ANALYTICAL AND MANAGERIAL ISSUES OF HUMAN CAPITAL IN CONDITIONS OF GLOBAL COMPETITIVENESS: THE CASE OF KAZAKHSTAN

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Abstract: One of the most urgent economic and managerial issues is the formation of a high level of competitive human capital of the country as well as ensuring high level ranking of global competitiveness. The research is aimed to the substantiation of the significance of human capital as a key factor increasing international economic competitiveness. For this, a comparative analysis of macroeconomic indicators forming the human capital of the Republic of Kazakhstan has been carried out for the nine-year period 2008-2016, since the moment of the economic crisis until now. On the basis of the conducted analysis, competitive advantages and disadvantages of the human capital and dynamics of its development are revealed in the context of international competitiveness. It is proved that human capital has an economic impact depending on the level of the country’s competitiveness. As a result of the research, it has revealed interdependence between human capital and global competitiveness and revealing key factors for developing human capital in Kazakhstan in terms of increasing the country’s economic competitiveness. The conducted research has been directed to detecting main ways how to develop and human capital in conditions of global competitiveness from the management perspective.

Key words: human capital, global competitiveness, development, education, innovation, labor market efficiency, Kazakhstan

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Introduction

The last decades are characterized by significant transformational changes in the international economic environment. That fact has significantly changed the point of view of economists concerning the structure of factors forming and ensuring national competitiveness, their economic substance and interrelationships. Human capital including intellectual capital, human potential, human resources and management has become a key factor in increasing international economic competitiveness. Meanwhile, human capital accumulation is the basis for sustainable economic growth and prosperity of the country.
Literature Review

The idea that improvements in human capabilities are important to production goes back at least to Adam Smith in 1776. He noted that the division of labor in a factory made it possible for some workers to specialize in certain tasks and thereby build up special skills and capabilities (Smith, 1776). The term ‘human capital’ was discussed firstly by Arthur Cecil Pigou in 1928 who claimed that “there is such a thing as investment in human capital as well as investment in material capital” (Pigou, 1928). The use of the term in the modern neoclassical economic literature dates back to Jacob Mincer’s publication named ‘Investment in Human Capital and Personal Income Distribution’ (Mincer, 1958). Theodore Schultz also contributed to the development of the subject matter (Schultz, 1968). The best-known application of the idea of ‘human capital’ in economics is that of Jacob Mincer and Gary Becker of the Chicago School of Economics. Becker’s book entitled ‘Human Capital’, published in 1964, became a classical standard reference for many years. In his book he examined the role of education and training in increasing the knowledge and skill resources of people, and thereby helping to explain differences in wages and salaries among different workers. In his view, human capital is similar to physical means of production. Thus, human capital is a mean of production into which additional investment yields additional output. Human capital is substitutable, but not transferable like land, labor, or fixed capital (Becker, 1964). Theodore Schultz in 1979 and Gary Becker in 1992 were awarded the Nobel Prize for the formation of the human capital theory. Moreover, a great contribution in developing the human capital theory was made by a Russian expatriate Simon Kuznets who also received the Nobel Prize in Economics in 1971 (Kuznets, 1973). Contemporary research on human capital is represented by a wide range of foreign and domestic scientists who consider that competitive human capital plays a significant role in the system of modern economic relations. To be competitive within the global scale national labor markets should have people with the proper competencies thanks to which it can achieve this aim (Grabara et al., 2016).

Relevance and Objective of the Research

Special attention has recently been paid to human capital by modern scientists to find ways to increase national economic competitiveness. In particular, in Kazakhstan, the main resource of human capital is under the conditions of forced industrial innovative development of the country and transition to an innovative economy based on the improvement of education, high skills and intelligence. In the long-term perspective, formation and implementation of the idea of a national project “Intelligent Nation 2020” are provided, the key concept of which is formation and development of “education system throughout life”. The research into human capital requires an expansion of methodological approaches, conceptual design in modern economic science going beyond economic theory.
using the principles of evolutionary and information theory of economics. The significance of the research is mentioned by the President of the Republic of Kazakhstan, the Leader of the Nation, Nursultan Nazarbayev, in his Message to the people of Kazakhstan entitled “Strategy Kazakhstan-2050: new political course of the established state” dated 14 December, 2012. The head of the country has noticed that the main purpose of the new policy is to become one of the 30 most developed countries of the world by 2050. In his last Message “The third modernization of Kazakhstan: global competitiveness” dated 31 January 2017 the President has emphasized the priority to improve the quality of human capital of the country.

