

Influence of the international academic and labor mobility on the activity of open innovations

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ABSTRACT

This article presents the analysis of the new tendencies: openness of technologies, growth of the migration flows of the youth that are seeking for the quality education, and highly qualified professionals, who offer their unique abilities to large companies and research centers of the developed countries. The subjects of the world market competing for the innovations are interested in the development of this phenomena. The goal of the article is to provide scientific analysis of the reasons and premises of the increase in the activity of migration flows of human resources, the influence of this process on the innovation superiority of the countries initiating open innovations.

KEYWORDS

open innovations, academic and labor mobility, human capital and human resources.

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Introduction

Evolution of the production factors passed the way from the land, capital and labor to the non-material assets: to the knowledge and intelligence, the owners of which create the know-how, and the companies are using them for achieving the competitive advantage over the other subjects of the entrepreneurship activity. In these conditions the main value is the human capital as the priority factor of innovation development.

As known, the scientific concept “innovation”, was used for the first time by American economist of Austrian origin Joseph Schumpeter in the work “Theory of economic development” (1911). His idea is that innovation (appearance of something new, previously unknown) is one of the main generators of profit.

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An American scientist of Austrian origin, one of the main authoritative theorists of management in the 20th century Peter Ferdinand Drucker (2008), defined innovations as “the means using which an entrepreneur either creates new resources that bring him prosperity or provides the existing resources with improved potential for deriving profits”.

The mechanism forcing for the search of the new is competition. German scientist F. Hayek (1941) stated that competition is the procedure of opening that only those companies, which constantly open and use new markets, new technologies reaching the growth of profit become the leaders of the market.

Among Kazakh scientists (Kembyev and Akhmetov, n.d.), the most common definition of the essence of innovations is a new product, which allows reaching the growth of profit and social effect.

Of all the above-mentioned definitions of this concept it follows that innovation is the product of intellectual researches, the result of the usage of critical mass of knowledge that is enough for creation of more competitive new products at the market.

In the beginning of the 21st century there appeared a new concept “open innovations” that reflect the influence of globalization on the market of human and intellectual capital.

The concept was introduced into circulation by professor Henry Chesbrough (2003), the author of the book “Open innovations. New imperative of creativity and obtaining profit”. Henry Chesbrough considers the new approach to innovations, which allows to use external sources of knowledge. The idea is that all innovations after a short period of time become the property of competitors that is why companies need new ideas. In order to open and generate them, the “new clever minds” and creative working teams are necessary. The companies need to involve people from the external environment. The open innovations allow accumulating intellectual advantages and human capital of different countries and companies, orientating on the needs of customers, to trade inventions.

In fact, open innovations broaden the opportunities of external and internal markets in creation and effectively using new technologies, accumulation and mobility of human capital.

In modern conditions, the method of “buying up” the entire start-ups is practiced, i.e. large companies entirely buying the working team, ideas, patents and penetrate into business. Moreover, international projects are being actively developed by the efforts of scientific centers in different countries at the expense of large high-tech companies grants.

Human capital is capitalized cost of intellectual properties

In all scientific sources, the idea of innovations is tied with economic behavior of the person as the main initiator and developer of new technologies, consumer of new products.

Under these conditions, the role of human resources and the highest form of their development – human capital increases. In their nature human resources are able to quickly adapt to the changes in external and internal environment if effective management of their development is provided.



Western large firms, scientific centers recognized the highest significance of effective human resources and take active measures for attracting talented specialists from different countries for the high-tech production.

Companies like Microsoft, Whatsapp, Skype, Facebook buy the entire scientific groups and get the possibility to use their intellectual competitive advantages. Creating material and financial conditions for development of new ideas and their introduction, they provide constant growth of their competitiveness and leadership in international markets.

This fact determines the new economics of knowledge, where priority is secured for industries that reproduce the human capital: education, science, social and medical maintenance.

In connection with the prior role of human resources the interest to the research of their development increases both in world scientific community and in Kazakhstan.

