

Article

Highly Skilled Labor Migration and Its Features

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Abstract: The study looks at intellectual mobility, a phenomenon that is becoming more significant in the globalized economy as highly qualified people go across borders in search of better opportunities. Intellectual migration is accelerated by the high demand for STEM-related talent, which affects the competitiveness and innovation of host nations. Donor nations, however, struggle with "brain drain" as they lose talented individuals. By highlighting intricate elements including education, occupation, and economic effects, this study highlights knowledge gaps in the classification of migrants by ability and qualification. The study looks at policies influencing intellectual migration and analyzes data in a methodical manner. The findings demonstrate the benefits of migration for knowledge sharing and economic progress, pointing to the need for strategies to lessen adverse effects on donor nations and promote international economic and scientific cooperation.

Keywords: international migration, STEM, intellectual migration, highly skilled migration, highly educated, college-educated migrants, students migration, entrepreneurial migration, investor migration, professional migration, brain drain

1. Introduction

In the conditions of modern economic development, the processes of international labor migration are becoming more and more diverse based on their qualifications, profession and education. Especially the transition to a post-industrial society and the transformation of science into an important productive force are driving the migration of highly qualified people. As the role and importance of people with leading ideas and knowledge in countries based on knowledge economy increases, the country's international competitiveness and national and intellectual security depend on intellectual capital, which includes advanced knowledge and high skills. In recent years, the increase in the demand for science and technology specialists in the countries based on the creative economy, the government's desire to attract foreign scientists, highly qualified specialists and talented young people, activates the processes of intellectual migration.

Intellectual migration refers to inter-organizational migration of highly qualified professionals, researchers, scientists and people with knowledge in science, education, technology, engineering, culture and STEM fields within a certain region or within a country. In the context of the globalization of the economy, the increase in demand for highly qualified specialists and the development of technologies and transport infrastructure create conditions for the mobility of labor resources, in turn, for representatives of the intellectual sector and specialists to freely go and work in countries where there is a high demand for their knowledge and skills. Countries with a lower birth rate and an aging population are seeking to attract new knowledge and ideas to their economy and increase the country's competitiveness, while compensating for the shrinking number of labor resources through intellectual migration. Among the

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professionals interested in bringing their ideas and knowledge to new markets, there is also a growing number of entrepreneurs who are becoming owners of innovative start-ups in the recipient countries. Also, intellectual migration creates an opportunity for the exchange of knowledge and experiences between countries, which solves the problems in this field and increases the society's desire for scientific development and technological growth.

Literature Review

According to the calculations of scientists Parsons, the immigration of highly qualified people leads to an increase in the income of the population in the United States [1]. Researchers N. Jaimovich and Henry Siu put forward the idea that the migration of highly qualified people serves to reduce inequality in society [2]. Researcher Shelia W. Siar has studied the causes of highly skilled migration in the case of Filipino migrants in New Zealand and Australia [3]. Scientist J. Hunt studied the issue of immigrants who entered with an educational visa or an intern visa [4]. American researcher G. Borjas analyzed the economic consequences of intellectual migration processes [5]. In his approach, G. Perri researched the possibility of estimating the impact of immigrants on local wages [6]. Scientists J. Hunt and M. Gauthier-Loiselle analyzed the impact of highly qualified personnel on innovation and entrepreneurship [7]. Micheline van Riemsdijk, Scott Basford have studied the reasons for the return home of highly skilled migrants [8].

2. Research Methodology

In the article were used theoretical and from empirical methods of research. In the articles were shown the analysis of research publications and the results were compared with data. The author used systematic approach, observation, comparison, abstraction, idealization and grouping methods of the research methodology.

3. Results and Discussion

Due to intellectual migration, cultural diversity in diverse societies and the formation of a multicultural environment that creates the basis for creativity and efficiency leads to the development of new international scientific and business communities, as well as global research and economic initiatives. However, the fact that international intellectual migration processes create problems for donor countries such as the loss of talented specialists, that is, the flow of "mental potential", prompts governments, society and the business sector to be vigilant in this regard.

At this point, it is worth noting that under the concept of intellectual migration, the migration of highly qualified specialists should be understood, and it is possible to approach the concept of a highly qualified specialist from the point of view of his level of education and profession. But in most countries, the migration of people with at least a two-year bachelor's degree, and above that, master's and doctorate degrees, is considered highly skilled migration or intellectual migration. However, if we approach this matter from the point of view of economists, we should take into account that we cannot limit ourselves to the level of education in the analysis of data, and in this regard, in the UN migration reports, people with higher education are recorded only in the group of people over 25 years old. However, scientists such as Beine, M., Docquier, F., & Rapoport, H. say that the fact that students and labor migrants who came to study from different sources are not studied as a separate group complicates the issue, therefore, recording the age and

place of education of migrants in the formation of the database of the authorities is necessary to study the consequences of intellectual migration for donor countries. they believe that it alleviates [9].