The research is aimed to the substantiation of the significance of human capital as a key factor increasing international economic competitiveness. The main objective of the research is finding out interdependence between human capital and global competitiveness and revealing key factors for developing human capital in Kazakhstan in terms of increasing the country’s economic competitiveness, with further consideration of ways how to develop human capital of the country in conditions of international economic competitiveness from the management perspective. The following tasks have been identified:

– to analyze macroeconomic indicators of the Republic of Kazakhstan within international competitiveness ratings;
– to determine dynamics of factors for developing human capital in the Republic of Kazakhstan for 2008-2016;
– to reveal interdependence between human capital development factors and their impact on global competitiveness of the country;
– to find out ways how to develop human capital of the country in conditions of global competitiveness from the management perspective.

**Key Research Findings**

In the framework of the research, human capital is a complex intensive factor of social and economic development (compare Szczepańska-Woszczyka K., 2014; Szczepańska-Woszczyna et al., 2015; Škare and Lacmanovic, 2016). Its effects are in direct proportion to the level of national competitiveness. It includes human resource skills and knowledge accumulated through educational, scientific, cultural, innovative and personal human potential capable of ensuring the well-being of the nation, economic growth and high rating of the country in the international economic environment.

Analysis of the competitiveness of the Republic of Kazakhstan on the basis of statistical data of annual reports of the World Economic Forum (WEF) for 2008-2016 has shown that over a nine-year period Kazakhstan has moved from the 66th place to the 53rd, having suffered a drop of one position in 2009 (the 67th place), and then another five positions in 2010 and 2011 (72nd place). The reason for this decline should be identified as the global economic crisis of 2008 and rehabilitation
of the country in the subsequent post-crisis period. It is important to notice the colossal growth of the Republic between 2011 and 2012, when Kazakhstan rises immediately by 21 positions and occupies the 51st place in the ranking of global competitiveness of countries for 2012-13, that is 21 positions higher than in 2011—the 72nd place. Over the past two years, during 2013-2014 Kazakhstan has managed to rise to one more position to occupy the 50th place. According to the latest Global Competitiveness Report by the World Economic Forum for 2016-2017, Kazakhstan has dropped by 3 positions and occupied the 53rd place in the ranking of global competitiveness. In 2016-2017 Kazakhstan declined in the rankings and registered scores dropping 11 positions in contrast to 2015. Kazakhstan has lost ground almost exclusively as a result of the worsened situation of public finance, linked to the loss of oil export revenues. At the same time because of increasing positions in pillars and subfactors forming human capital the situation stays rather stable in the global competitiveness rating of the country.

![Figure 1. Kazakhstan in Global Competitiveness and Human Development Ratings (WEF, UNDP, 2008-2017)](image)

During 2008-2016 the human development index has been increased from 73 to 56 place improved 17 positions. The detailed information concerning ranking of Kazakhstan within Global Competitiveness and Human Development Ratings is represented in Figure 1.

It is considered that the country’s competitiveness and human capital development have some common indicators. In particular, human capital consists of basic forming factors including the level of gross national income, life expectancy, primary and higher education, labor market efficiency and innovation potential.

In Figure 2 it is presented the factors having an impact on the country’s competitiveness and the factors influencing human capital development. As you can see the group of factors developing human capital is included in the group of factors forming national competitiveness.
Figure 2. Factors of human capital development and country’s competitiveness (WEF, UNDP)

According to 12 macroeconomic indicators (or pillars) used in the WEF methodology, the factors that form and reflect human capital development should be taken into consideration. These are pillar 4, “Health and Primary Education”, pillar 5, “Higher education and training”, pillar 7, “Labor market efficiency” and pillar 12, “Innovation”. Figure 3 shows the dynamics of each of the four macroeconomic indicators forming and developing human capital.

Figure 3. Dynamics of macroeconomic indicators developing human capital in the Republic of Kazakhstan (WEF, 2008-2016)
Analyzing the macroeconomic indicators, it should be noted that the most problematic is pillar 4, “Health and primary education”. This factor is composed of ten subfactors, analysis of which enables a detailed reduction of the factor itself. Typically, the lowest rating of sub-factors is a competitive disadvantage and requires immediate improvement to increase the rating of the pillar itself.

