

FINANCING OF HUMAN CAPITAL AS A FACTOR OF DEVELOPMENT OF INNOVATION ECONOMY OF THE REPUBLIC OF KAZAKHSTAN

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Problem statement. Basic conditions for the free development of the market economy are created today in Kazakhstan. Kazakhstan's economy has become one of the rapidly developing in the world. Economic growth of Kazakhstan is essentially related to the development of the extractive industries. Other sectors including financial, manufacturing, agriculture, construction, transport and communications are developing over the last years. However Kazakhstan's economy is mostly developing extensively and enterprises of Kazakhstan are indicative of a high level of energy costs and low productivity. Kazakhstan has now entered into the phase of industrial economy development. However in a global economy the country faces the challenge of development of new, competitive industries, production of which will be in demand in foreign markets. This cannot be achieved without the development of innovations and new technologies, without transition to a post-industrial society, which aims to boost productivity growth and efficiency in all areas of human activity. In this connection, Kazakhstan's key competitive advantage in the global market must be highly qualified mobile human capital, capable to ensure the development and implementation of innovations and new technologies in production. However human capital development cannot happen without investment of financial resources of the state. According to international experts, 1 dollar invested in preschool education, gives a profit of 7 dollars, which is twice the return on investment in secondary education and 4 times higher than the vocational education.

Keywords: human capital, innovation economy, republic of Kazakhstan

Meanwhile education in Kazakhstan continues to be regarded as a social sphere, where investment policy takes place only in connection with a solution to this or another problem (construction of schools, hospitals, etc.). But the approach to education as a principal factor in the formation of human capital, which in turn becomes a crucial economic resource for development requires a serious revision of investment policy of the country in this field. Solution of tasks of Kazakh society announced by the President of the country in the strategy «Kazakhstan-2050» are directly and immediately linked to education, human capital, investment in this area.

Analysis of recent studies and publications

Unfortunately the problem of financing of human capital are poorly studied in the economics literature.

The term «human capital» first appeared in the 1980's, in the works of Nobel Prize winners T. Schultz and G. Becker. The concept of human capital in the modern form has been influenced by the works of such eminent economists as G. Becker, T. Schultz, B. Weisbrod (Washington University), J. Mintzer (Columbian University), L. Thurow (Massachusetts Institute of Technology), W. Bowen, M. Fisher, J. Vejsi (Cambridge and Oxford Universities), M. Blaug, S. Bowles, E. Ben-Porat, M. Woodhall, E. Denison, S. Daisy, J. Kendrick, B. Kicker, R. Layard, F. Mahlup [1].

Significant contribution to the study of innovation was made by N.D. Kondratyev, who along with I. Shumpeter is considered to be the founder of the theory of technological modes, also S.Y. Glazyev, G.G. Malinetskiy, D.S. Lvov, V.Y. Dementyev, B.N. Kuzyk,

V.I. Mayewski, G.I. Mikerin, R.M. Nizhegorodtsev, S.Y. Rumyantseva.

Innovative development is a type of development that is the result of intellectual activity, characterized by introduction of achievements of science and technology into production and in all other areas of human activity and leads eventually to economy growth by means of new products emerging on the market, improving existing technologies, efficient use of resources.

Rethinking the role of human capital as the main factor in the development of society, economy and nation as a whole, leads to the formation of a new ideology and strategy of development of the economic system that best fits into the process of formation and development of the new economy, knowledge economy, innovation, determining knowledge and intelligence that become major resource of society development [2].

The greatest value is not only the volume of accumulated human capital, but also the ability to obtain quickly if necessary the required knowledge in a specific situation that is in harmony with the tendency of continuous education and acquisition of new knowledge [3].

Innovation economics (economics of knowledge, intellectual economics) – is the type of economics based on innovation flow, constant technological improvement, production and export of high-tech products with a high added value and technologies themselves. From the definition it becomes clear that the main factors of creating an effective innovation economy are a systematic approach in the implementation process and a dominant role of human capital [4].

Man is the source of innovative ideas, the bearer of knowledge, allowing to ensure a firm

or a state such competitive advantages that can surpass the efficiency of material factors. It's no coincidence that education as one of the elements of human capital is a fundamental factor in development of innovative economy.

At present the country's competitiveness is defined not so much by tangible assets, but by qualification of people, in other words, human capital as well as the sources of its formation and results of use. Therefore, the new factors of economic growth include:

- the quality of human capital in the economy;
- quantity of investment in education and healthcare;
- the degree of development of fundamental and applied research;
- information support of economy;
- level of education in the country;
- the level of scientific and technological progress in the country.