When ascertaining the essence of economic category “human resources”, a bunch of definitions with different logic in interpretation of the content and forms of development is revealed. They contain the results of development of the philosophical and economical thought about human.

Human at all times was both the producer and consumer of goods of life. Humanity successively survived a number of social forms of production and labor organization that differ in forms and character of the property for the labor force. The place and role of the human in economic system differed depending on them.

At the same time, in the scientific heritage of A. Smith(1776) we can find the economical characteristics of human nature his own interest, egoism and intention for improvement of his position. From these elements of the model of economical human, the classic withdrew his idea “invisible hand of the market”, which unified egoists.

Followers of A. Smith increasingly drove human behavior to the realism. So, J. Clark (1899) wrote about “natural impulses” of human, such as individual interest, pursuit of wealth that allow him to create valuable benefits.

It should be mentioned that in the industrial economical system people turned up to be in the less privileged position in comparison to machines and equipment.

Post-industrial stage of economic growth changes the ratio of determining factors of production: the prior role of sources of production is changed by the human as a generator of new ideas and knowledge, who is able due to the development of professional, intellectual and moral characteristics to develop and introduce innovations.

Also, of importance is the fact that humanity entered the era of new technologies based on new requirements to the human not only as a producer but also as a consumer. New conditions changed also consumer preferences; human more rationally allocated his earnings with the aim to develop his abilities. This can be observed on the growth of demand for the educational and physical culture services, ecologically clean and resources saving products. “Fixation” of progressive tendencies requires a new approach in human development, in management of his economic behavior.

In this connection, the role of scientific researches in the area of human resources management, clarification of the essence of this concept and its relations in the system of labor relationships increases.

Before determining the essence of the “human resources” category, we will try to build up a logical chain and hierarchy of concepts, which determine the tools of this research: “human resources”, “workers”, and “human capital”.

Human resources are the source element in the hierarchy of human capital formation, and represent part of the country's population, potentially capable of creating benefits to determine the purpose of the political economy of development and possibilities of the state. As the historically scientific definition “human resources” started to be studied in the post-industrial period and carries in it traces of history, we will start with characteristics of “worker” category as historically an initial element of human labor.

In our opinion, the most complete definition of this category we find in the classic of political economy K. Marx in the first part of “Capital” – truly immortal work, because despite the attempts to ban this scientific work in scientific heritage by bourgeois or communist ideologists, it remains popular among people that seek to understand the truth.

So, by the definition of the classic of political economics, a worker has a complex of physical, intellectual and moral abilities, which are used by him all the time when he produces goods that contain added value. It is the ability of worker to create and increase added value that is assessed in the labor market and by the employer for determination of the size of the salary.

Market evaluation of their capabilities allows workers in the economic battle with the support of labor unions to achieve the growth of salary depending on the price of consumed products and services, which are necessary for reproduction of abilities to increase new value. Added value is allocated by the employer for owner's profit and salary of workers, it is exactly the “stumbling stone” of the interests of these groups.

At the same time, both parts are combined by the common interest – the increase of the new added value.

Also John Mill (1982) in his time wrote: “Friendly relationships and community of interests, common sympathy between workers and owners are also important in the high level”.

It should be mentioned that it took the society more than one century to realize this objective but concealed unity and community of economic interests.

Only beginning from the second half of the 20th century with the approval of management as the science, the corporate culture started to form: from top-management to the lowest level of personnel.

The new approach in the modern theory of management is noticed in the characteristics of corporate culture of the third millennium companies, given by the researcher of English business Annie Brooking (2002), who noted that in the near future workers will demonstrate more activity in the performance of the companies, understanding its goals and receiving pleasure from understanding of their roles in those achievements, that emphasis will be transformed for the collective work, promotion of the personal interest and responsibility, and also constant emphasis of the exceptional value of contribution of the human to the activity of the organization.

