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Human Capital and Human Resources: problems of their effective use

The purpose of the authors in this study was to determine the theoretical and practical aspects of human capital development in the framework of forming the competitive economy. The conditions of the impact of human capital on economic development are being analyzed. The authors conclude that human capital has all the properties and show intensive development factors, but there are some problems with the precise measurement of its cost and performance. According to the authors, the integration of education, science and production, development of post-graduate education on the basis of modern achievements of science and technology are today one of the priority lists of the economic development.

Key words: Human Resources, Human Capital, Competitiveness, National Economy, Republic of Kazakhstan.

The concept of «human capital» in the economic theory came through by the efforts of two the Nobel Prize winners in Economics Theodore Shultz (Shultz, 1964) [1] and Gary Becker (Becker, 1964) [2], who argued that improving the welfare of poor people does not depend on the land, machinery or effort, but rather on knowledge.

A fundamental contribution to the development of the modern theory of human capital were made by T. Shultz, G. Becker, R. Solow, S. Kuznets, I. Fisher, R. Lucas and other economists, sociologists.

Shultz proposed the following definition: «All human resources and capabilities are either congenital or acquired. Everyone is born with an individual set of genes determining his innate human potential. Acquired valuable human qualities that can be amplified by specific inputs, are called as human capital» [1].

The concept of human capital has been put forward by American economist G. Becker in 1960 and represents accumulated knowledge, skills and craftsmanship that employee has and has acquired during his training, education, profession all training, work experience. Becker (Becker, 1964) considered the cost of education and trainings, as main investments into human capital, and assessed their cost-effectiveness as the ratio of revenues to costs, having about 12–14% of annual profits [2].

Shultz believed that the accumulation of people's ability to work, their creative activities in social life, the maintenance of health are the main results of investment in human capital and he believed that human capital has the necessary attributes of a productive nature, it is able to accumulate and build up [1].

According to Shultz's (Shultz, 1964) assessment, for accumulation of human capital is used not ¼ of total produced value in society, as would most of the theories of reproduction of the XX century suggest, but 3/4 of its total value [1].

In our opinion, the human capital is complex of intellectual abilities, skills, knowledge and abilities of the person received during getting education and practical activities, quality of life and health.

Human development as a complex economic category has qualitative and quantitative characteristics. At different times many scientists, economists offered to use a variety of approaches and methods for measurement.

The simplest way of measuring human development that use natural assessment is measuring human development in man-years of study. The more human learns, the higher his level of education, the greater the amount of his human development. However amendments that take into account the same duration of training at different levels of education (for example, secondary education in schools and higher education at the university) are made.

The most common method of measuring human development is the cost. The founder of this method is W. Petty (Petty, 1940) [3] who proposed technique of calculating value of each person with the help of which human productive forces were assessed for the first time. In his opinion the value of ground mass of people is equal to twenty fold annual income that they bring.

From the perspective of cost estimate J.A. Smith (Smith, 2007) [4] and D. Ricardo (Ricardo, 1955) [5] calculated the cost of human capital. In his research A. Smith pointed out on characteristics of labor market operation and thus of human capital. In his opinion not labor force (inability to work) acts as goods on labor

market but labor [4]. To form knowledge, skills and best practices of employee it is necessary to invest «true costs», including time, labor and expenses. Cost-based component of expenses, according to J.A. Smith (Smith, 2007) [4], is fundamental element of human capital formation. D. Ricardo (Ricardo, 1995) [5] called «true costs» cost of labor force reproduction.

Cost method for assessing human capital was also used by K. Marx (Marx, 1967) [6]. However Marx believed that subject of purchase and sale on labor market is not the labor itself, but «labor force», i.e. ability to work. In this case labor force appears as commodity. Main terms for selling this product by employees are qualitative and quantitative characteristics.

During development of human capital theory G. Bekker (Becker, 1964) [2] proposed subjective marginal utility of organization as a basis.

One of the areas of cost estimate is method of measuring human capital through production of cost for productive capacity and amount of this capacity. Thus, human capital is measured indirectly with the help of market costs, by which they should be rented. This area was developed by L. Thurow (Thurow, 1970) [7].

The most common method of measurement — principle of future income capitalization based on position of preference benefits in time.

While using this method economic impact of human capital use is taken into account in calculation. According to I. Fisher use of capital means getting interest as a universal form of any income.

G.Bekker (Becker, 1964) [2] measured human capital on the basis of combination of one unit of simple labor proposed by him and known quantity of human capital embodied in it. A. Marshall (Marshall, 2009) [8] improved methodology for human capital assessment proposed by G.Bekker (Becker, 1964) [2]: «total earnings of any person after he completed investment in human capital are equal to income on these investments and earnings from his initial human capital».

