THE IMPACT OF INTERNATIONAL LABOUR MIGRATION ON THE SOCIO-ECONOMIC DEVELOPMENT OF THE REGION

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ABSTRACT

The article considers the main aspects of the development of international labour migration and the nature of its impact on the socio-economic development of the region.

A method of forecasting migration flows proposed, taking into account the socio-economic development of the sending and receiving regions. To forecast the migration flows of the region is proposed to use the index of regional migration attractiveness of the region. The article considers and defines the nature and prospects of migration processes, both external and internal, for Ukraine. It is shown that uncontrolled migration flows lead to a deepening of the imbalance of development of the regions of

Ukraine. An essential element of migration policy should be the formation of appropriate conditions to reduce the outflow of highly qualified personnel abroad and the formation of mechanisms for the return of migrant workers to Ukraine.

1. INTRODUCTION

Interstate and interregional migration, which takes the form of forced or voluntary movement of labour across state and regional borders, is becoming a trend of population movement to more developed and prosperous regions from regions that are unable to provide jobs and living standards. The lack of levers to regulate migration processes makes it very difficult to balance the inflow and outflow of population to individual territories, which significantly affects the socio-demographic and economic situation of both individual regions and countries as a whole. Migration processes significantly affect the quality of life of the population and the economic situation in the regions, as the consequences of uncontrolled labour migration is its significant impact on the shadow economy. Recently, to obtain a guarantee of social protection in the territory where migrant workers are employed and temporarily reside, the most pressing issue is the possibility of having employment in the formal sector of the economy.

In addition to external migration, the processes of interregional migration within the country significantly affect the development of the demographic and economic situation in the regions. Uncontrolled internal migration processes significantly affect the level of supply and demand for labour in regional labour markets. The consequences of internal migration are complicated to predict, which makes it impossible to develop an adequate regional development policy, complicates the process of making management decisions aimed at improving the quality of life in some regions where the most active influxes of migrants.

2. OBJECTIVES OF THE STUDY

In the framework of this study, the following problematic issues are identified:

- to determine the features of international labour migration and prospects for the development of migration processes;

- to develop a methodology for assessing and forecasting the impact of international labour migration on the socio-economic development of the region.

3. THEORETICAL SECTION

3.1. The Essence and Main Problems of International Labour Migration

International migration is one of the main features of globalization, a consequence of great differences in the level and quality of life both within states and between states.

Current research identifies the following approaches to the interpretation of migration [1-6]:

- all types of population movements of public importance, on a territorial basis;

- all the diversity of spatial movement of the population, regardless of its nature and goals;

- the spatial phenomenon, which is associated with the movement of people with a permanent or temporary change of residence, as well as movement between places of residence and work;

- the process of spatial movement of people, the consequence of which is the territorial redistribution of the population.

According to the International Organization for Migration (IOM), a migrant is any person who moves or has already moved across an international border or within a country and has left his or her permanent residence regardless of (1) the legal status of the person; (2) voluntary or involuntary relocation; (3) reasons for relocation; or (4) length of stay [7].

There are two types of migration: internal and external. External migration may involve moving from one country to another for permanent residence or entering the country of foreign nationals for permanent or long-term residence. Re-emigration is also possible - the return of emigrants to their place of primary residence (or origin).

Practice shows that the global economy depends on migrant workers. This is especially true for countries with ageing populations with low birth rates. Labour migration facilitates the transfer and exchange of experience, new knowledge and human resources, which facilitates the exchange of ideas and stimulates cultural and scientific progress.

In recent years, there has been a growing interest in the world community in mutual and coordinated action in the field of migration. In 1989, the International Organization for Migration (IOM) was established on the basis of the Intergovernmental Committee on Migration, and in 2003 the Global Commission on International Migration was established. The UN General Assembly held a forum on international migration and development in September 2006. The forum demonstrated the desire of the world community to study the relationship and complementary nature of international migration and development to identify ways and means to maximize the benefits of international migration and minimize its negative consequences. The main priorities are highlighted - from monitoring the observance of migrants' rights and preventing exploitation and trafficking in human beings to providing significant benefits for the development and establishment of harmonious relations between people of different origins living side by side in one society or state.

