \quad \text{Where, } x_i - \text{i-the actual value of the indicator in the state;} \quad (1)$$

x_i^{max} - the maximum number of indices surveyed in the investigated countries and x_i^{min} - minimum value of those index, relatively. Thus, the indicator with an arbitrary size and unit is inverted into the [0, 1] part with the formula (1). Zero approximation indicates a low level, and the approximation of the unit indicates the upper level.

The Human Development Index (HDI) is calculated as the average ordinary average of the value of the above-mentioned indices.

$$HDI = \frac{TSI + \ddot{O}MI + HN\ddot{U}DMI}{3} \quad (2)$$

As you can see, education plays an important role in the HDI, which is the main indicator of the concept of human development. As in other areas, investments in education (expenditures) should be determined dependent on the need for investment and the return on investment. The researches have shown that there are several difficulties in calculating the effectiveness of education expenditure. The researchers have found that in low-income countries, the cost of secondary and tertiary education is higher than in developed countries. In developed countries, the expenditure on secondary education reaches 9.5% a year, which is a 15.2% annual increase in poorly developed countries. Expenditures for higher education in these countries are 9.4% and 12.3% per annum, respectively.

The efficiency ratio of investments to education is the same as for the calculation of the efficiency ratio of investments to physical capital and is calculated by the following formula (Saulsson and Nordhaus., 1999).

$$E_{TC} = \frac{Q_{TC} \cdot 100}{S_T} \quad (3)$$

Where: ETC – the effectiveness ratio of the investment spent on education present/years;

QTC – the annual amount of revenue generated from the investment spent on education;

ST – the amount of investment in education.

The following calculation is made to determine the return on investment in education:

$$T_q = \frac{100}{E_{TC}} \quad (4)$$

Where, Tq – indicates the return on investment (measured in years).

Referring to the aforementioned figures, we can see that, in countries with high education, the duration of returns to secondary education is about 10 years, while higher education - about 10 years, these indicators are in line with weaker developed countries as 6 years and 8 years.

In calculating the efficiency ratio of the investment spent on education, the value of the investment should be calculated based on the time value of the bank interest and the change in inflation, taking into account the fact that the value of the investment will yield a certain amount of time. This is done with the help of the following formula:

$$S_T = S \cdot \frac{I - \left[\frac{I}{(I + r)^{T_q}} \right]}{r} \quad (5)$$

Where:

ST– Tq the value of the amount of S0;

S0 – Tq the amount of investment in education;

r – Discount rate (difference of inflation rate with nominal bank interest).

It is possible to calculate the amount of income from education at any time with the help of the formula (1), i.e.

$$Q_{TC} = \frac{E_{TC} \cdot S_T}{100} \quad (6)$$

The current state of human development in Azerbaijan and its concept

The dynamics of the HDI and its components for years in Azerbaijan are given in the following table.

Table 1. The dynamics of the HDI and its components (TSİ, OÖMİ, HNÜDMİ) for years in Azerbaijan

Indices	1995	2000	2005	2010	2011	2012	2013	2014	2015
HDI	0.609	0.640	0.655	0.713	0.742	0.745	0.752	0.758	0.759
TSİ	0.618	0.640	0.643	0.646	0.636	0.697	0.642	0.645	0.663
OÖMİ	0.686	0.722	0.714	0.613	0.620	0.636	0.611	0.612	0.613
HNÜDMİ (GDP index)	0.532	0.569	0.573	0.586	0.610	0.620	0.730	0.702	0.702

According to the information in Table 1, the graphic of dynamics of the HDI and its components (TSİ, OÖMİ, HNÜDMİ) for years in Azerbaijan is shown in Figure 1. As shown in the table and figure 1, the value HDI and its components (TSİ, OÖMİ, HNÜDMİ) in Azerbaijan increased gradually. The Education Level Index (TSI) increased from 0.643 in 1995 to 0.645 in 2014 and was 0.663 in 2015. Azerbaijan was ranked 78th out of 188 according to the HDI rating in 2015. Within the framework of the Human Development Concept, there are a number of other indicators that are related to education: gender development index, human poverty index, technological index etc.