Nowadays aggregated indicator of human development index (HDI) is used to determine the amount of accumulated human capital. HDI is aggregated indicator of human development, which characterizes average level of achievements of any country on the most important three aspects of human development:

1) health and longevity measured by life expectancy at birth indicator;

2) access to education measured by adult literacy level and aggregate gross coefficient of educational coverage;

3) adequate standard of living measured by amount of gross domestic product per capita in US dollars at purchasing power parity [9].

National human capital is more than half of national wealth of each developing country and more than 70–80% of developed countries of the world, it was and remains the maim intensive factor in development of economy and society.

Human capital (HC), like any other capital, — physical, natural, financial — has value, subject to renewal, modernization and development. The main measuring indicators of HC are its cost and capacity (efficiency) as intensive factor of development. HC have all properties and indicators of development intensive factor.

Human capital as economic category leads to strong separation of peoples and nations by its main indicator — by efficiency and quality. At the same time, Human Development Index (HDI), nowadays widely used by international institutions of the United Nations, dramatically eliminates these differences. This is the main difference between HDI and efficiency indicator of HC [10].

National human capital (Human Capital) is essentially different by quality and cost per capita, as well as by its efficiency for different countries. These indicators of HC depend on quality and ethics of labor that are historically determined by degree of economic freedom and mentality [11].

Capacity or efficiency of HC is determined by transformation ratio of investments in HC (1), that can be greater than one (for the most developed countries with the highest quality of HC, knowledge economy and information society) and less than one for developing and underdeveloped countries of the world. For countries with low-quality labor and its low capacity it is several times lower than that of developed countries, as well as labor capacity**.**

Transformation ratio of investments in HC (efficiency coefficient) reflects integral capacity and efficiency of cumulative national HC, which, in its turn, determines average labor capacity in industries with high added value (manufacturing industry, high-tech industries).

In 2012 HDI in USA was 0.902 and in Russia — 0.719 (difference — 20%), that, of course, does not reflect gap between countries on human development, nor, especially, on cost per capita and capacity of na-

tional HC of these countries**.** Ratio of coefficients of HC efficiency is completely different — in USA it is 4.1 times higher than in Russia, that is close to ratio of average labor capacity in the countries (Table).

T a b l e

Human capital efficiency coefficient

Country	Type of economy	Human capital efficiency coefficient	Raw-material economy index	Index of Economic Freedom (IEF)	Human capital quality index
USA	Knowledge	1.225	1	0.78	1.67
Great Britain	Innovative	0.855	1	0.75	0.96
Germany	Innovative	0.93	1	0.72	1.14
Japan	Innovative	0.93	1	0.73	1.13
China	Industrial with focus of innovative	0.49	1	0.52	0.45
India	Industrial with focus of innovative	0.37	1	0.55	0.19
Russia	Industrial and raw-material	0.30	0.75	0.51	0.31
Estonia	Industrial	0.67	1	0.75	0.59
Kazakhstan	Industrial and raw-material	0.29	0.56	0.62	

Source: [12].

The main lack of HDI is that this index does not reflect quality of education, quality of GDP per capita and even quality of public health. In developed countries quality and cost of education is much higher than in poor or developing countries. A large proportion of oil and gas sector of economy and its income allows taking high positions in HDI rating, for example, oil-producing Arab countries, which less employ their national HC even in oil and gas production. That is way Ju. Korchagin (Korchagin, 2006) [12] introduced decreasing coefficient that for Russia is equal to 0.84, and for Kazakhstan — 0.7, which is determined by ratio of GDP and exports of raw materials to account for higher export income in calculation of national HC efficiency in countries with commodity-dependent economies.

HDI, playing certain positive role, lost its objectivity in assessing features of national human development and HC, but it can serve as one of indicators during assessment of HC efficiency. UNESCO even declared the crisis of education in prosperous by HDI (included in groups with the highest, high and medium HDI) Arab countries as one of causes of revolutions in them [13].

Shadowing HC inefficiency due to low quality of education, health, science, security, elite by high and smoothed values HDI only hinder lagging countries to clearly outline the scope of their competitive weaknesses and shortcomings**.**

It is necessary to determine quality and cost for human capital taking into account science as its most important component. Education cannot be of high quality and competitive, if science is in decline. Education and science are united and closely interlinked.

Research of UN analysts led to pessimistic conclusion: human potential can quickly degrade due to sales of natural resources, extremely slow development of industries with high added value, decline of basic science, culture, inaccessibility of quality medical care for people, anti-market mentality of the population.