According to the Concept of Sustainable Development for the period up to 2030, a positive assessment of the contribution of migration processes to sustainable development is given. Eleven of the 17 Sustainable Development Goals contain objectives and indicators that are applicable to migration and mobility. The goals are to promote the development of orderly, safe, legal and responsible migration and mobility of people, including through a planned and well-thought-out migration policy [8]. The key tasks in the regulation of international labour migration are the fight against human trafficking, reducing operating costs for remittances, ensuring student mobility and more.

Migration smooths out existing interregional differences in the level and quality of life. Unemployment in large cities is generally lower than in the country as a whole. Migration balances labour markets and responds to interregional income differentiation.

The dynamic modelling of interregional migration flows and their impact on the development of regional labour markets is based on the liberal model. The liberal or cosmopolitan model is based on universal democratic values, which are based on the paradigm of the priority of human rights over civil rights. Thus, the human right to free movement is one of the fundamental in a democratic society.

3.2. The Essence and Main Levers of the Impact of Migration on the Socio-Economic Development of Regions

The main trend of modern migration processes, most researchers believe the gradual expansion of the migration outflow zone, a significant reduction in the migration zone and the tendency to increase the polarization of the country in terms of the effectiveness of migration flows. The reasons for such qualitative transformations of migration processes are the uneven level of socio-economic development of the country's regions, which leads to a significant difference in the attractiveness of areas for migrants. It is clear that the most attractive regions are the capital and economically developed regions. This is primarily due to the development of a diversified labour market in the region, significant labour needs, real employment opportunities with a fairly high level of earnings, developed social infrastructure of the region, which attracts migrants. Such regions become regions of attraction for migrant workers. Accordingly, underdeveloped regions with no jobs and low wages are pushing the population out.

An important qualitative characteristic of attractive regions is the transport and geographical location, the proximity of highways, remoteness from megacities, infrastructure development.

Regions with favourable natural and climatic conditions are becoming attractive for migrant workers, which promotes the development of agriculture, trade, resort business, catering, etc. These industries are characterized by rapid turnover of funds, which provides a fairly stable income for the population, including migrants.

The nature of the impact of migration on the socio-economic development of regions is to identify regional differentiation of this process.

The analysis of the impact of migration on the socio-economic development of the regions is based on the methodology of statistical research, which includes methods of cluster analysis, multifactor correlation-regression analysis. The task is to assess the effectiveness of the impact of migration based on several interrelated indicators. This process is quite complex, so to identify the impact of migration on the socio-economic development of regions, it is necessary to form a system of statistical indicators in the form of a model set of various indicators. There is a traditional system of migration indicators, taking into account the main factors of migration processes: demographic indicators, labour, indicators of the level and quality of life of the population of the region, investment and innovation indicators.

The assessment is carried out by methods of cluster analysis, to differentiate regions by the nature and level of impact of migration processes. Primary to the attractiveness of migration flows is the level of development of the region, which becomes a region of attraction for migrants. Due to the influx of migrant workers, the labour market is stabilizing and transforming. Detailed characteristics of the impact of migration on the socio-economic development of regions can be obtained using methods of regression analysis, which identifies variables directly related to the level of development of the region, as well as identifying the nature of the identified links. The analysis should be conducted separately for the regions that receive migrant workers and those that do.

Of practical interest is the modelling of the impact of migration on the socio-economic development of regions, taking into account changes in the vectors of migration flows.