To low rates there should be related the number of tuberculosis cases (111th place), primary education enrolment, which was in 116th place in 2014. Nevertheless, there is an increase of quality of primary education (64th place). Concerning positive sides of this factor, it is necessary to notice a decrease in infant mortality. So, in 2014 the infant mortality rate has declined by 17 points (81st place), the average life expectancy in 2013 was 70 years (99th place). In 2016 there is a significant improvement, the infant mortality rate has improved by 10 positions (71st place), the average life expectancy is 72 years, improving 9 positions, respectively (90th place). In terms of prevalence of malaria and HIV/AIDS (Malaria cases/HIV prevalence), Kazakhstan ranks first in economic costs and malaria cases.

By the pillar 5 “Higher education and training”, an improvement of 5 positions is noticed in 2016 (57th place) in comparison with 2014. Previously, it was a decline of 8 positions in 2014 (62nd place) in comparison with 2013 (54th place). Nevertheless, in 2013 Kazakhstan has been ranked 54th that is, up 11 places higher than in 2010 and 2011 and 5 positions higher than in 2008 and 2009. The low level of the factor is characterized by the low quality of education that can be traced in its subfactors. Thus, the competitive disadvantages are such subfactors as the quality of the education system, quality of math and science education. The quality of management schools is the weakest component. The extent of staff training, availability of research and training services, and internet access in schools also need to be improved.

Analyzing the ratio of the secondary and tertiary education enrollment, an interesting fact should be noted: in 2008 and 2009 in the Republic the coverage of higher education dominated (36th and 45th places); in 2010, Kazakhstan occupies the same 51st place by these subfactors from 2011 to 2014, where the coverage of secondary education dominated (18th, 35th, 29th and 42nd places respectively). The subfactor ‘secondary education enrolment’ forming this pillar has rank (21st place) and the highest improvement in contrast to 2014 (42nd place).

To compare with all macroeconomic indicators of Kazakhstan, the pillar 7, “Labor market efficiency”, has held a leading position for nine years. Analysis of the rating reflects the negative decline in the post-crisis period (2009-2011) manifested in the reduction of positions – 18th and 21st places in comparison with 12th place in 2008. The year of 2012 is characterized by the rise by two positions (19th place) as compared with 2010 and 2011. Over the last two years the indicator has improved another 4 positions. So in 2013-2014 Kazakhstan occupies the honorable 15th place by the labor market efficiency indicator. In 2016-2017 the situation worsened and the country has 20th place in the pillar dropping by 5 positions. Despite this fact, this indicator still has the leading positions.
In particular, an improvement is observed in labor-employer relations (49th place in 2014 in comparison with 78th place in 2011), flexibility of wage determination (20th place in 2014 in comparison with 44th place in 2008), pay and productivity (16th place in 2014 against the 33rd place in 2008). There is a significant role of women in the labor force even despite the decline of this subfactor — 13th place in 2008, 19th in 2011, 25th place in 2014, 28th place in 2016. Weak positions of the pillar are reliance on professional management and the brain drain. These structural elements need special attention. The lack of skilled workers in Kazakhstan is mainly in technical specialties. The main problem of the brain drain is insufficient labor compensation for highly skilled specialists.

With the transition of Kazakhstan to the knowledge economy, the role of innovative potential of the country is increasing as it participates in human capital development, training of highly skilled specialists and sustainable economic development of the nation.

Further, there is statistical data of the Republic of Kazakhstan for the nine-year period 2008-2016 by the pillar 12, «Innovation».

The factor consists of 7 subfactors such as capacity for innovation, quality of scientific research institutions, company spending on R&D, university-industry collaboration in R&D, government procurement of advanced technical products, availability of scientists and engineers and the presence of patents applications. Each component of the factor is at a low level representing a competitive disadvantage that causes a weak position of the factor itself in the system of global competitiveness ranking. Dynamics of the factor are rather ambiguous. It can be divided into two periods: period of decline (2008-2012) and period of rising (2012-2016). In 2008, Kazakhstan was ranked at 62nd place in the rating, in 2009 64th; then in 2010 there is a sharp drop of 37 positions (101st place); in 2011 the index falls by another 15 positions (116th place). Since 2012 the situation has improved significantly. Since 2012 (116th place) till 2016 (59th place) Kazakhstan has improved the pillar on 57 positions. That is an amazing result. However, to increase global competitiveness rating Kazakhstan should pay attention for developed countries those have very high ranks. They are Switzerland, United States, Finland, Japan, Sweden and Germany. That is why it will be reasonable to study the models of the innovative development of the above countries with the further possibility of application of these models in the Republic of Kazakhstan.