Scientist B. Since Lowell's concept of "highly educated" is one of the most "universal" terms internationally, it is necessary to support the opinion that it can be a criterion for the concept of highly qualified migrants [10]. But from the perspective of the recipient countries, this is somewhat controversial. In particular, in the 1990s, the IHRT-Organization for Economic Cooperation and Development (OECD) introduced the concept that a highly qualified specialist is a specialist with a university degree or equivalent work experience in a certain field, including "independent leaders, high-level managers, specialized technicians, investors, businessmen, sub-contractors and "key" (important) workers" are included [11]. While this approach emphasizes the professional characteristics of highly qualified personnel, it points out that every migrant with higher education may not be a highly qualified specialist for the receiving country. In this regard, Czaika and Parsons proposed to consider [12] only the experts included in the 3 highest lists of the ISCO International Standard Classification of Occupations (managers and senior officials, professionals and technical experts) as highly qualified specialists . At this point, we can emphasize that such an approach is useful in studying the characteristics of intellectual migration at the international level.

However, it is necessary to identify highly qualified migrants not only by their level of education and skills, but also by their salary level, to set a certain wage level limit in this regard, and to accept the migration of people with higher education and certain skills as highly skilled migration. Borjas's ideas about doing so are valid. The reason is that he believes that, despite the fact that the value of a certain skill is different in different countries, it is valued at the same level and the employer knows the net worth of such specialists [13]. The EU Blue Card can be used as an example of the approach to the issue of migrants' qualifications based on the criteria of education and employment. However, according to a number of scholars, it is not always correct to group migrants only in terms of educational level and skills or qualifications, a highly qualified worker can have a wider or narrower meaning than in terms of university education level [14]. For example, athletes or artists who do not always have a higher education are accepted by the receiving country as highly skilled migrants, or welders with vocational training and some medical workers are the occupations with the largest number of admissions in the receiving countries.

At this point, from the point of view of the receiving country, only the level of education of the migrant cannot be the main indicator in determining his qualification, because today in the immigration policy of the receiving countries, the skills of the migrants are the criteria for their qualification, and the recognition of the migrant's qualification by the local system to enter the labor market of a country level is gaining importance. Because speaking of "internationally tradable" skills in the context of global labor markets emphasizes the issue of globally limited human capital. Based on this point of view, researcher A. Solimano proposes to classify highly qualified migrants based on demand as follows [15]:

- A group of productive talents such as entrepreneurs, engineers, and technicians whose activities are directly focused on the production of goods and services;
- Scientists, researchers, leaders of scientific research projects as holders of academic (indirect) talent. They mainly operate in universities, scientific research and analytical centers, and are engaged in the development or acquisition of scientific knowledge, the result of which turns into commercially valuable products and resources;
- There are talented people in the social sector, including doctors, nurses and teachers, who are involved in providing important services in the social sector.

However, it should be noted that in 2000, IHRT began to include the category of international students in its report on highly skilled migrants. The reason for this is that the flow of migrant students forms a group of potentially highly qualified migrants for the country. Their adaptation to the country's language, life and culture, acquiring knowledge at the level required by the government, and communication between students will stimulate the migration of highly qualified personnel in the future and their circulation. In this place P. It is appropriate that Raghuram emphasizes that student migration is an important component of "knowledge migration" [16].

The history of intellectual migration, i.e. migration of highly skilled people, in the 20th and 21st centuries consists of 3 stages:

1. *the early stage*, there were unexpected migrations of highly qualified people due to negative "push" factors due to international and internal disputes;
2. *the industrialized stage*, it was observed in the period aimed at "picking" specialists against the background of the industrialization policy of the states;
3. *the global stage* is observed in the conditions of expanding regionalization, internationalization and globalization of markets.

The following factors influence the development of intellectual migration:

Economic opportunities. The attractiveness of higher wages in the host country, additional incentives and career advancement opportunities.

Opportunities for scientific research. Participation in advanced scientific research projects, use of the latest technologies and image resources.

Educational and scientific-technological resources. Obtaining higher education in attractive, high-quality fields of study and studying or working in countries with advanced scientific resources and innovative technologies.

Business environment. Achieving active and stable international cooperation, access to world markets and investment opportunities, and support for startups and entrepreneurship.

Standard of living. High standard of living, favorable working conditions, access to quality education and health services, and factors of security and political stability.

Cultural diversity. The attractiveness of various cultural and social opportunities for people who value diversity and want to enrich their experience.

Migration policy. Recipient of the country's immigration policy transparency and flexibility.