Awareness of these facts is especially important for Kazakhstan where economy growth occurs mainly in extensive way, through involvement of additional raw material resources. However to ensure stable and intense development of Kazakhstan's economy, it is necessary to shift to knowledge-based industries, create favorable conditions for scientific and technical progress, emergence of innovative products on the market and development of new modern methods of production. All this is impossible without the involvement of highly qualified human capital, which will contribute to innovation development [5].

The main objectives of the study are the analysis of financing human capital in Kazakhstan as a factor of development of innovative economy of the county and drawing up recommendations for its improvement.

The main results of the study

In the period of globalization quality and potential of human resources become one of the fundamental criteria for the competitiveness of the state. Whereas the quality of human resources depends directly on the level of education system development in the country. Kazakhstan today is giving priority attention to this issue.

The country adopted a State Program for the Development of Education of the Republic of Kazakhstan for YY 2011–2020 and the Program for the Development of Innovation and Promoting Technological Modernization in the Republic of Kazakhstan for YY2010–2014. Successful implementation of these programs and building the foundations for «knowledge economy» can be determined by an index of knowledge economy in 2015 and 2020, i.e. the special methodology developed by the World Bank in 2004. This methodology includes a set

of 109 structural quality indicators combined into four main groups.

The first is the index of economic and institutional regime. This is the index that evaluates the conditions of development of economy and society as a whole, economic and legal environment, business development, society's ability to create new knowledge. Second – education index, i.e. population education level and its sustainable skills to create, disseminate and use knowledge. The third group – innovation index is the level of development of the national innovation system. The fourth is an index of information and communication technologies, evaluating the level of development of information and communication infrastructure, which facilitates the dissemination and processing of information.

This methodology offers two combined indexes: The Knowledge Economy Index (KEI), which characterizes the country's level of development towards a knowledge economy and The Knowledge Index (KI), which assesses a country's capacity to create, adopt and disseminate the knowledge. According to this index, the highest position is held by Denmark and Sweden. The United States occupied the sixth place ranking, Japan holds the fourteenth place.

Kazakhstan has not yet succeeded in innovative construction and is ranked 83 out of a possible 141 in the rating of innovative states, beating in CIS only Azerbaijan (89), Kyrgyzstan (109) and Uzbekistan (127) [6, p. 21].

Knowledge to the greater extend is put in the forefront when generating competitive advantage of a country. The comparative advantages of countries are now less determined by the wealth of natural resources or cheap labor and more by technological innovation and competitive application of knowledge or both in combination. The future belongs to countries that are the most productive in use of information, knowledge and innovative technologies.

Education is a crucial component of human capital. Knowledge possessed by a man characterizes individual's ability to growth and development. Capacity for building human capital depend also on the effective work of the healthcare system, ensuring equal access to a high quality healthcare diversity.

Our analysis of dynamics of social expenditures of the State budget of the Republic of Kazakhstan for YY2007-2011 (Table 1) showed positive trends in social sphere financing.

First, social expenditures of the State have grown at a faster rate than GDP. In particular, over the past five years, the growth rate of social spending increased more than twofold, reaching 213,7% and exceeded GDP growth by 1,2% (212,5%), which is an evidence of priority ranking of social sphere in Kazakhstan.

Table 1

Social Expenditures of the State budget of the Republic of Kazakhstan for YY 2007-2011*(bln KZT)

Item	2007	2008	2009	2010	2011	2011 in % to 2007
Education Spending	455,4	572,4	660,9	755,3	986,8	216,6
In percentage to GDP	3,54	3,57	3,89	3,46	3,61	+0,07
Healthcare Spending	299,4	363,2	450,9	551,3	626,3	209,2
In percentage to GDP	2,33	2,26	2,65	2,53	2,29	-0,04
Social welfare and social care spending	502,4	622,0	758,3	905,3	1 133,6	225,6
In percentage to GDP	3,91	3,87	4,46	4,15	4,15	+0,24
Culture, Sport, Tourism and Information Space	122,2	163,9	173,6	227,6	201,6	165,0
In percentage to GDP	0,95	1,02	1,02	1,04	0,74	-0,21
Total Social Spending	1 379,4	1 721,5	2 043,7	2 439,5	2 948,3	213,7
In percentage to GDP	10,7	10,7	12,0	11,2	10,79	+0,5
GDP	12 849,8	16 052,9	17 007,6	21 815,5	27 300,6	212,5
GDP per capita (USD)	6 771,6	8 513,5	7 164,8	9 070,0	10 843,3	160,1
Average pension benefits (inclusive of base payment) (tenge)	13823	18470	22853	27531	35727	258,5

Note: * – compiled by the author based on several years' data of the RoK Ministry of Finance and RoK Statistics Agency.