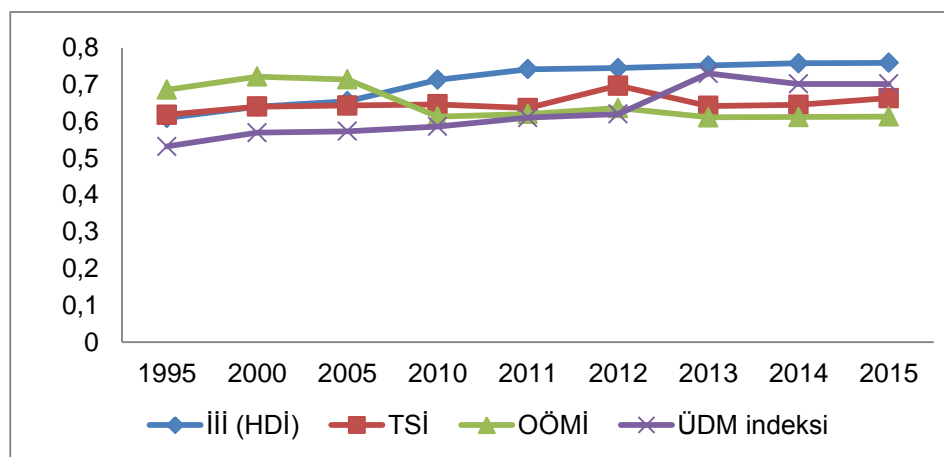


Figure 1. The graphic of dynamics of the HDI and its components (TSİ, OÖMİ, HNÜDMİ) for years in Azerbaijan

We can show the duration of education (secondary education) and the share of students studying in technical specialties in the total number of students enrolled in higher education institutions from the main components of Technology Achievement Index (TAI) established in 2001. There is a strong correlation between the level of schooling and education levels at school. Generally, it is 11.7 years in countries with high human development index, 10.4 years in Azerbaijan, 4.2 years in countries with low human development index.

3. The role of culture in economic development

Until recently, many economists have ignored the role of culture in the development. In most cases it was related to the difficulty of delivering a figurative definition of the concept of "culture". However, many researchers have a strong influence on the development of traditions and customs of the ethnos that characterize the culture, including a serious influence on the groups of population.

Historian and economist David Landes pointed out that the prosperity of the national economy has a direct link with the economy of its citizens, its economy, tolerance, dedication and honesty. Italian economist Guido Tabellini having analyzed the quality of education in 69 European regions concluded that the level of economic development is higher in regions with mutual trust, respect for the law, and personal aspiration for human self-realization¹.

5. Knowledge Economy and Information Society

In the modern era information, technology and knowledge have become the driving force and competitiveness of the world's economies. If more than 50% of Gross Domestic Product in the country falls to ICT, and more than 50% of the country's population is occupied by the ICT sector, they regard the Knowledge Economy as a former country. It should be noted that the share of ICT in GDP in Azerbaijan increased regularly from 1.6% in 2011 to 2% in 2015.

The result of the Azerbaijani economy's study of the FF (Fixed Flexibility) function has shown that there is a lack of skilled staff capable of dealing with the existing fixed assets in the country². Preparation of qualified profits is related to education. Increasing the quality of education contributes to the strong competition in the economy. The three-dimensional spiral model of innovative development states that science and education are the main dimensions of each state and economy. In recent years, the role of informal knowledge (Tacit knowledge) has significantly increased in the economic development. The essence of this effect is that informal knowledge can be traced even if secretive formal education is taught. In other words, according to K. Gödel's incompleteness theorem, there is an unformalized residual in each formalized system.

It should be noted that the UN Conference on "Environment surrounded by Human" held in Stockholm in 1972 highlighted the importance of global information exchange in the development of education, information, social and cultural spheres. (Imanov and Hasanli, 2001).

Whereas, in achieving the "Millennium Development Goals" in the frame of "Millennium Summit", adopted by the UN General Assembly on 8 September 2000, it was considered important for people to acquire new technologies and benefit

¹ AAB Device: an equipment for sky

² KKD Device: an equipment for shipping

from information and communication technologies (ICTs)³. The final document, adopted by the UN with the support of member states at the “Rio + 20 Conference on Sustainable Development” in Rio de Janeiro in 2012 and reflecting ways to achieve Sustainable Development Goals after 2015, contains information, advanced technology, new knowledge and the importance of innovations⁴.

Establishing innovation-based and knowledge-based economy in "Azerbaijan 2020: Viewing the Future" Development Concept adopted in 2012, extending the application of ICT in the state and local self-governing bodies, as well as in the field of information security, the full satisfaction of society's needs for information products and services, strengthening of competitiveness and export-oriented ICT potential, preparation of highly qualified specialists and scientific personnel were considered priority (Hasanli, 2013). It should be noted that Azerbaijan joined the Sustainable Development Goals for 2016-2030 at the United Nations Sustainable Development Summit, which was held on 25-27 September 2015. One of the Sustainable Development Goals is "Quality Education - providing inclusive and quality education for everyone and promoting lifelong learning."