Thus, based on comparative and systematic analyses and expert assessment we have analyzed macroeconomic indicators of the Republic of Kazakhstan within international competitiveness ratings and determined dynamics of factors for developing human capital in the Republic of Kazakhstan for 2008-2016.

In order to achieve the research objective and to prove substantiation of the significance of human capital as a key factor increasing international economic competitiveness, it is necessary to reveal the correlation between the country’s competitiveness and the level of human capital development. For this purpose, we use the Spearman rank correlation method. This method allows to find out
interdependence between human capital and global competitiveness and revealing key factors for developing human capital in Kazakhstan in terms of increasing the country’s economic competitiveness.

The Spearman’s rank correlation (Spearman, 1904) is a non-parametric method that is used for statistical research of phenomena interrelations. In this case, the actual degree of parallelism is determined between two quantitative rows of the considered criteria and there is an assessment of the closeness of the established connection using a quantitative coefficient.

When using the rank correlation coefficient the closeness of the connection between indicators is conditionally evaluated. So, if the coefficient is equal to 0.3 or less it is considered that the interrelation between indicators is low. If the value is more than 0.4 but less than 0.7 it means a moderate level of correlation. And if the value is 0.7 or more it means a high level correlation of the considered indicators.

The calculations conducted are based on the information provided in reports issued annually by the Development Program of the United Nations (UNDP) and the World Economic Forum (WEF), in particular on the most current data of 2013-2016. The basic indicator is conventionally set to the Global Competitiveness Index (GCI). This aggregate macroeconomic indicator provides both a rather objective and full assessment of the country’s competitiveness and gives an opportunity to compare the level of the country’s competitiveness with the competitiveness of other countries. It is important in developing national competitiveness strategies, building national strategic models and finding ways for national development through borrowing from successful managerial experience of more developed countries.

In order to prove that human capital has a national economic impact, the calculations presented cover not only the Republic of Kazakhstan but 144 countries included in the Global Competitiveness Report for 2013-2016.

The calculations should be divided into three main parts. In the first part, the correlation dependence between the Human Development Index (HDI) and the Global Competitiveness Index (GCI) is proved. Here the degree of each factor impact that forms HDI is considered in detail. The factors are the levels of gross national income (GNI), life expectancy, and education. The data is taken from annual Human Development Reports. The second part shows the interrelationship between GCI and the pillars forming human capital. In the third part, the interdependence of the Global Competitiveness Index and the Global Innovation Index (GII) developed by the INSEAD French Research Center is defined.

Table 1 presents the main results of correlation dependence calculations between the Global Competitiveness Index and factors forming and developing human capital (HC).
Table 1. The results of correlation dependence calculations between GCI and HC

<table>
<thead>
<tr>
<th>Part</th>
<th>Correlation Dependence of Indicators, 2012-2013</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part 1</td>
<td>GCI and HDI</td>
<td>0.7898</td>
</tr>
<tr>
<td></td>
<td>GCI and level GNI</td>
<td>0.8225</td>
</tr>
<tr>
<td></td>
<td>GCI and level of Life Expectancy</td>
<td>0.7400</td>
</tr>
<tr>
<td></td>
<td>GCI and level of Education</td>
<td>0.8388</td>
</tr>
<tr>
<td>Part 2</td>
<td>GCI and pillar “Health and primary education”</td>
<td>0.8566</td>
</tr>
<tr>
<td></td>
<td>GCI and pillar “Higher education and training”</td>
<td>0.9038</td>
</tr>
<tr>
<td></td>
<td>GCI and pillar “Labor market efficiency”</td>
<td>0.5853</td>
</tr>
<tr>
<td></td>
<td>GCI and pillar “Innovation”</td>
<td>0.8570</td>
</tr>
<tr>
<td>Part 3</td>
<td>GCI and GII</td>
<td>0.8153</td>
</tr>
</tbody>
</table>

**Recommendations**

The conducted research has been directed to detecting main ways or directions how to develop human capital in conditions of global competitiveness on the government management level.

Based on the conducted research, it has been found out main directions of human capital development of the Republic of Kazakhstan in conditions of global competitiveness. For our opinion, these managerial directions are able to form developed human capital of the country and to increase international competitiveness.

It is important to conclude that these areas should not be developed separately from each other, but within the whole unified system, taking into account the interaction business, science and education under the appropriate government support. Moreover, these directions can become a reality only as a result of radical changes both in the national consciousness and mentality as well as in practical actions in all social layers.