4. METHODOLOGY

The methodological basis for identifying the impact of international labour migration on the socio-economic development of the region should be forecasting the development of migration processes and the labour market. The methodological features of the relevant model

should be the comparison of wage levels in the countries of departure and destination of migrants; taking into account the degree of change in the probability of employment in the host region with the influx of migrants; estimation of direct costs when using the indicator of the distance between the regions of departure and gravity, as in the gravitational model; detection of the impact of migration networks when replacing the population of the region of gravity in the gravity model on the number of migrants who are in the area; determining the migrant's salary when searching for and selecting matches in resolving the conflict of interests of the migrant and the employer. The modelling is based on economic factors of labour displacement and attraction (unemployment rate, the total number of vacancies, the number of migrant population per year, etc.). Besides, a factor in the choice of an individual region for migration is the degree of development of the labour market and infrastructure in the region of attraction. Multi-regional modelling will predict the displacement of migrants from poorer countries who are willing to work for lower wages. These other migrants are willing to decide to reverse migration or choose another destination region.

5. RESULTS AND DISCUSSION

5.1. Modelling of Forecasting Migration Processes in the Regions

Migration processes are, in essence, socio-demographic, which significantly affect the development of economic systems of the regions involved in these migration processes. Forecasting the impact of international labour migration on the socio-economic development of the region, interdependent on the development of migration processes and the labour market in the region, consists of a dynamic equation of migration flows and basic wage functions, built-in continuous time with a reference point in t_0. The task involves building a dynamic model of migration flow. The model is a synthetic construction, combining: the gravitational model of K. Kumo [9], the problem of optimizing traffic flows and elements of the logistical dynamics of population growth of Verhulst [10-11]. The model reflects the movement of the population and the processes that occur during the formation of the corresponding migration flows. Actual data on the unemployment rate in the region, the number of jobs (vacancies), interregional migration flows are used. Indicators are used to model the forecast: average wages, crime rate, quality of life of the region's population. These parameters are combined with the Cobb-Douglas function [12].

Suppose there are n regions of attraction and m countries of departure of migrants in which there are no obstacles to labour mobility. The number of labour migrants from the country of origin i in the region of gravity j at time t is denoted by $x_{ij}(p)$. The rational individual decides to migrate from the country of departure i to the region of gravity j based on a comparison of wage levels in these areas (w_i and w_j, respectively). This decision will be positive if the expected income from the earnings gap in the country of origin and destination of the migrant is positive, $w_j - w_i > 0$. Suppose that w_i will depend on the number of migrant workers from the country of origin i, located in n regions of gravity:

$$x_i\left(t_p\right) = \sum_{j=1}^{n} x_{ij}\left(t_p\right) \tag{1}$$

where w_j – from the number of labour migrants from m countries of departure, located in the region of attraction j:

$$x_j(t_p) = \sum_{i=1}^{m} x_{ij}(t_p) x_i(t_p) = \sum_{j=1}^{n} x_{ij}(t_p) \tag{2}$$

Then the solution to the issue of migration can be represented as follows:

1) $w_j\left(x_j(t_p)\right) - w_i\left(x_i(t_p)\right) > 0$– a positive decision is made on migration from country i to region j;

2) $w_j\left(x_j(t_p)\right) - w_i\left(x_i(t_p)\right) < 0$ – a decision is made to reverse migration to country i or to move to another region of gravity $k \neq j$, for which the condition $w_k\left(x_k(t_p)\right) - w_i\left(x_i(t_p)\right) > 0$.

To decide on migration, according to the theory of rational choice, in addition to maximizing the expected income is the important point is to minimize migration costs, including direct costs associated with relocation. Experience shows that other things being equal, from several potential migration regions, an individual chooses the territorially closer one. In the model, this factor represents the indicator d_{ij} – the distance from the capital of the country of departure i to the regional center of gravity j.

To regulate migration processes, there are migration networks, the level of development of which depends on the number of migrants who previously arrived in the region of attraction j from the same country of departure i. The influence of migration networks on the regulation of migration processes in the model is represented by the indicator $x_{ij} t(p)$.