Human capital in the above mentioned hierarchy of definitions represents monetary, capitalized form of realization of human resources. It is formed during accumulation and development of human creative abilities. It is the human capital that is of interest for the companies, which are oriented for designing and using breakthrough projects.



That is why new directions of modern economic development – open education (openedu, mook), open innovations (open innovation) are aimed at the search and attraction of more promising talented unique specialists and formation of intellectual incubator in companies. The developed states actively support initiators of this direction.

The activity of the world population in the framework of international academic and labor mobility increases correspondingly.

International academic mobility in the context of open innovations.

The most significant global trends effecting the determination of human development priorities are accelerated rates of growth and aging of population, depletion of natural resources, interstate competition and change of leaders of world economies. Big companies develop models for mobilization of the most effective specialists from different countries of the world.

New tendencies are manifested by the growth of interstate migration of population, capital, information and knowledge. Global challenges require new solutions one of which is internationalization of higher education.

According to the data published by Organization of economic cooperation and development (OECD, 2011), mobility of student from different countries considerably increases for the last four decades: from 250 thousand students in 1965 to 3.7 million in 2011.

Students from Asian countries make up the greatest part of all students admitted into educational institutions abroad. This part reaches 45% of the total number of foreign students in OECD countries and 52% of the total volume in the countries not entering OECD (OECD, 2011).

In the structure of countries – participants of international academic mobility Switzerland is notable for the highest share of foreign researchers with 57% of scientists being foreigners.

In Canada, Australia, the USA, Sweden and Great Britain from 30 to 50% of foreign researchers work. In the Netherlands, Germany, Denmark, Belgium and France – from 10 to 30%. In Brazil, Spain, Japan, Italy and India – less than 10%. India is one of the countries with the highest share of their researchers who move to other countries with the aim to work there (Dessibourg, 2012).

Kazakhstan in the international integration of education.

It is known that the most important competitive advantage of Kazakhstan, apart from natural resources, is the education level of population. In 2013, in the rating for literacy Kazakhstan took the worthy 10th place in the world (Ranking of countries by level of education (n.d.)). Highest education, especially western one, is considered to be the most prestigious choice of Kazakhstani youth.

In the first years of transition to market relations, the demand of state organizations and private enterprises for specialists with a new economic thinking was great.

Attraction of foreign capital and creation of joint companies showed a deficiency in specialists mastering new technologies in both production processes and management and marketing.

Of no less importance for international integration of education is globalization of markets of capital and labor. Expansion of international relations resulted in the growth of the possibility to get education according to the programs corresponding to international standards. Training of highly qualified specialists developed countries is a very expensive benefit. And in less developed, the quality of higher education has not reached the level sufficient for formation of intellectual potential corresponding to the requirements of modern technologies.

The possibility for solution of this contradiction is in international academic mobility, which supposes for the universities of different countries solution of the following tasks:

- Introduction of comparable qualifications and their mutual recognition,
- A three-step system of higher education: bachelor – master courses – doctorate,
- The growth of mobility of students and teachers,
- Harmonization of the normative base of the education system,
- Comparativeness of the names of specialties,
- A unified system for evaluation of labor intensity of educational courses and programs,
- Identity of the compulsory component of basic and professional disciplines.

It is expedient to give universities the possibility to form an extensive catalogues of elective disciplines reflecting the institutional peculiarities of the state.

The new technologies with their powerful infrastructure, availability of information in the global network universalize the content of higher education, provide knowledge transfer, the possibility of getting education remotely from the leading world educational centers.

Proceeding from the formed pre-conditions one can suppose than the model of educational programs proposed by the European community in the form of the Bologna process is the most rational.

The advantages of the Bologna process are: extension of the access to international educational programs of prestigious European universities, successful employment of graduates on account of the fact that all academic degrees and other qualifications are oriented to their competitiveness, extension of mobility of students and teachers as well as mutual recognition of qualifications and diplomas of higher education issued by universities – participants of the Bologna process. The Bologna process allows to construct a format of university education according to the necessities of the modern technological structure requiring a continuous development and self-improvement, That is why in 2003 Kazakhstan signed the Magna Charta of universities and in 2010 – the Bologna declaration.

