



Economic and Social Development

37th International Scientific Conference on Economic and Social Development – "Socio Economic Problems of Sustainable Development"

Book of Proceedings

Editors: Muslim Ibrahimov, Ana Aleksic, Darko Dukic











Baku, 14-15 February 2019

Varazdin Development and Entrepreneurship Agency in cooperation with Azerbaijan State University of Economics (UNEC) University North Faculty of Management University of Warsaw Faculty of Law, Economics and Social Sciences Sale - Mohammed V University in Rabat

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KNOWLEDGE-BASED ECONOMIC ACTIVITY AND SOCIO-ECONOMIC DEVELOPMENT

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ABSTRACT

The article examines conceptual approaches to providing this activity by defining the importance of knowledge-based activity in innovative development of the economy, evaluates the current situation in this field in Azerbaijan and in the world and defines directions of development based on world experience. The way to public wellfare depends on the good use and continuous development of scientific and technological means. In the article it is shown that advanced technology and human capital create a higher added value and assesses how it affects the development of both already formed and new emerging economic fields. Innovationoriented, efficient and competitive development of the economy first of all necessitates the formation of higher education, science and economy unity. In the article, state expenditures allocated on education in providing knowledge-based economic activity is specially highlighted. Along with this it is also shown that new long-term challenges to the development of human capital in Azerbaijan necessitate the implementation of important measures at financing education. In the world the position of Azerbaijan is determined analyzing the dynamics of costs to R & D expenditures allocated from the General National Product. In the article suggestions for increasing the competitiveness of the "processing industry" and the knowledge economy in Azerbaijan is proposed, in order to achieve new quality of human capital, activities related to qualitative renewal all forms of education system in the country is highlighted.

Keywords: innovation, knowledge, labor costs, socio-economic development

1. INTRODUCTION

The world community has moved to a new stage of development by quality. Significant changes occur in the social paradigm, as the most important factor of production person who carries out the function of knowledgeand hisdevelopmentis the main goal of socio-economic development. If capitalism is focused on earnings and capital accumulation, knowledge-based economics will direct innovations to social welfare. In this regard, to study of global trends in the knowledge – based economy and to consider its application opportunities in providing economic development is relevant.

2. THE MAIN CHARACTERISTICS OF KNOWLEDGE ECONOMY AND ITS SOCIO-ECONOMIC SIGNIFICANCE

To look over the knowledge economy in a narrow and broader sense makes it possible to better understand its essence. In a narrow sense, the knowledge economy is such a field of the national economy, where production, processing and management of knowledge takes place. This concept was presented in the works of J. Schumpeter, F. Hayek and F. Machlup. However, in this period the knowledge economy was not widely spread at that time as a term, because it was only understood in the functional-sectoral aspect (as part of the economy).But in the early 1960s a major social change took place in industrialized countries - the number of qualifiedworkers exceeded the number of industrial workers [2].In the 1990s, the attention of the world community to knowledge-based economy theorywas especially relevant.The World Bank, the European Commission, UNESCO and other organizations have begun publishing reports and lectures in connection with this concept.