When modelling, it is important to take into account the limited migration outflow from the country of departure M_i. Such restrictions are due to various factors: the limited number of potential migrants, the psychological readiness of the population for the migration process, and so on.

The dynamic model for estimating the flow of migrant workers from the country of departure i to the region of gravity j at time t_1 is as follows:

$$x_{ij}(t_{p+1}) = x_{ij}(t_p) + \Delta\alpha_j x_{ij}(t_p)(M_i - x_i(t_p))(w_j(t_p) - w_i(t_p)) \tag{3}$$

where α_j – the calibration factor for the region j.

The influx of migrants to the regions of gravity causes a decrease in demand for labour, and, consequently, lower wages. However, as experience shows, the amount of wages depends more on the level of labour skills and the demand for specific vacancies.

The following formula is used to forecast the migration of the population from a certain territory to the region of gravity:

$$x_{ik}(t_{s+1}) = \frac{q x_{jk}(t_s)(b_j - \sum_{k=1}(x_{jk}(t_s))(a_k - \sum_{j=1}(x_{jk}(t_s))))}{r_{jk}} \tag{4}$$

where $(x_{jk}(t_s) -$ is the flow from region j to region k;

$j = 1, ...; k = 1, ...;$

q – coefficient of "popularity" of the region for migration, calculated using the Cobb-Douglas function;

b_j – region that gives migrants (the number of unemployed in a given region);

a_k – host region (number of vacancies in a given region);

$qx_{jk}(t_s)$ – the coefficient of logistic dynamics.

In the case of the significant distance of the regions from each other, the distance becomes an important resultant factor, the dependence of which is inversely proportional: the greater the distance, the less likely migration of workers to the region.

This model is a fairly universal tool for forecasting migration flows, as it allows you to specify any number of regions that send and receive migrants, as well as to identify the nature of the links between them. In addition, it is possible to take into account the coefficients that describe the macroeconomic indicators of the regions: the state of the environment, overall quality of life, crime rate, average wages, distance, purchasing power, level of income and more.

5.2. Characteristics of the Impact of International Labour Migration on the Socio-Economic Development of Regions

In the absence of restraining barriers to migration flows, the likelihood of creating or eliminating imbalances in the development of economic systems of related regions increases. Migration flows are usually directed from regions with less developed economic systems and infrastructure to more prosperous regions.

The need for additional labour force at the regional level can be assessed by calculating the index of regional migration attractiveness. The Index is calculated, taking into account the gross regional product and the number of the economically active population of the region:

$$I_{rm} = \frac{GRP_i}{\sum_{i=1}^n GRP_i} \bigg/ \frac{EAP_i}{\sum_{i=1}^n EAP_i} \qquad (5)$$

where GRP_i – gross regional product of the i-th region; EAP_i – the number of economically active population of the i-th region. The results of the calculation are summarized in Table 1.

According to Table 1, in Ukraine, the most attractive centres of migration and the need for additional labour force are Kyiv city, Kyiv, Poltava, Dnipropetrovsk regions. Indices of migration attractiveness of these regions are the highest among other regions of Ukraine. The five least attractive regions for immigration include Chernivtsi, Zakarpattia, Zhytomyr, Chernihiv and Sumy regions.

There is a shortage of non-disabled people in Kyiv city, where the level of migration attractiveness is almost three times higher than in other regions, as well as in Kyiv, Dnipropetrovsk and Poltava regions. These regions of Ukraine are the nuclei of attracting human resources of the country's migration system. The region with variable migratory attractiveness is the Donetsk region, which, possessing significant natural resources and industrial opportunities, has always had a high demand for labour. However, the military-political conflict in eastern Ukraine made it impossible for many enterprises to operate, which reduced the level of migration attractiveness.