Furthermore, in 1993 President of Kazakhstan Nursultan Nazarbayev initiated a state grant “Bolashak” for students who are able to study abroad by international programs of bachelor, master courses and doctorate. In the years of sovereign development, having this grant, more than 8000 young people of Kazakhstan were educated at the best foreign higher institutions. Information of



official statistics allows noting the adherence of Kazakhstan to internationalization of higher education (Table 2).

For years of realization the international grant of “Bolashak” (Reports about Bolashak activity (n.d.)) has been awarded more than 10 thousand Kazakhstan students have got an education in 200 best higher education institutions of 33 countries of the world.

Table 2: Quantity of the awarded grants on a state program of “Bolashak” in a section of the countries for 1994-2016.

No	Countries	1994-1996	1997-1999	2000-2002	2003-2005	2006-2008	2009-2011	2012-2016	Total
1	United Kingdom	42	46	43	560	863	1477	675	3706
2	Germany	42	33	36	84	62	66	65	388
3	Russia	2	3	0	254	288	194	235	976
4	USA	178	126	63	674	472	774	430	2717
5	Czech Republic	0	0	0	51	46	28	55	180
6	Other countries	21	15	25	283	625	655	599	2223
	Total	285	223	167	1906	2356	3194	2059	10190

Source: <http://bolashak.kz/ru/planeta>

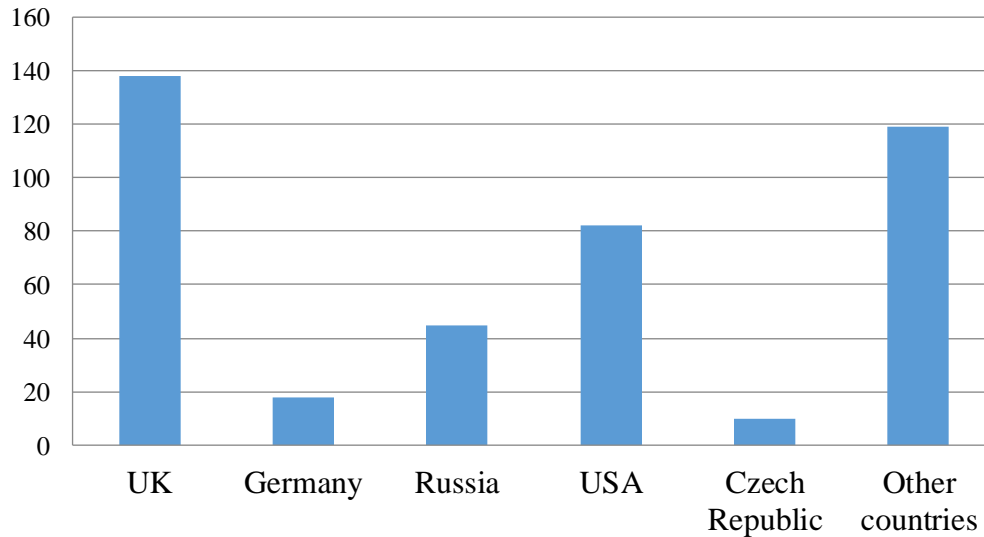


Fig. 1: Country structure of foreign training of the Kazakhstan students in 2016.

From the data in Table 2 it follows that the greatest growth of financing the program “Bolashak” was observed since 2005 when the country switched over from the deep political-economic crisis to the trajectory of enlivening and growth. However, in 2011, due to a deep economic recession caused by the global financial crisis of 2007-2009 the state cut expenses for education but in the next

years this was compensated on account of the increase in financing education and probation on academic mobility of master and doctorate students.

Signing of the Bologna agreement by the leading universities of Kazakhstan creates conditions for increasing the mobility of students and teachers in the world educational system, allows the talented scientific-educational centers of the world and gives the possibility to mutually recognize qualifications and diplomas of higher education.