Intellectual migration refers not only to the migration of science and technology specialists, but also the migration of creative intellectuals. In this regard, the main reason for intellectual migration is the pursuit of higher wages and living standards for high-ranking personnel and the opportunity to fully express themselves. In this process, one should not forget the expansion of social mobility opportunities due to the emergence of a technological environment. In particular, in this regard, the transition to the Bologna education system, which allows for the acquisition of common competences in the territory of the European Union, eased the processes of intellectual migration within the region [17]. At this point, the researchers emphasize that any creative activity cannot be carried out without creating certain social conditions, and the intellectual-creative energy of the employee depends on the environment that forms and develops his natural creative abilities [18].

At this point, the movement of highly qualified personnel from developed countries to developing countries is directly explained by the expansion of the activities of transnational corporations. Large TNCs in the field of information technologies, such as Microsoft and Apple, are creating opportunities for highly qualified people to carry out their activities regardless of geographical and political boundaries. Based on the direct

participation of TNCs, the world's leading universities with faculties such as computer science, computational mathematics and cybernetics have joined a common global network for the purpose of training specialists for information technologies and the world's related sectors of the labor market. Representatives of this sector are the most mobile part of the temporary highly skilled labor force in developed countries. At the same time, the qualification certificate of the major companies in this field is valued no less than the diploma and scientific degree of the leading universities.

Processes of intellectual migration based on its character and purpose, can be divided into academic, business, professional and talent migration. In particular, *academic migration* is divided into the following types:

- *Educational migration*. Migration of people in search of educational opportunities, obtaining scientific degrees, and this migration includes *postdoctoral migration*, which is the migration of young scientists with a doctorate degree to participate in scientific research projects.
- *Exchange of scientists*. Migration of university professors and researchers to participate in scientific and technical projects and innovation ecosystems and exchange knowledge and skills.

Professional migration refers to the mobility of professionals to occupy highly skilled jobs offered in other countries, and it has the following forms:

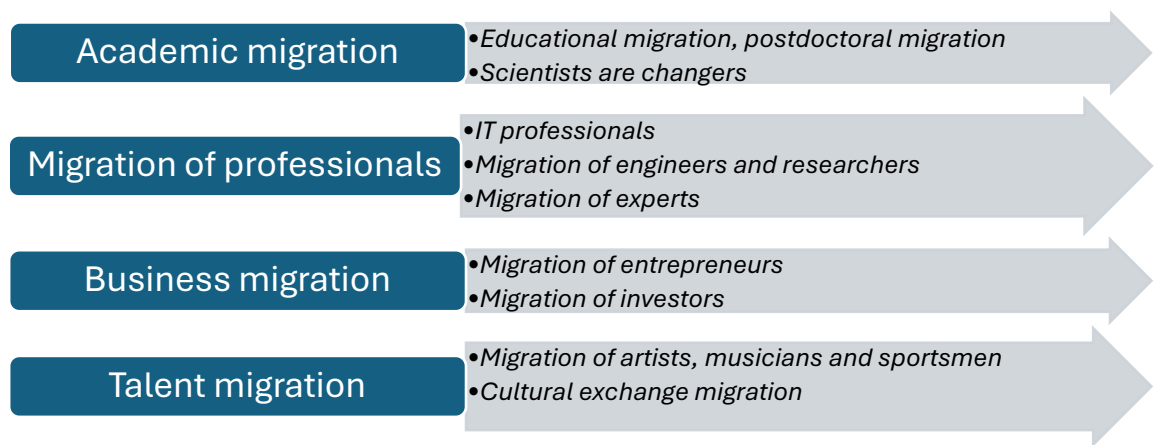
- *Migration of IT specialists*. Migration of IT specialists to countries with higher wages and working conditions.
- *Migration of engineers and researchers*. Participation of people with technical education in innovation and research projects in foreign countries.
- *Migration of experts*. Participation of leading specialists of a certain industry as consultants in projects in foreign countries.

Business migration, including the migration of entrepreneurs and investors, has the following forms:

- *Business migration*. Migration of people to set up their own business based on favorable opportunities created in the receiving country.
- *Migration of investors*. Migration of investors for the purpose of investing in existing companies in foreign countries or participating in start-up projects.

The migration of talents, which includes the migration of art and culture representatives, has the following forms:

- *Migration of artists, musicians and sportsmen*. Migration of artists and sportsmen in search of better opportunities and audience for their creativity and career.
- *Cultural exchange migration*. Movement of people in the field of art and culture to participate in international projects, exhibitions and festivals.



Graph 1. Classification of intellectual migration (migration of skilled workers)

Intellectual migration has various forms, and managing them based on their characteristics can positively change the impact of this process on society, science and economy.