It is encouraging to note that over the last years the budget expense on education in Kazakhstan rapidly increased – 216,6%, healthcare – 209,2%, social welfare and social aid – 225,6%.

Secondly, over the past five years there has been a trend of State budget social expenditures growth in percentage to GDP. Thus state social expenditures to GDP have slightly increased from 10,7% in 2007 to 10,79% in 2011, including education – from 3,54% in 2007 to 3,61% in 2011, social welfare and social aid from 3,91 to 4,31%. The Government is doing a lot for development of education and healthcare, State programs for development of these industries have been adopted, their material and technical base is upgrading, salaries of teachers and doctors are increasing, budget expenditures for development of education and healthcare are increasing. All of this undoubtedly contributes to further development and improvement of human capital quality.

This is a very important strategic task as Main Indicators currently determining the rating of States are life expectancy, GDP per capita (purchasing power parity) and literacy. All these parameters are increasing over the last years in Kazakhstan. For example, life expectancy in 2012 in Kazakhstan rose to 70 years [7, p. 2].

The country's GDP per capita for 20 years has increased more than 15 times: from less than 700 dollars in 1991 to 11 000 dollars in

2011, equaling to performance of a number of States of Central and Eastern Europe [7, p. 12] and in 2012 it exceeded 12 000 USD, literacy of the population is rising [8, p. 2]. State ranking also takes into account such factors as human freedom, dignity and opportunity to participate in public life.

In spite of significant absolute growth of state social spending in the amount of 1,6 trillion tenge over the analyzed period (more than twice), social spending in Kazakhstan (education, healthcare, social welfare, social aid, culture, sport, tourism and information space) are still inadequate as a percentage to GDP and amounted to 10,79% in 2011 to GDP. Unfortunately this figure falls behind 2–3 times from the world average index. The level of expenditures to social sphere in countries such as Netherlands, Sweden, Denmark, Germany, France, Italy amounts to 26–35% of GDP.

The Dakar Forum called Governments of all countries to ensure appropriation of not less than 6% of GDP for education needs. Kazakhstan has not reached this target yet, although the volume of spending for education from the State budget over the past twelve years according to the Ministry of Finance of the Republic of Kazakhstan increased by nearly 12 times – from 85,4 billion tenge in 2000 to 986,8 billion tenge in 2011 and in 2012 – exceeded 1 trillion tenge.

Task to bring the level of funding for education from the State budget to 5% of GDP

of the country in 2009 was set back in 2007 RPP «Otan» program directives. However this level has not been achieved as a result of the negative impact of the global financial and economic crisis in August 2007 and in virtue of continuing adverse external factors caused by instability in the world economy, the eurozone debt crisis and social tension created in this respect in the world community. Now Eurozone countries have to cut their social spending in order to reduce state budget deficits and pay off their debts.

All of these factors have certainly an influence to other countries to develop more cautious and balanced policy on increasing government spending and budget deficits in order to prevent in the long term the onset of the debt crisis.

The Republic of Kazakhstan is no exception, therefore state expenditures on education in relation to GDP in the last 5 years remain within 3,5–3,6% to GDP (Table 1).

It is to be recalled that in 1990 Kazakhstan's expenditures on education reached 8,2% from GDP, in 1995 – 4,5% in 2003 – 3,3%, in 2004 – 3,5%, in 2007– 3,54%, in 2010 – 3,46%, in 2011 – 3,61%.

Currently nearly 80% of education budget of all levels is spent on wages. The funding of such items as maintenance of schools, purchase of training equipment and materials, complete overhaul, replacement of school buildings that are beyond repair and new construction is still insufficient. As a result 2% of schools are forced to study in two or three shifts.

As the world and domestic practices show, inadequate financing and low status of teachers in society contribute to poor-quality education. The average monthly wage in Kazakhstan in the education sector in 2011 reached 59,2 thousand tenge or 65.8% compared to the average wage in the republic in the amount of 89,9 thousand tenge [9, p. 82, 83].