However, all this excites some apprehension. For example, the so-called “brain drain” when the most talented young people of Kazakhstan educated in the developed countries have the possibility of being employed there. A civilized solution of this problem is creation by the state of attractive conditions for life and work at home for this category of young specialists.

International labor migration

Practically, all countries are involved in the process of labor migration. In the early 80-ies, the total number of workers-migrants was evaluated by the experts of International Labor Organization as about 20-21 million people and almost the same number of the members of their families. By the end of the XX century, more than 70 million people mainly from the developing countries worked (legally or illegally) out of the countries of their birth.

Annually, more than one million labor migrants move from one state to another. At present, more than twenty million refugees to the European countries from the territories of military and political shocks need work, social and material support.

According to the data of ILO, at present, the number of economically active migrants makes up approximately 30-35 million people, i.e. almost 1.2 – 1.2% of the world manpower. And if we add 40-50 million members of their families; it will make up the same percent of the world population (International labor migration (n.d.)).

The developed countries manage to use in large scales the labor of talented researchers and specialists from different countries of the world without initial investments but pursuing a selective immigration policy as attraction of “brains” from other states can significantly contribute to strengthen the labor potential of the country. The possibilities of the developing countries are limited.

Integration of Kazakhstan into the world labor market is still low but the tendency of manpower drain from the country is already observed: qualified specialists leave the country by Green card, intellectual young specialists stay abroad after getting education and make their careers there. The gnosiological roots of the study on the problems of international migration of population are related to the Malthusian population theory according to which the number of population of some countries increase in geometrical progression and production of consumer goods – in arithmetical progression. Population of these countries had to look for jobs in more developed countries. Development of machine cooperation in western countries in the beginning of the XIX century increased the demand for manpower and gave an impulse to the influx of working population from colonial countries.

In the first half of the XX century the main part of international labor migration was formed by cheap labor force of low qualification.



Alongside with industrial and office workers, in the XXI century, students, scientists, qualified specialists with a high level of education from the countries of developing market started to actively move to more developed countries. If up to the 90-ies the so-called “brain drain” was observed from such countries as India, Pakistan and Egypt, after the collapse of the socialist economic system there was observe the influx of qualified manpower from CIS countries, Central and Eastern Europe to the developed countries. On the one hand, this is conditioned by a great difference in the payment of specialists’ labor in the developed countries, on the other hand – by the aim of such countries as the USA, Canada, EU, UAE to attract highly qualified personnel (International migration report (2015)).

As a whole, for all countries, labor migration of a contradictory value, it has its own advantages and disadvantages.

For the countries-donors, the positive effect of international labor migration is as follows.

1. As population move to more developed countries looking for job and income, many of them working abroad acquire higher qualification and culture of work. For example, one of the factors of “Korean miracle” is a state program of support of migration of industrial professions abroad, provided they would work and increase their qualification in more developed countries for a long period of time, and returning home they would contribute to the improvement of management at the enterprises of their country.
2. The inflow of capital in foreign currency increases, as migrants transfer part of their incomes home improving the payment balance of the country.
3. Also, it is important that during their stay abroad migrants get accustomed to higher standards of life and consumption and, coming back, they increase the demand for goods of higher quality, thus stimulating the local market in a new trend.

The countries taking migrants have advantages, too.

1. Skilled unique specialists develop new technologies creating excess profit for employers.
2. Cheap manpower eliminates the deficit of labor force and do not lay claims to higher labor and social standards.
3. The competitiveness of produced goods increases due to the decrease in production costs (cheap manpower)
4. Providing an additional demand for goods, foreign workers stimulate the growth of production volumes.

The negative effect of the outflow of labor resources is related to the fact that the gender balance of the country is distributed as mainly the male population leave the country and their families are without sufficient means of existence, this provoking the growth of criminal environment. Of no less importance is the fat that the working activity of population decreases, as the competitive environment gets narrowed and the quality of jobs decreases. Because of the decrease in incomes of unskilled specialists the consumer market is contracted, this increasing the risk of further economic collapse and the impossibility to have the way to the trajectory of enlivening.