Many developed countries (US, Japan, Western European countries) have started to identify the information economy as a way for future socio-economic development. Thus, in a broader sense, knowledge-based economy began to be accepted as a type of economy rather than a field. The basis of the formation of knowledge economy includes in three areas of society: research, innovation, education-training. These factors form human capital, information and computer Technologies [11]. At the same time, knowledge is also regarded as a source that is the cause of critical situations and the dangerous changes in the social structure. At present, there is a need to re-evaluate the traditional role of science, the approximation of science and practice. From the 17th to the middle of the 20th century, we can observe the exceptional superiority of science, and the practice realizing new discoveries in social production (material and spiritual production) accompanied science. But with the invention of the laser (1956), this tendency began to change. Now science is focused on the technologicallydevelopment of practice, and attention of scientists focus on technology development. Instead of a scientifictechnical revolution, a technological revolution exists. In other words, science has begun to serve the practice. This tendency proves that production activity using traditional factors of production and based on previous economic relations does not generate profit. The existing institutions need to be transformed according to the needs of the modern economy. Already the production of scientific knowledge is now developing as a modern, competitive entrepreneurial activity, and the number of enterprises operating on the basis of universities or interacting with them is increasing, and knowledge centers, technology transfer and research centers have begun to play an important role in the modern economy and added value of developed countries. Knowledge economy is a specific form of economic relations, when maximum efficiency is achieved through the integration of science, industry and education components. In modern conditions, knowledge, education, cognitive technologies and intellectual capital are the basis of ensuring the competitiveness of economic systems on any scale, from private economic entities to international integration institutions, from small enterprises to global corporations. Friedrich List, one of the first economists who systematically approaches the problems of the backward countries from point of view of development, emphasizes the importance of the knowledge economy as: "The present state of the people is the result of the discoveries, inventions, research and development of our ancestors. They created the intellectual capital of today's human race. And today, each individual nation can be productive in proportion to the previous generations of their own, as well as withtheir own efforts, and only in these circumstances." The vast majority of scientists [5, 6, 7, 9, 13, 16] envision the type of economy under the term "knowledge economy" (the highest stage of the development of post-industrial economy and innovative economy), which intellectual capital is substantially dominant, and they describe the production of knowledge as a source of growth and development of the economy at macro and micro level. In this connection, it is necessary to clarify the concept of "postindustrialism". If we look over D. Bellin's definition of postindustrialism, we are witnessing how knowledge-based economy plays a role in socio-economic development: "The post-industrial society is a society focused on the priorities in the economy priorities from good production to service production, conducting researches, organization of education systemand improving the quality of life based on it; In this society, technical specialists class turns into a major profession group and groups that create more value more value-based in society, and most importantly, the application of innovations ... has gradually become dependent on the achievements of theoretical knowledge ..." [19]. The key factor for activation of innovative activity and creation and formation of the post-industrial economy is human capital. The feature of investments in human capital is that increasing the knowledge and experience of individuals helps increase in capital productivity. Human capital plays a leading role in the competitive advantage, and almost it is crucial that human resources analysis and evaluation are an essential

condition for successful activity of each organization. Ensuring competitive advantage is not possible without investing in human resources.

		uman Development Index 2017.)
	COUNTRIES ACCORDING HUMAN DEVE	
PLACE	COUNTRY	POINT
1	Norway	0.953
2	Switzerland	0.944
3	Australia	0.939
4	Ireland	0.938
5	Germany	0. 935
6	Iceland	0. 933
7	Hon-Kong (China)	0. 933
8	Sweden	0.933
9	Singapore	0.932
10	The Netherlands	0. 931
PLACE	NTRIES AND REGIONAL COUNTRIES AC INDEX COUNTRY	POINT
49	COUNTRI	
	Russia	
53	Russia Belarus	0. 816
53 58	Belarus	0. 816 0. 808
58	Belarus Kazakhstan	0. 816 0. 808 0.800
58 60	Belarus Kazakhstan Iran	0.816 0.808 0.800 0.798
58 60 64	Belarus Kazakhstan Iran Turkey	0. 816 0. 808 0.800 0.798 0. 791
58 60	Belarus Kazakhstan Iran Turkey Georgia	0.816 0.808 0.800 0.798
58 60 64 70	Belarus Kazakhstan Iran Turkey	0. 816 0. 808 0.800 0.798 0. 791 0. 780
58 60 64 70 80	Belarus Kazakhstan Iran Turkey Georgia Azerbaijan	0.816 0.808 0.800 0.798 0.791 0.780 0.757
58 60 64 70 80 83	BelarusKazakhstanIranTurkeyGeorgiaAzerbaijanArmenia	0.816 0.808 0.800 0.798 0.791 0.780 0.757 0.755
58 60 64 70 80 83 88	BelarusKazakhstanIranTurkeyGeorgiaAzerbaijanArmeniaUkraine	0. 816 0. 808 0.800 0.798 0. 791 0. 780 0. 757 0.755 0. 751
58 60 64 70 80 83 88 105	BelarusKazakhstanIranTurkeyGeorgiaAzerbaijanArmeniaUkraineUzbekistan	0.816 0.808 0.800 0.798 0.791 0.780 0.757 0.755 0.751 0.710

Table 1: Human development index around the world (United Nations Development Programme: Human Development Index 2017.)

