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Levchuk K.O.

*Candidate of Economic Sciences, Associate Professor,
Dniprovsk State Technical University***INTELLECTUAL MIGRATION: PROBLEMS AND WAYS OF SOLUTION****ІНТЕЛЕКТУАЛЬНА МІГРАЦІЯ: ПРОБЛЕМИ ТА ШЛЯХИ ВИРІШЕННЯ****ANNOTATION**

The key to the constant development of each modern country lies in its economic potential, which is provided not only by useful minerals, extensive infrastructure but also by human resources. Migration processes are spreading under the conditions of the development of international economic relations. Intellectual labour migration is a characteristic component of these processes. Under this statement, we will understand the migration of highly skilled professionals, in particular scientists, in order to obtain a permanent residence or contractual employment. In this article, we analysed the essence and specificity of intellectual migration, its place and role in general migration processes. We also considered the reasons for intellectual labour migration, outlined the positive and negative consequences of this process. In addition, the ways of forming an effective balanced migration state policy were proposed.

Key words: intellectual migration, competition, migration, threats, losses.

АНОТАЦІЯ

Запорука сталого розвитку кожної сучасної країни полягає в економічному потенціалі, який забезпечується не лише корисними копалинами, розгалуженою інфраструктурою, а й людськими ресурсами. Сьогодні економічний розвиток країни та рівень добробуту її громадян все більшою мірою визначають інтелектуальні ресурси. В умовах розвитку міжнародних економічних відносин поширюються міграційні процеси, характерною складовою яких є інтелектуальна трудова міграція. Під цим поняттям розуміємо міграцію висококваліфікованих фахівців, зокрема науковців, з метою отримання постійного місця проживання або роботи за контрактом. У статті досліджено міграцію цих фахівців із України. Хоча явище «відпливу умів» характерно для всіх країн в тій чи іншій мірі, Україна є одним із найбільших донорів висококваліфікованих та високодосвідчених фахівців. Все це стримує науково-технічний прогрес та економічний розвиток нашої держави. В статті було проаналізовано сутність та специфіку інтелектуальної міграції, її місце і роль у загальних міграційних процесах. Крім того, розглянуті причини цього явища, окреслені позитивні та негативні наслідки міграційних процесів фахівців із вищою освітою. Наука є найефективнішою сферою капіталовкладень, бо прибуток від капіталовкладень в неї набагато вище прибутку інших галузей і може досягати близько 200%. Незважаючи на те, що економічно розвинені країни заохочують та всіляко приваблюють фахівців із вищою освітою, особливо математиків, фізиків та біологів, рівень «відпливу інтелекту» із України – один із найвищих у світі. Лише за останнє десятиліття кількість науковців скоротилася втричі. Однією із причин виїзду за кордон є не лише вища оплата за свою працю, а й більші можливості для творчості та саморозвитку. На завершення в цій статті були запропоновані шляхи формування ефективної збалансованої міграційної політики з боку держави, бо без створення гарантій гідного життя вчених, підтримки висококваліфікованих фахівців і обдарованої молоді та підняття престижу наукової і інтелектуальної праці явище «відпливу умів» не можливо зупинити.

Ключові слова: інтелектуальна еміграція, конкурентна боротьба, міграційні процеси, загрози, збитки.

АННОТАЦИЯ

Залог устойчивого развития каждой современной страны заключается в экономическом потенциале, который обеспечивается не только полезными ископаемыми, разветвленной

инфраструктурой, но и человеческими ресурсами. В условиях развития международных экономических отношений распространяются миграционные процессы, характерной составляющей которых является интеллектуальная трудовая миграция. Под этим понятием понимаем миграцию высококвалифицированных специалистов, в частности научных работников, с целью получения постоянного местожительства или работы по контракту. В статье проанализирована сущность и специфика интеллектуальной миграции, ее место и роль, в общих миграционных процессах. Рассмотрены причины интеллектуальной трудовой миграции, очерчены позитивные и негативные последствия этого процесса. Кроме этого были предложены пути формирования эффективной сбалансированной миграционной политики со стороны государства.

Ключевые слова: интеллектуальная эмиграция, конкурентная борьба, миграционные процессы, угрозы, убытки.