In the countries taking labor migrants, social tensions, and crime grow and this requires greater state expenses for providing public order and security of citizens. Besides, there takes place the outflow of reserve currency due to the

transfer of wages of migrants abroad. For example, annual money transfer of migrants from Kazakhstan abroad makes up more than \$500 million.

In the modern world, there appears a new tendency of the growth of international mobility of human capital in two directions. The first one – at the market of higher education in the form of training the talented youth at prestigious universities in the developed countries followed by their placement in jobs and permanent residence. The second one – at the world labor market as the influx of skilled unique specialists to the developed countries from the developing ones.

The figure below presents the interrelation of international academic and labor mobility of human resources and crystallization of intellectual potential under the conditions of open technologies.

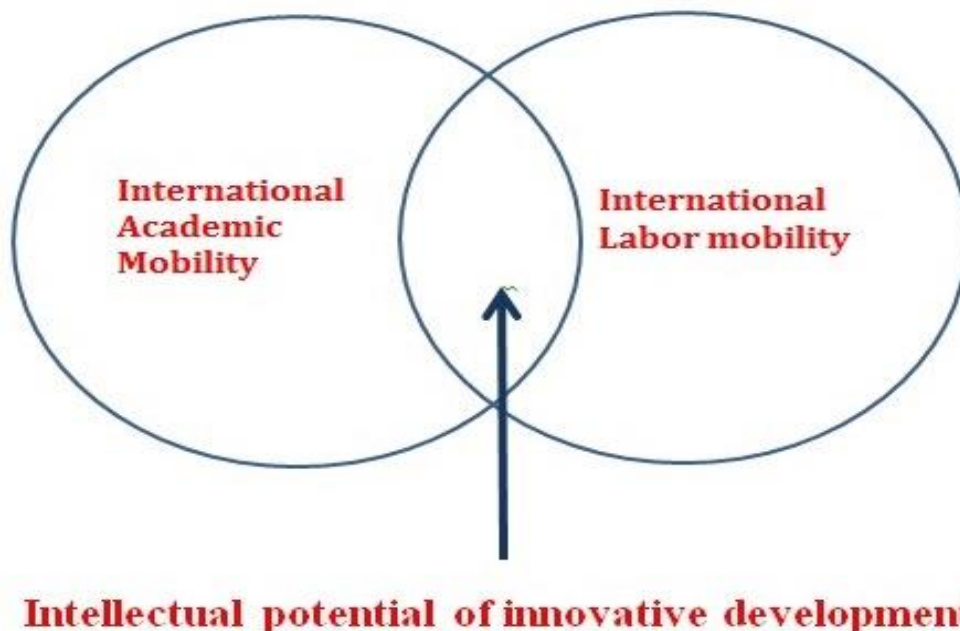


Fig.2 Intellectual potential of innovative development

As is seen in the figure, “natural selection” will allow the companies, scientific centers to reveal the most valuable specialists, use them at “expensive positions” and gain excess profit.

Thus, international academic and labor mobility of human resources allows the developed counties, large companies “to skim the cream off” from different countries and form their own highly intellectual potential for development and usage of the newest technologies.

Conclusions and recommendations:

1. International academic and labor mobility of human capital is a natural process conditioned by the requirements and necessities of modern technological



transformation. The concerned countries have the possibility to get competitive advantages.

2. Investments to open innovations in the field of education, science and production allow the companies to attract the most valuable specialists from the whole world.

3. The growth of international mobility of human resources increase the responsibility of international organizations in the field of education and labor as well as states and companies for legal and social regulation of migration processes.

4. The countries of the developing market including Kazakhstan should differentiate the approach to granting visas to the entrance of the country according to the experience of the developed countries, where entrance to the country is only possible by the work visa of companies and organizations.

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No potential conflict of interest was reported by the authors.

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