According to the research results, the main directions of development and increasing competitiveness of the human capital of the Republic of Kazakhstan are the development of education and the development of the country's innovative potential. We consider these ways will lead to knowledge and high technology production and formation of the information society. At the same time government should pay a special attention in managing and controlling the level of 'brain drain' among the high-skilled and professional population. It especially concerns well-educated young population as well as technical and IT specialist. The main reason for the brain drain is insufficient labor compensation and offering more beneficial conditions for highly skilled specialists abroad. In this sense, the government of Kazakhstan should think about designing special programs and opportunities how to make the domestic labor market more favorable for this valuable social groups.

**Conclusion**

Undoubtedly, the obtained results and conclusions do not give a full answer to all questions related to the theory and practice of human capital. In particular, the
issues of practical application require deeper study as they cannot be fully solved within a single work.

The research has some limitations. The analysis is based on 2008-2016 covering a nine-year period. Definitely, the reviewed period is significant in terms of studying the peculiarities of economic crises and post-crisis development and it represents an interest in modern economics. However, a longer period such as 10-20 years could be taken for the analysis in order to obtain a more complete picture of the economic state of the Republic of Kazakhstan which, in turn, would make the research more extensive and detailed.

Nevertheless, this research presents the substantiation of an approach to analysis of human capital as a multifaceted factor of economic and social development. It is proved that human capital has an effect on the level of national competitiveness and plays a significant role in its increase in the system of modern international economic relations. The study reveals the modern state of human capital in the Republic of Kazakhstan on the basis of the most relevant international information base.

To summarize, human capital is a complex intensive factor of economic and social development. Its effects are in direct proportion to the level of the country’s competitiveness. It includes human resource skills and knowledge accumulated through educational, scientific, cultural, innovative and personal human potential capable of ensuring the well-being of the nation, economic growth and high rating of the country in the international economic environment. This work determines the current state of human capital in the Republic of Kazakhstan and the dynamics of its development over the nine-year period 2008-2016.

Based on the studied methodology, correlated dependence between factors forming human capital and the level of economic competitiveness of the Republic of Kazakhstan is proved.

As a result of the research it has revealed key factors for developing essential human capital in Kazakhstan in terms of global competitiveness, the interrelation of human capital structural elements and determination of the national economic impact in varying degrees. The results of the research have shown that the level of education has the greatest impact, particularly higher education. In addition, the level of national competitiveness and social and economic development of the country are the main interdependent indicators of the level of innovation potential of the country.

The conducted research has been directed to detecting main ways how to develop and human capital in conditions of global competitiveness from the management perspective. In this case, on the governmental level, it is necessary to pay a special attention in managing and controlling the level of ‘brain drain’ among high-skilled and professional young population.

The presented findings can later serve as a basis for the more in-depth study of the human capital development and international competitiveness both from the theoretical and practical points of view.
References

Streszczenie: Jedną z najpilniejszych kwestii gospodarczych i kierowniczych jest kształtowanie wysokiego poziomu konkurencyjnego kapitału ludzkiego w kraju, a także zapewnienie wysokiego poziomu rankingu globalnej konkurencyjności. Prezentowane studium ma na celu uzasadnienie znaczenia kapitału ludzkiego, jako kluczowego czynnika zwiększającego międzynarodową konkurencyjność gospodarczą. W tym celu dokonano analizy porównawczej wskaźników makroekonomicznych tworzących kapitał ludzki Republiki Kazachstanu w dziewięcioleciu okresie 2008-2016, począwszy od kryzysu gospodarczego aż do teraz. Na podstawie przeprowadzonej analizy ujawniono przewagi konkurencyjne i wady kapitału ludzkiego oraz dynamikę jego rozwoju w kontekście międzynarodowej konkurencyjności. Udowodniono, że kapitał ludzki ma wpływ ekonomiczny w zależności od poziomu konkurencyjności kraju. W wyniku badań ujawniono współzależność między kapitałem ludzkim a globalną konkurencyjnością oraz ujawniono kluczowe czynniki rozwoju kapitału ludzkiego w Kazachstanie pod względem zwiększenia konkurencyjności gospodarczej kraju. Przeprowadzone badania zostały ukierunkowane na ukazanie głównych sposobów rozwoju kapitału ludzkiego w warunkach globalnej konkurencyjności z perspektywy zarządzania.

Słowa kluczowe: kapitał ludzki, konkurencyjność globalna, rozwój, edukacja, innowacja, efektywność rynku pracy, Kazachstan