S. Egorov (Egorov, 2004) [14] notes that the important factor in human capital development is institute of education, which in the modern world goes beyond traditional educational system becoming «learning throughout life»**.**

Nowadays knowledge, practical skills and information are determining criteria and driving force for development of economy, social sphere and public life. But knowledge by itself without professional-human, who possesses it, does not transform the economy. Universities as society development institutions generate knowledge; provide training of personnel — scientific and educational, technological, managerial and cultural elite of the country.

Today, educational content goes out of date very quickly, according to experts, scope of professional information doubles every 7–8 years. On this basis in order to bring up competitive specialists, it is necessary not just to «transmit» knowledge, but also teach to obtain it independently and use in practice.

Currently, due to changes and financial-economic crises in the modern world educational system is required deeper perception of human current problems. Today teachers and students cannot keep out of global socio-economic problems. Training in-demand for economy specialists, who are ready to participate in at forefront of society innovative modernization and thus having positive impact on young generation, forming its worthy ideals, — challenging task. Properly developed university strategy, development of corporate culture help to solve it.

Human capital has all the properties and indicators of intensive development factor, but there are some problems with the precise measurement of its cost and performance.

These problems are connected with the vagueness of the definition of multi element, compound and complex human capital itself, as well as with the dependence of its quality and, accordingly, the performance on many parameters and indicators that can characterize one or another country.

Moreover, there are ethical problems with using fully the concept of «capital», as it relates to a person, people and nation. Economic category of «human capital» inevitably leads to a strong separation of peoples and nations by the main indicator — by efficiency and quality of human capital.

However, human development index (HDI) widely used by the international institutions of the United Nations dramatically eliminates these differences.

Being a combination of indexes of longevity, education and income, the HDI allows more adequate and comprehensive consideration of the development.

The index takes into account the most important parameters of human well-being.

Directly or indirectly such characteristics as health and longevity, the environment, the level of culture, education and income levels are taken into account through the index.

All these components are documented and are suitable for cross-country comparisons.

HDI is the integrated socio-economic indicator which is constantly being improved by experts of UNDP.

The main management resource is not the financial resources and other conventional resources, but the intelligence of professors, teachers, young scientists with entrepreneurial talent and leadership qualities. This is the way the corporate culture of the university generates human capital, the development of which determines the knowledge economy.

Higher education plays an important role in the training of competent and competitive specialists for all branches of the national economy, in the integration of science and production.

To increase the efficiency of human capital and to create an innovation economy at the level of advanced countries it is necessary to achieve:

– very high level and quality human capital and high investments in its growth and development;
– high level and quality of life;
– high level HPDI and economic freedom;
– High level development of basic science;
– High level development of applied sciences;
– availability of the powerful intellectual centers of technological development in the country;
– A large proportion of the sector of the new economy;
– Powerful synergetic effect in all spheres of human intellectual activity;
– advanced and effective innovation and venture systems supported by the state;
– An attractive investment climate and high level of investment ratings;
– A favorable business and tax climate;
– Diversified economy and industry;
– Competitive products in the global technology markets;
– An effective state regulation of the country development;
– transnational corporations ensuring a competitive technological and scientific development of the country;
– low level of inflation (less than 3–5%).

Integration of education, science and industry, the development of post-graduate education based on modern scientific and technology advances are today one of the priority fields of economic development.

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Адами капитал және адами ресурстар: оларды тиімді пайдалану мәселелері

Мақалада бәсекеге қабілетті экономиканың қалыптасу мәселелері аясында адам капиталының дамуының теориясы мен тәжірибесі зерттелді. Экономиканың дамуына адам капиталының әсері талданды. Адам капиталына қарқынды дамудың барлық көрсеткіштері тән, дегенмен, оның құны мен өнімділігін өлшеуде белгілі сұрақтар да бар. Қазіргі таңда білім, ғылым және өндірістің бірігуі қазіргі кезеңдегі ғылым мен техниканың жетістіктері негізінде экономиканың дамуының басты бағыты болып табылады.

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Человеческий капитал и человеческие ресурсы: проблемы их эффективного использования

В статье исследованы вопросы теории и практики развития человеческого капитала в контексте проблем формирования конкурентоспособной экономики. Авторами проанализированы условия воздействия человеческого капитала на экономическое развитие. Сделан вывод, что человеческий капитал обладает всеми свойствами и показателями интенсивного фактора развития, но существуют определенные проблемы с точным измерением его стоимости и производительности. Авторами отмечено, что интеграция образования, науки и производства, развитие послевузовского образования на основе современных достижений науки и техники являются на сегодня одними из приоритетных направлений развития экономики.

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