The appropriation from the republican budget per student in 2000 accounted for 31,7 thousand tenge, in 2004 – 119 thousand tenge (880 USD), currently – an average of 1500 USD up to 2000 USD.

In Europe training costs per student are 10–15 thousand USD. Harvard University (USA) education per student costs the State 28–30 thousand USD. As we can see, Kazakhstan still lags significantly behind developed countries in this regard.

With regards to the financing of healthcare, there was a similar requirement of RPP «Otan» to bring the level of funding for healthcare costs in Kazakhstan by 2009 up to 4% of GDP, unfortunately it has not been fulfilled yet. Over the past five years, this rate varies between 2,33–2,65% to GDP. No

doubt it did not happen because of the world financial and economic crisis, which has had a negative impact on development of national economy, as the Government budget had to rescue the banking system of the country in the first place, which has been burdened by external debts. For banks to continue lending to the real sector of economy, the State budget allocated substantial sums to support the construction industry, small and medium enterprises, agricultural sector and other industries. Such state financial support from the National Fund and the State budget of the country during the years of the crisis amounted to about 10% of GDP.

Despite these difficulties, over the past 20 years healthcare funding in Kazakhstan has increased in absolute terms more than 10 times, allowing its system development in all directions. Only in 2005–2010 within the State Programme for Reforming and Development of Healthcare, the sector has received significant financial resources. Funding has increased over the years by 4,3 times – up to 566,9 billion tenge (3,8 billion dollars), which allowed to strengthen the material and technical base of medicine and to build about 500 new healthcare facilities. Healthcare spending is not just a budget cost, it is an investment that generates economic returns.

According to the Ministry of Healthcare of the Republic of Kazakhstan over the last 5 years mortality from cardiovascular diseases has dropped by a quarter and deaths from cancer for the last 6 years – by 18% from traumas by 26%. 40 new TB hospitals were commissioned, as a result starting from 2004 the death rate from tuberculosis has dropped 2 times [10, p. 3].

A necessary condition of the innovation economy establishment is modernization of education system, becoming one of the most fundamental conditions for dynamic economic growth and social development of society, welfare and security of the country.

Main directions in education in the medium term will focus on the implementation of strategic objectives set in the State Program for Development of Education of the Republic of Kazakhstan for YY2011-2020 and «Balapan» Program for YY2010-2014 (Table 2).

At the present stage education and training have a key role to play in enhancing the competitiveness of Kazakhstan's economy because they are an important tool, which can improve the quality and organization of labor, its productivity, incomes of citizens, promote the integration in world labor market, it is therefore very important to accord high priority to adequate financing and effective use of budget funds foreseen for education.

Table 2

Forecast for Priority Social Expenditures of the Republican Budget for YY 2012-2014 *(bln.tenge)

Item	2012 **	2013	2014
Republican budget costs – total:	6016,5	5504,8	5884,1
Social payments	1128,4	1246,8	1362,6
Education Development State Program, out of which:	84,4	86,8	103,7
Introduction of o-learning system in secondary education and technical vocational institutions	15,9	19,4	29,6
Improving the system of remuneration of teaching staff	17,3	28,1	43,1
«Balapan» program	25,9	23,5	22,7
Education facilities construction (budget investment projects)	46,6	29,9	25,5
Introduction of 3-tier system of staff development at AEO «Nazarbayev Intellectual Schools»	11,2	33,5	36,2
JSC Holding «Kasipkor»	12,9	0,4	0,4
«Bolashak» Program	16,9	16,9	16,4
Expenses of AEO «Nazarbayev University»	56,4	47,6	41,6
State Program of Healthcare Development «Salamatty Kazakhstan»	63,7	73,6	75,6
Healthcare facilities construction	32,4	36,6	21,2
Fitting out local healthcare institutions	10,5	4,6	4,6
Employment Program 2020	62,4	71,6	71,9
Modernization Program for housing and public utilities	24,7	37,6	32,7
Housing construction program	121,9	52,3	40,0
«Ak Bulak» Program	96,3	67,7	73,5
«Accessible Housing-2020» Program	38,0		

Notes: * – compiled by the author based on data of the RoK Ministry of Finance;
** – forecast amended in February 2012.

Policy documents of the Government of the Republic of Kazakhstan and the Message to People of Kazakhstan from January 27, 2012 indicate the main directions for education modernization: updated content of vocational and technical education, providing a new level of university education and research, preparation of master's and doctoral PhD, forming a new innovative model of higher education institution based on market demands at Nazarbayev university.