Problem setting. International labour migration is becoming a global problem. As a part of migration flow study, the role of the research of migration phenomenon of highly qualified specialists is increased, because as we know, without the development of science, we can't talk about the innovative development of the state's economy as a whole. Scientist R. Florida, who explored the peculiarities of the innovative development of certain regions of the United States, arrived at the conclusion that only those states that had enough representatives of the "creative class," the core of which are researchers and engineers, have prospects of intensive innovation development. The states with uncomfortable conditions for the life and work of these categories of people are rapidly losing their potential and the pace of economic renewal, and thus the chances to survive in stiff competition [1; 2; 6]. According to the Global Competitiveness Index, published by the World Economic Forum in 2017, Ukraine occupies the 81st place among 137 countries [6]. According to experts, the most problematic factors for doing business in Ukraine are lack of educated labour and insufficient potential for innovations, as well as inflation and corruption. As we know, the birth of innovations take place in research institutes, universities, laboratories, and other places, which not only create new knowledge, conduct research and development but also ensure their implementation in practice. Thus, the study of the intellectual migration process is very relevant because this process deprives the country of perspective and talented researchers and, therefore, slows down the pace of development of individual sectors of the economy, education, and the state as a whole.

Analysis of recent researches and publications. To the development of methodology and methods of study of labour migration are devoted some works of such domestic and foreign scientists as J. Simon, S. Castles, M. Toffler, B. Ghosh, R. Appleyard, S. Bandura, O. Bugrova, O. Gladun, E. Lybanova, O. Malinovskaya, S. Melnik, and others. The essence and specificity of intellectual migration, its place and role in the overall migration processes are highlighted in the articles of V. Bakirov, O. Ikonnikova, M. Isakov, A. Kamensky, and others. Thus, both in foreign and domestic literature, the considerable experience of studying labour migration problems are accumulated.

The purpose of the research is to analyse the intellectual migration in Ukraine, search for ways to reduce it and create the appropriate conditions for the development of Ukraine's intellectual potential.

Presentation of the main research material. The key to the sustainable development of each modern country lies in the economic potential, which is provided not only by useful minerals, extensive infrastructure but also by human resources.

Migration processes are spreading under the conditions of the development of international economic relations, the characteristic component of which is intellectual labour migration. Speaking about this kind of migration, economists use the term "outflow of intelligence" or "brain drain." If we use this term, we mean the emigration of highly skilled professionals, in particular, scientists, who intend to get a permanent residence or work by a contract, that is, irreversible or long-term emigration of scientists and highly skilled specialists.

Intellectual migration can be observed in almost all countries. Especially it can be seen in such countries where the demand for specialists with higher education is less than their supply. The processes of "brain drain" are observed in some western European countries such as Ukraine, Poland, and others. The arrival of scholars from Europe to the USA is due not to economic factors but to the possibility of self-realization.

In the National Academy of Sciences in the USA, we can see approximately 23% of emigrants and one-third of them among the Nobel Prize winners. The migration policy of many developed countries is based on the principles of encouraging and attracting migrants because creative and intelligent people determine the competitiveness of the economic system and is a key resource for the country's development. These countries care not only for the growth and qualitative growth of highly skilled professionals but also create laboratories, research centres, invest in scientific institutions. The country that accepts one average scientist of humanities saves 230 thousand dollars, an engineer – 253 thousand dollars, a doctor – 646 thousand dollars. Besides, this country increases the competitiveness of the national producer by reducing labour costs, increases domes-

tic demand for goods and services, saves money for training of these specialists, and has other advantages which renew its labour resources.

According to unofficial data, approximately 7 million Ukrainians are employed abroad in various spheres. According to the data of the State Statistics Service of Ukraine, this figure is significantly lower, every year from 1 to 4 million Ukrainians work abroad. Today more than 30% of Ukrainian scientists are working for the development of the economy of foreign countries [4].

To be honest, not all scholars who leave their country work in the scientific sphere. Statistics show that only one-fifth of the intellectual migrants work within their specialty and this is usually the most skilled professionals who have already known for their works and developments.

The indicator of the economic saturation of scientific personnel in Ukraine is 6 people per 1,000 of the economically active population, which exceeds the threshold value by only one point. In Lithuania and Hungary, this indicator compiles 12, in Poland – 8, in EU – 15.5 [2; 3; 6].

Highly developed world states have approached to the formation of the economic system through the development of an intellectual product with advanced intelligence, analytical skills, ability to respond timely to actual world trends of development, with a high level of self-organization, self-control, and morality. The intellectual person itself determines the competitiveness of economic systems, is the basis of the nations' wealth and a key resource for their development. The ability of the economy to create and effectively use a highly developed personality increasingly determines the economic development of the country and the well-being of its citizens. Science is the most effective area of investment. In world practice, it is assumed that the return on investment in it is 100-200% and much higher than the profit of other industries. According to foreign economists, if we invest 1 dollar in science we will get a profit of 4-7 dollars per year. The efficiency of science is also high in Ukraine. If we spend 1 hryvnia on research and development we will get a profit of 3-8 hryvnias.