Table 1 Index of regional migration attractiveness of regions of Ukraine

Region (area) of Ukraine	2009	2011	2013	2015	2017
Vinnytsia	0,602	0,661	0,638	0,747	0,767
Volyn	0,621	0,661	0,616	0,667	0,623
Dnipropetrovsk	1,461	1,136	1,342	1,384	1,189
Donetsk	1,205	1,321	1,175	0,765	1,188
Zhytomyr	0,560	0,601	0,605	0,644	0,631
Zakarpattia	0,520	0,571	0,546	0,527	0,434
Zaporizhzhia	1,090	1,072	0,922	0,980	0,962
Ivano-Frankivsk	0,706	0,794	0,805	0,793	0,634
Kyiv	0,981	0,912	1,279	1,269	1,226
Kirovograd	0,650	0,741	0,691	0,820	0,808
Luhansk	0,873	0,841	0,810	0,398	0,664
Lviv	0,698	0,738	0,774	0,806	0,762
Mykolayiv	0,754	0,849	0,748	0,806	0,789
Odesa	0,977	0,960	0,854	0,869	0,840
Poltava	1,072	1,229	1,176	1,287	1,340
Rivne	0,624	0,660	0,593	0,677	0,560
Sumy	0,641	0,708	0,651	0,717	0,661
Ternopil	0,529	0,514	0,547	0,580	0,508
Kharkiv	0,995	0,943	0,889	0,913	0,882
Kherson	0,553	0,610	0,549	0,584	0,587
Khmelnytsky	0,577	0,626	0,623	0,701	0,653
Cherkasy	0,699	0,662	0,750	0,826	0,775
Chernivtsi	0,493	0,492	0,465	0,464	0,388
Chernihiv	0,638	0,723	0,674	0,714	0,682
Kyiv city	2,687	2,612	2,764	3,059	2,880

Thus, the main motives for migration are economic reasons, and the most important is regional labour markets, which shape the direction of migration flows, acting as regulators of the intensity of migration flows and a vital element of the territorial migration system. The main factors influencing the migration advantage determine the directions of competitive advantages of the region/area.

In 2019, the number of migrants in the world reached 272 million. In 2000, the number of migrants in the world was about 173 million people. However, the share of international migrants in the total population of the planet has hardly changed in recent decades: 3.4% in 2017, 2.8% in 2000 and 2.3% in 1980. Today, there are 70 million internally displaced persons in the world, including 26 million refugees, 3.5 million asylum seekers and more than 41 million internally displaced persons.

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The migration of the population of Ukraine in relation to the arrived migrants is presented in Fig. 1.
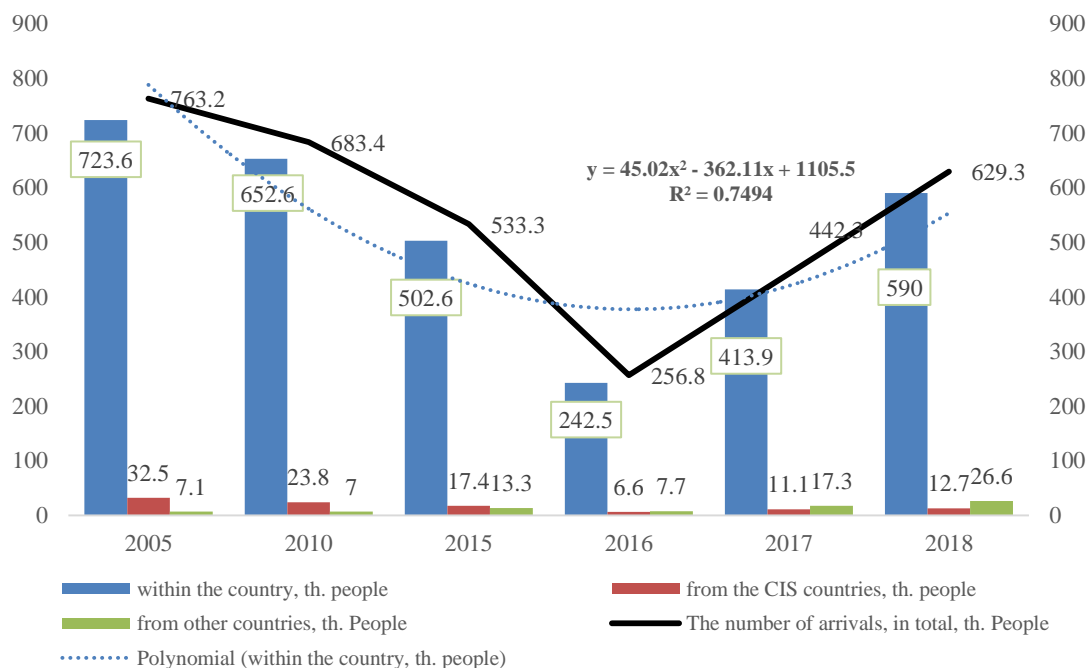