5. Results. Perspective directions of education development

According to the UN Human Development Index estimates, since 1996, the Human Development Index has seen a steady increase in the country. Every year since 1990, in the UNDP's "Human Development Report" has been an indicator reflecting the well-being of the world's population. This index broadly covers the welfare of the population. The Human Development Index incorporates three dimensions of human development:

- long and healthy lifetime (calculated based on average lifetime length);
- education level (it is calculated based on the literacy among adults, as well as the number of those who are studying in elementary, secondary and high schools);
- decent living standards (purchasing power parity/PPP, calculated based on revenue).

However, this index is not a comprehensive, detailed measure of human development. For instance, it does not include gender or income inequality, human rights, and political freedoms. Nevertheless, this index provides a wider impetus for the consideration of interrelated relationships between human development and income. In the previous years, the rankings were divided into three categories, except for 2009 rating system. In the previous system, places from 1 to 63 were taken by the countries where human development is high, from 64 to 146 by countries with moderate, and then lower human development. Countries have been divided into 4 categories since 2009. In the new system, the category "very high" was added as well.

Since 2005, with the United Nations Development Program, the project "Transformation of Black Gold to Human Gold" has been launched. Thus, the project "Using Azerbaijan's Oil Revenues in Transformation of Black Gold to Human Gold", approved by Ilham Aliyev on September 27, 2004, was signed in February 2005 by the Ministry of Economic Development and the United Nations Development Program. The non-oil sector activities through the macroeconomic recommendations on beneficial use of oil revenues through the State Investment Program for sustainable human development within the State Program on Poverty Reduction and Economic Development and the Millennium Development Goals including the development of consultations on how to create the necessary conditions to increase the effectiveness of the project.

For each country there must be political stability to achieve and maintain macroeconomic stability. From this point of view, the speculations on the political stability gained after the national leader Heydar Aliyev's coming to power have been minimized by the fact that Ilham Aliyev came to power and the expectations were justified. Later on, after the implementation of the state incentive policies and programs that will carry availability and attractiveness of economic environment throughout all the country alongside Baku and the transition to Baku-Jeyhan activity, the country shifted to a development stage covering any region and the sector with the oil export revenues that will be obtained.

In the last 20 years of the economy, after the end of the development phase, which can be expressed as a macroeconomic stability, a successful oil strategy, a revival of the lost economic potential, radical economic reforms and reconstruction, the transition period ended in Azerbaijan as President Ilham Aliyev has stated since 2010 and entered a new phase of development. In the modern era, the position of the countries is defined by intellectual potential. Developed countries obtained up to 40% of the GNP growth through the development of an effective educational system. Investments in

³ UN Development Program, Baku, 1999

⁴ Human Development Report in the Republic of Azerbaijan, 1995

development of education are one of the main directions of capital investment. Generally speaking, the investment in education is quicker than the economic viewpoint. According to American scholars, \$ 1 spent on the education system allows earning about \$ 3-6 dollars. Therefore, in essence, it is important to continuously develop the education field that participates in the formation of productive forces of the society, which is part of economic and social development, and which builds upon the human behavior. The literacy rate of the elderly population in Azerbaijan, in particular, indicators such as the number of employees with average and higher education, the number of students per 10,000, the number of teachers and so on prove that our country is still one of the highest levels of literacy. However, social progress opportunities created by different types of education began to decline. There is a discrepancy between the education of young people and the content and character of their labour. Keeping education and talent out of demand led to devaluation of education in young people's minds.

Along with education, there is also a great way of managing human capital. According to the statistics of 2017, the amount of funds allocated for science in Azerbaijan throughout the year was about 130 million manats.

In this regard, the lack of resources allocated to science has a negative impact on the development of human capital, in other words, the training of highly qualified personnel and the capacity of staff in foreign countries.

As a result, it is important to emphasize that the advanced state for modern development is one of the states that achieves maximum progress in all its economic, social and cultural public spheres.

Countries guiding this principle frequently face serious political and economic challenges. But these elements are signs of economic development. The important thing is to choose the right development strategy so as not to stumble in such situations. Based on the existing reality, the selected development strategy, despite any difficulties, is confidently leading to a developed and strong Azerbaijan.

- Increasing anti-monopoly measures and enhancing competition. So, the demand for knowledge in economics and business is growing. This, in turn, stimulates the quality of the study;
- Development of venture business and venture capital;
- Increasing the duration of secondary education.

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