According to statistics in Ukraine in recent years (2010–2016), the number of employed in science and scientific services as a whole has decreased from 182484 thousand to 97912 thousand people. The category of researchers has decreased by 70050 thousand people, technicians – by 10113 thousand people, supporting personnel – 4409 thousand people (Table 1) [4].

The staff formation of Ukrainian science takes place contrary to global trends. If the number of scientists has increased by 20% in the world in recent years, then in Ukraine only in 2015 at the Academy of Sciences 2730 people, including 95 – doctors of science and 511 – candidates of science were dismissed. In addition, domestic science loses a lot of money and time because in order to prepare a skilled worker it takes 1-2 years, for

Table 1

**Number of employees of scientific organizations according to personnel categories
(number of people)**

	Number of employees – total	Including				
		Those of them who have a scientific degree		researches	engineers	supporting personnel
		Doctors of Science	Ph.D. (Candidate of Science)			
2010	182484	11974	46685	133744	20113	28627
2011	175330	11677	46321	130403	17260	27667
2012	164340	11172	42050	122106	15509	26725
2013	155386	11155	41196	115806	14209	25371
2014	136123	9983	37082	101440	12299	22384
2015	122504	9571	32849	90249	11178	21077
2016	97912	7091	20208	63694	10000	24218

a teacher or engineer – up to 4-5 years, and for the preparation of a full-time researcher it takes much longer time. It takes about 10 years to prepare a candidate of sciences, 15 and more years for doctors of sciences [5; 6; 8].

Since 1991 the level of intellectual migration from Ukraine has become increasingly threatening, the number of scientists has decreased by three times in our country. From 2005 to 2015, the number of scientific institutions in Ukraine declined by 50%, as well as the science-intensive Gross Domestic Product. This is the lowest indicator in Europe. In recent years, Ukraine has lost more than 20 thousand young researchers [1; 3; 8].

The level of “outflow of intelligence” from Ukraine is one of the biggest in the world. The most talented and promising young scientists leave our country. For the last five years among the scientists who have left Ukraine for a permanent residence abroad were biologists, physicists, and mathematicians. In other words, the specialists who in many respects might determine the innovation development of the country. Besides, within Ukraine, a significant proportion of young scientists cease scientific activities and choose other segments of the economy of the country, which also determines the need for reforms in this area. Contrary to world trends, when advanced countries attract and motivate young scholars in every way, Ukraine loses these specialists, as well as the opportunity of an innovative breakthrough [6].

Intellectual migration is caused by the same factors as the migration of unskilled labour, among which we can name economic, political, and social factors. The main cause of intellectual migration in Ukraine is the deep-seated crisis of domestic science, which is connected with the reduction of internal expenses on research and development; insufficient material and technical support of the research process; low material and moral assessment of the work of scientists; low level of scientific and informational support for theoretical research and development; lack of modern scientific equipment, the vulnerability

of property rights to the product of intellectual labour etc. [1; 2; 8].

Intelligent labour human resources go beyond national borders not only in search of higher material rewards for their work but also in search of better-equipped laboratories, more comfortable living conditions, more rights and political freedom and better opportunities for creativity and self-development [2].

Political reasons are equally important, which include the crisis of political power, political instability, human rights violations, the intensification of inter-ethnic relations etc.

After receiving Ukraine’s independence, the recipients of intellectual migration were the nearest neighbouring countries: Russia and Poland, but at present, the geographical directions have considerably expanded. The USA, Germany, Israel, Canada, Russia, and Poland are the main target countries for foreign migration of highly skilled personnel [4].

Conclusions. Thus, it is necessary to ensure the adoption of a state program to increase the prestige of scientific and intellectual work, innovative culture of society. Creating a guarantee of a worthy life of scientists, it is advisable to provide targeted support for domestic scholars of high qualification, talented young people through a flexible system of additional payments, assignments for internships in prestigious higher educational institutions or research centres in Europe and the world, differentiated state scholarships, facilitation of the exchange of experience etc. It is also needed to implement the legislation on intellectual property protection, to improve the system of pension provision of scientific and scientific-pedagogical personnel, which will promote the increase of the social status of a scientist. The system of state regulation of the development of scientific sphere must also be improved, it is necessary to create a positive image of science among young people. It is also important to define the scientific areas that are most affected by the “outflow of intelligence” and are particu-

larly significant in terms of national interests. For that purpose, it is advisable to initiate the development and adoption of the National Program of Support for Specialists who have received higher education in a top-priority specialty with the aim of demotivating their departure abroad or employment not on their specialty.

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