Figure 1 Dynamics of migrants arriving in Ukraine and regions of the country

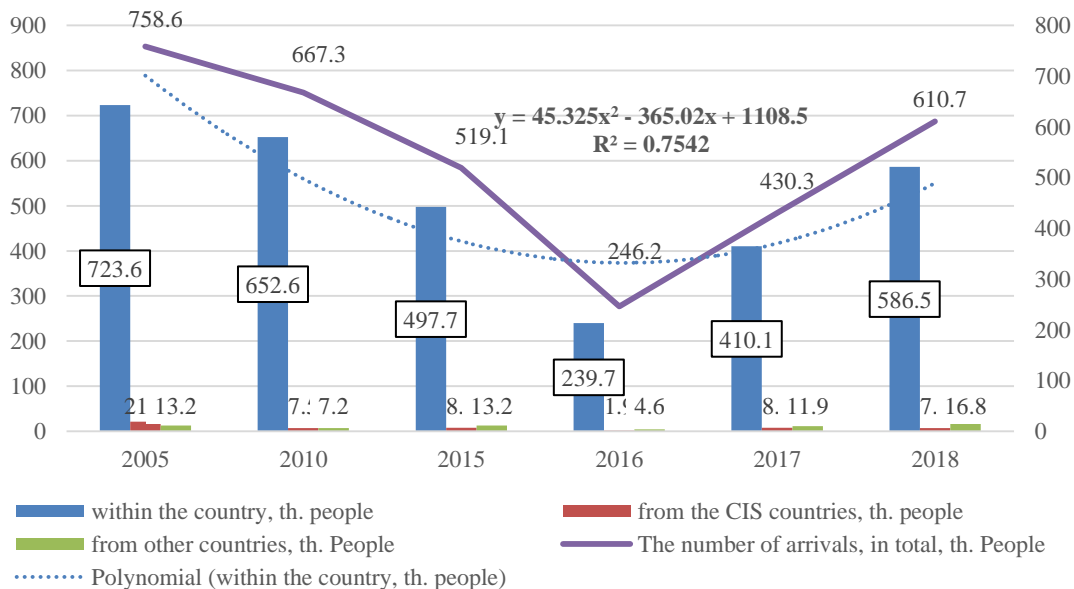The migration of the population of Ukraine in relation to outgoing migrants is presented in Fig. 2.

Figure 2 Dynamics of migrants leaving Ukraine and leaving regions of the country

According to the figures, the least active movement of the population of Ukraine was in 2016. The most active is the movement of population within the country. This indicates a low level of psychological readiness of the population of Ukraine for international migration. In addition, the low level of financial readiness to find a new place of residence forces people to

search for better conditions within the country. Since 2017, the process of labour migration has intensified significantly, with a tendency to increase such activity (2.7 million people per year). In Ukraine, the number of newcomers to permanent residence exceeded the number of those who left the country. The positive balance of migration in Ukraine was formed both due to the migration exchange with the CIS countries and due to the excess of the number of arrivals from other foreign countries over the number of those who left them.