As can be seen in Table 3, European countries have the highest value of human development index, approximately average equal to 0.94. Then comes the US and Canada, and the average is 0.91. When it comes to CIS Slavic countries, Russia and Belarus are ahead here. In our country, this index is 0.757 and is behind Russia, Belarus and Kazakhstan in CIS space. Comparison of human potential development index with the production of Gross Domestic Product per capita is also especially important. The United States and Canada are the leading countries with the highest per capita GDP - per capita is 35,470 USD per year. Despite this, In Scandinavian countries, this is relatively low level -32,649. USD [21].Despite this, these countries are superior to the United States and Canada because of their human development index. Apparently, there is no direct dependence between the human development index and GDP per capita production, but high per capita GDP can lead to a high level of human development. Except USA and Canada, in the experience of other countries, we can more clearly observe this dependence. Evidence about direct relations between human development indexes and GDP per capitaemerges as a result of the analysis of other countries on the table. However, this discrepancy also comes out in the informations of Luxembourg and Austria which are the Western European countries. So that, Luxembourg (like the Vatican) is a special state with special production, social and political characteristics, and budget expenditures are

not spent for military needs [1, p.37]. At the same time, we see a similar view in Austria, which has drawn attention to its neutrality since the end of the Second World War. That is, these countries can save a great deal of money to spend on GDP, but their human development index is lower than other Western European countries. It is possible to conclude thatensuring human development is closely linked to how much space is allocated to this issue in the economic policy of the state. If we summarize all these, it can be concluded that the development of human capital leads to the deepening of the international division of labor. Countries with high human development index have been successful to form a more competitive economy in modern times by specializing in the production of brain – capacitive product. Practice shows that developed countries prefer to the scientific knowledge focused on the creation and application of new technologies serving the development of the economy, the organization of new production processes, the application of stimulating measures. Because innovation is the key decisive factor of economic development and, by its application, in the economy and at the same time in the science sector serious changes - improving technological processes, realizing the results of scientific researches, etc. occurs. The analysis of the World Bank's indicators determined in 192 countriesshows that in the share of total value the share of human, physical and natural capital is respectively64%, 16% and 20%. In Germany, Sweden and Japan, the share of human capital in national wealth is about 80% [p. 18,139]. In post-soviet countries with transition economy, more natural capital (capital obtained from raw material sales) prevails. For example, the adequate index of human capital in Russia is 14% and natural capital index is 70%. Contrary to all developed countries of the world and the West, human capital plays a major role in the formation of national wealth, and natural capital does not have a significant share. In this regard, the characteristic feature of post-industrial economyis high labor productivity, high quality of life, state support for innovation and education [p. 3 121-122].Intellectual development, the activation of creative abilities in the post-industrial society play an important role in the value system. Increasing the share of qualified employees, accordingly, will lead to the improvement of the innovation environment. In addition, the development of knowledgeintensive activities in the economy create condition to get more revenue with relatively little investment on innovative ideas and highly qualified workers. It should be noted that labor savings in production and other spheres are already dependent on labor costs in their own sphere of science. This dependency stipulates an objective requirement to the formation of publicnecessary expenditures in the sphere of science. How long the stronger the conformity of law of labor savings functions, then a greater part of public labor and resources should be focused on the development of science. This means that the value of scientific knowledge is increasinglyrising. The theoretical basis of tendencies of increasement of scientific potential of product production, creation and development of agriculture fields namely consists of it. The same theoretical basis should be taken into consideration when developing a scientific-technical and innovation policyat different levels of management. As a result of scientific-technological progress, innovation and modernization over the past 30-40 years, education that is not enriched with practical knowledge and skills, bearing purely theoretical character is losing its fundamental significance. In this regard, in the formation of education contentalong with academic knowledge, the importance of practical knowledge and skills and competenceis highlighted. Competence is a ability to apply obtained knowledge and skills effectively and rationally in practical activity. It ensures transforming the knowledge and skills gained by the person into the result of concrete activities. Competency-based education serves to socioeconomic developmentmore effectively. The stage of modernization of the economy does not fulfill its mission if the potential forces of the population are not involved in creativity. This can only be achieved as a whole by focusing on the country's perceived reform requirements. The emergence of new innovative components of economic development and the formation of transitional mechanisms are characteristic in the condition of integrated and modernized