The goal was set to make a full transition to 12-year model of learning by 2020. For this at least 200 schools will be built by 2015 at the cost of Republican budget and the same number at the cost of local budgets. By 2015, 50% of education institutions will use electronic learning and by 2020 the number will increase to 90%.

By 2020 the proportion of Higher Education Institutions that passed an independent national accreditation by international standards will reach 30%. There would be an increase up to 5% among Higher Education Institutions engaged in innovation activities and implementing research results into production. At

least two higher education institutions will be noted in the ranking of the world's best universities.

Moreover there was a task according to which the industry of Kazakhstan will work with scientific institutions with regards to necessary requests from industrialists and they will work together on a specific result. Research and development of scientists are there to be in demand in production and really work for the economy and make an impact. In this regard the new law of the Republic of Kazakhstan «On Science» was adopted in 2011, it envisages a new model for domestic science management. National Research Councils have already been formed, they take the final decisions on the implementation of research projects.

A National Center of State scientific and technical expertise has been established. Both local and foreign scientists are engaged at all levels of decision-making on financing of scientific researches. Funding of science is certainly a very important aspect for its development. It is encouraging to note that the funds allocated from the State budget for science are increasing and will continue to do so. For example, in

2010 total funding of science was 24,2 billion, in 2012 it increased more than twice and exceeded 54,5 billion tenge [11, p. 2].

Implementation of tasks set forth in the Message will bring Kazakh education and science to the level of advanced international standards, capable to meet the needs of economic and social modernization.

However the analysis showed that the proportion of total expenditures of RoK State budget as a percentage to GDP is decreasing over the last years, which indicates a decrease in the ability of the State to significantly increase the funding for human capital development. For instance in 2005 it amounted to 30,3%, whereas in 2011 it dropped to 20,4%. In developed countries the proportion of the State budget expenditures to GDP is in the range of 35 to 50%.

For example, Europe to achieve its goal-to build a knowledge economy by 2010, adopted the Lisbon strategy where the stakes were made particularly on developing innovations and increasing of education level and professional qualifications. In terms of knowledge economy establishment it always has to be understood that fundamental science must be supported by a State since private institutions cannot afford it.

Asset Issekeshov Deputy Prime Minister, Minister of Industry and New Technologies of Kazakhstan shared official statistics on May 24, 2013 at VIII Innovation Congress which was held as a part of V1 Astana Economic Forum: from 2009 in Kazakhstan the costs of enterprises on technological innovation rose to two billion dollars, the amount of innovative products – up to 2,5 billion and GDP share up to 1,3%. The productivity in manufacturing industry has increased by a third – up to 51 thousand dollars per worker and the share of innovatively active enterprises increased from 4 up to 7,6% [6, p. 23].

The analysis show that in recent years there were positive developments in Kazakhstan, but at a slow rate, given the fact that by 2014 the first five years of industrialization program will come to an end.

Conclusions

The share of RoK State budget expenditures as a percentage to GDP should increase gradually, which will create opportunities to increase State spending for human capital development and will transform the resource economy in the knowledge economy. Another effect would be that the increase in state spending will have a positive impact on the improvement of effective demand, thus stimulating economic growth. Thus there should be a correct identification of priorities for spending immense funds, increasing the efficiency and effectiveness of their use, including human capital development.

Along with this, State budget should be focused on nationwide projects, productive from a long-term perspective, such as economic diversification and infrastructure development.

It should be borne in mind that the modernization of economy of Kazakhstan, transition to the innovation way of development are possible under the following conditions. Firstly, it is the establishment of the business and economic environment. To build a new economy there is a need in innovative business, while nowadays in Kazakhstan it is of an intermediate trade nature. Secondly, it is necessary to build education systems focused on innovation. Today in the world there are universities of the new generation, the so-called entrepreneurial. Kazakhstan needs to create universities that combine educational and research functions. So far Nazarbayev University can answer this criteria. Thirdly, it is necessary to create an efficient innovation infrastructure, which envisages conditions for business innovation. Technological parks, business incubators have been established in Kazakhstan, but they do not fully fulfill their functions yet, confined to space renting only. Implementation of defined conditions will ensure the establishment of the basis for innovation economy in Kazakhstan.

Increase in funding of state costs on human capital development can be achieved through replenishment of profitable budget sources, primarily through rapid diversification and modernization of the national economy, increasing productivity, efficiency and productivity of labor, reduction of energy consumption as a result of introduction of new technologies and innovation in all its sectors.

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