The specific features of intellectual migration are explained by the following:

Education level. Highly skilled migrants generally hold at least a master's degree and are considered professionals in fields such as science, technology, engineering, medicine, business, and STEM.

Global distribution. The migration of highly skilled professionals is spread all over the world, and they mostly move to countries with stable economic growth. 2/3 of highly qualified migrants are concentrated in USA, Canada, Australia and Great Britain, which are the centers of intellectual migration [19].

Economy of talent and knowledge. Intellectual migration is an important part of the knowledge economy. Because the knowledge and skills of professionals have a significant impact on the development of innovations, scientific research and technology. In this way, intellectual migration will stimulate the creation of new jobs, economic growth and the increase of the country's competitiveness.

International competitiveness. The competition of countries and organizations participating in intellectual migration processes to attract the best minds and experts creates favorable conditions for innovation and development. Global competition among countries to attract skilled professionals is driving support for policies and initiatives aimed at facilitating the success and integration of skilled workers.

Visa programs. Countries interested in attracting highly skilled workers offer simplified immigration procedures for such migrants, allowing them to remain in the country permanently and sometimes to obtain citizenship.

Cultural diversity. The migration of people from different cultures provides opportunities for creativity and innovation while creating cultural exchange and diversity in society, providing different approaches to problem solving.

Problems of social integration. Differences in language, culture and customs can create social integration problems for migrating professionals, which in turn can affect their professional adaptations and personal lives.

Prosperity of the recipient country The economic prosperity of the recipient country increases as the migration of highly skilled professionals stimulates the development of economic sectors, scientific research and development, and sectors requiring special skills.

Loss of talent in donor countries. The exodus of top talent from donor countries is setting the stage for a slowdown in economic growth.

Moral issues. Migrants leave the less developed country where they were educated and move to more developed countries to work, creating moral problems such as "brain drain" for donor countries.

4. Conclusion and Suggestion

Intellectual migration refers to the migration of highly educated or professional personnel from one country to another economic sector or sector in order to obtain better wages and living standards [20]. In the last century, the mass migration of representatives of science, education, culture and business spheres encouraged the governments to develop the country's education system and implement measures to increase the level of knowledge of the population. These efforts are reducing language barriers in the global economy and increasing the international mobility of people. In this way, a new segment of the international labor market has been formed in the context of changes in demand and supply for highly qualified personnel.

Intellectual migration is considered within the framework of the following concepts [21]:

- 1) *brain exchange*, that is knowledge and experience exchange that is, it includes the processes of "brain gain" and "brain drain". The essence of this concept is explained by the fact that migrants are looking for a new place of work to introduce their work based on their profession and qualifications. Within this concept, the possibility and status of exchange of knowledge and experience in the donor and recipient countries is understood. "Intellectual flow" refers to the departure of skilled, intellectual and creative personnel and potential specialists such as students and trainees from the country. The concept of "intellectual flow" appeared in the 1950s in the context of the mass migration of British scientists to the United States. During the 1950s and 1960s, the United States experienced significant growth in its economy and science, attracting nearly 100,000 highly skilled workers. Most of the new technologies created after the two world wars in the USA were developed mainly on the basis of fundamental research of scientists "imported" from European countries. In turn, European countries such as Germany, Great Britain, France, Italy, which faced the problem of "brain drain", were forced to attract highly qualified personnel from developing countries for the development of their economy [22]. Thus, donor countries began to experience the problem of "brain drain". The main reasons for staff leaving the country are the interrelated problems of lack of perspective, social status of the scientist and funding. Inadequate funding leads to the deterioration of the material condition of the scientific and technical worker and the weakening of his desire to conduct scientific research activities [23].
- 2) *brain waste* means the departure of highly qualified personnel from the country not only leads to the loss of labor resources for the donor country, but also to a decrease in the country's standard of living and potential opportunities for development. According to calculations of American sociologists, the training of one highly qualified staff in the scientific and technical field will cost approximately 800 thousand US dollars for the donor country [24].
- 3) *Reverse brain drain*, which means "reverse brain drain", this process encourages capital migration, which occurs as a result of large companies transferring the production of goods and services to countries with relatively cheap labor and favorable production conditions. "Reverse brain drain" is an additional factor for the policy of redistribution of global intellectual resources in favor of developing countries, and it stimulates the development of international relations [25].

In short, in the conditions of globalization of information, the relatively high standards of living and working in countries with a high level of development are becoming increasingly impossible for the intellectual elite in the rest of the countries, on the other hand, the policy of purposeful attraction of intellectual migrants of countries whose economy and global competitiveness increasingly depends on the influx of "intellectuals" creates migration of highly qualified people.

Intellectual migration is a complex and multifaceted process that has a serious impact on the world economy, education and culture.

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