processes for the modern conditionin the economy. Increasing attention to the knowledge is the distinctive feature of innovative development, they show themselves more in the form of a competitive tool of competitiveness. In this connection, the problem of rational use of incentives and conditions, intellectual capital (accumulated human knowledge) is conformity to law and relevant for a substantial expansion of the demand for new technologies. According to international analytical studies, now knowledge is necessary for both developed and developing countries [14]. For a positive solution of the problem under these conditions, the innovation economy should be considered as an economy related to the formation, realization and development of the innovation potential of the real sector. In the explained aspect of the economy, innovation state can be imagined as a combination of innovation potential, innovation structure and innovation security. In its turn, the innovation potential – is such a system of restrictionsfor the establishment of a new economy, its structure also includes the followings [14]:

- cadre potential (here the number of staff dealing with researches, admission to the dissertation defense, number of students per 10000 people); industrial potential (depreciation rate of fixed assets);
- investment potential (index of investments into fixed capital, specific weight of the harmful enterprises, loans given to legal entities by credit organizations, consumer value index, internal expenses spent to research and developments).

3. KNOWLEDGE – BASED ECONOMY DEVELOPMENT ISSUES IN AZERBAIJAN

The efficiency and potential of research institutions in the development of a knowledge-based economy are extremely important. Analysis of the main indicators of science in Azerbaijan shows that there is almost no increase in the number of organizations fulfilling research and developments. In 2017, the number of enterprises providing such services was 137. There was also a decrease in the amount of value created by organizations engaged in research and developments, in 2012, it decreased from 128 million to 115 million manat. Taking into account that the number of staff engaged in research and development in such institutions is 1.3 times more than in 2000, and the number of doctors of sciences has increased by more than 2 times, this indicator can not be considered so positive. It has several reasons. In world practicemore attention is given to the implementation of research and developments in the private sector, and this is considered more effective and rational. In our country, the number of entrepreneurship subjects engaged in research and developments in the private sector has decreased to 9 in 2017 from 19 in 2001. In this direction, it make necessary the implementation of stimulation measures of entrepreneurship subjects and taking steps related applying certain concessions for them.Only the number of educational institutions has increased from 25 to 39, which can be considered a positive trend.

Tuble 2. Main indicators of science [17]					
	2000	2010	2015	2016	2017
Number of organizations fulfillingresearch	137	145	141	135	137
and developments					
Number of staff engaged in research and	15809	17924	23093	22527	20580
developments, numeral					
From them: doctors of sciences	678	843	1534	1476	1414
including women, numeral	83	133	251	288	292
Doctors of sciences	3343	3554	6532	6296	6243
including women, numeral	1170	1406	3063	2935	2970

Table 2: Main indicators of science [17]

Science expenditures also have a certain impact on the decreasing of the value created by enterprises engaged in research and developments.

Of course, the expenditures on science from the state budget have been increasing over the recent years. If in 2005 expendituresspent on science made 28.8 million manats, in 2017, science expenditures have increased as a whole 4 times by the public sector, private sector, and higher education institutions. However, the ratio of expendituresspent on science to GDP is more than 15 years, 0.2%, which is lower than the world indicator. Also, in proportion to the state budget expenditures, science expenditures decrease by 2 times in comparison with 2000.

	2000	2005	2010	2015	2016	2017
Expenditures spent on science from the state						
budget, million manats	9,3	28,8	92,8	113,2	110,2	109,8
in proportion to Gross Domestic Product, with						
percent	0,2	0,2	0,2	0,2	0,2	0,2
in proportion to state budget expenditures, with						
percent	1,2	1,3	0,8	0,6	0,6	0,6

Table 3: Expenditures spent on the science from the state budget. [17]

When looking at the current domestic expenditures spent on research and developmentson the fields, more financial resources have been allocated for design and construction works in technical sciences. And on natural sciences, the funds allocated for fundamental researches have been more than other fields. The entrepreneurship sector has allocated more on research and developments in the field of agriculture, which indicates that this field is a priority in the private sector.

	Total	natural sciences	technical sciences	medical sciences	agricultural sciences	social sciences	humanitarian sciences
to fundamental researches	68841,9	27787,6	11 278,8	6 551,0	5 059,1	5 884,6	12280,8
to applied researches	24157,0	2 745,6	11 066,6	2 308,1	4 413,4	3 155,9	467,4
to project- constructor and technological works	26493,3	-	25 430,9	-	-	1 062,4	-
to the preparation of trial samples, sets, wares	8 389,4	-	8 389,4	-	-	-	-
to project works for construction	115,4	-	115,4	-	-	-	-

Table 4: Current domestic expenditures spent on research and developments on the fields of science, types of works and sectors in 2017.[17].

Taking into consideration the importance of technoparks in research and developments in the world practice, as well as the country's industrial potential, provision of financial resources is of particular importance y identifying priority fields, before by the stimulation of state support in this field, in subsequent stages by the stimulation of entrepreneurship subjects.

In order to create innovative ideas, the state should first of all create scientific-research centers, provide material-technical base, provide access to international information networks, and establish close relations with internal universities and research institutes in order to strengthen the centers' activities [p 4.95]. Most importantly, these centers should be open to all persons and free of use. In international practice, the state receives opinions of enterprises, physical entities with innovative ideas for a certain amount of payment, and offers entrepreneurs for free in return for the implementation of production. Of course, the material payment offered to the idea owners or organizations should bear motivating characterto future studies. Entrepreneurs should transfer these ideas into prototypes in the case of collaboration with the idea owners if needed, or investing to the application y starting the production of innovations should put on the market. In this case, it is possible to maintain the existence of knowledge-based, competitive product production in the economy, and the continued existence of innovative trends. In order to form an innovative economy in the country, it is necessary to encourage the expansion of contacts and cooperation between knowledge producers, knowledge transfer agents andknowledge users. Science fields play an important role in creating new knowledge as knowledge treasures, transforming knowledge into new technology and finding areas of application. In the modern era, collaboration between scientific institutions-industry-state has become the most important necessity for technology and knowledge development. The strategic objective of the modern development of the republic is to achieve the highest rate of economic growth through the creation of different competition and sustainable foreign economic factors. The necessity of transition from the industry to the post-industrial system and economy, as well as elimination of strong spatial differences in the differentiation of socio-economic development of the country, are the principal features of the solution of the tasks facing the country.Formation of adequate conditions for modernization of the country economy, liberalization of foreign economic relations, increasing the effect of production factors, stimulation of innovative development of economy, modern solution of contradictions resulting from structural changesis a necessary condition for this growth [8]. State support measures should be implemented and the relevant legislative base should be improved in order to stimulatie competitive productionby increasing innovation activity, establishing the necessary mechanisms for the implementation of innovation activities, to ensure the efficient use and development of innovation potential.

4. CONSLUSION

Thus, the knowledge economy has become a key determinant of the competitiveness, socioeconomic development in a developed world. It is important to build knowledge-based economic relations, taking into account our country's ability to respond to global economic challenges and to actively integrating into the global economic system. Expansion of innovation activities should be one of the main priorities in order to ensure long-term sustainable economic development, to formulate "knowledge economy", to accelerate creation of science potential technology, product (works, services). The relations between science and production should be strengthened in order to create a dynamic economy in the country, and necessary mechanisms should be created for the implementation of applied scientific research according tomarket requirements. Information and communication technologies have a decisive role in the more effective development of science in the innovative course. In our opinion, the main objectives of the state policy in direction should include:

- creating economic and legal conditions for innovation activities;
- increasing the efficiency of production and competitiveness of products produced by domestic producers by creating and expanding innovations;
- development of entrepreneurship in the innovation sphere;
- finding ways to use the state resources efficiently related innovation activity development.

These features determine the most important character of economic growth. Firstly, it should be long-term and sustainable, secondly, should be differ with high quality, the third should be equally proportional on the entire territory, fourthly, should be competitive, and fifth should be oriented towards improving the level of life of the entire population. To achieve this goal, the implementation of the following objectives should be envisaged:

- investigating the current state of the industry as well as its scientific potential;
- to show the main directions and necessity of formation of the national innovation system;
- identifying priorities and factors for sustainable economic development of the industry.

The current scientific and economic potential of Azerbaijan allows that the each task to be successfully implemented in the direction of the knowledge economy has an active position in the creation of added value in the country.

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