Internal migration in Ukraine occurs spontaneously; it is not taken into account in regional development plans and programs. This is mainly the goal of employment in more prosperous regions, such as the capital. Migrants are the most active representatives of rural settlements and depressed regions. Such unregulated migration deepens the country's regional disparities. The socio-economic situation in Ukraine is not favourable for migration attractiveness. The reasons for immigration are mainly the education of international students. There are no mechanisms for the return of foreign Ukrainians in Ukraine. In addition, the system of attracting highly qualified specialists from abroad does not work, but, on the contrary, the low level of salaries is the reason for the outflow of highly qualified personnel from the country.

In recent years, there has been a change in the vector regarding the countries of employment of Ukrainian labour migrants. Thus, migration to Russia decreased by at least a third, and the number of migrants to Poland tripled to 0.5 million.

Given the large number of Ukrainian migrants in Italy and the Czech Republic, the European Union is the largest region for the employment of migrants from Ukraine. Three of the four Ukrainian labour migrants in 2017 worked in EU countries (Fig. 3).
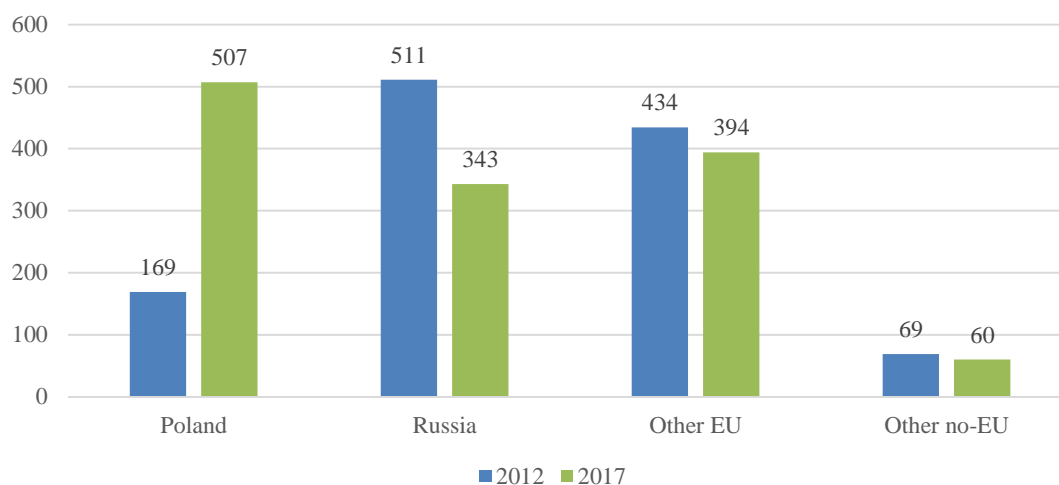

Figure 3 Distribution of labour migrants from Ukraine by countries of employment

According to a study by the National Bank of Poland, in 2017-2018, 200,000 Ukrainian labour migrants came to this country every year. In 2019, labour migration from Ukraine slowed down. Almost 70% of labour migrants came from western Ukraine, although only 27% of the country's population lives in the region. Higher migration activity has always been characteristic of the western regions of Ukraine, as these are regions with a low level of GRP (16% of Ukraine's GDP). The majority of migrant workers (70%) are men. In the countries of employment, the only exception is Italy, where 71% of migrant workers are women, who are likely to provide care services in Italian families. In Russia and Poland, manual labour in agriculture, construction and industry predominates.

41% of migrant workers are under the age of 35, compared to 34% of the total population. This is even more pronounced in Poland, where 47% of Ukrainian migrant workers are under

35 years of age. Migrants are almost equally from cities and villages. As less than a third of Ukrainians live in rural areas, migration is twice as common there as in urban areas. People with higher education are less likely to migrate, while people with vocational education are outnumbered by migrant workers. The share of migrants with higher education (33%) is lower than among the working-age population (45%). On the contrary, people with vocational training make up 34% of migrants (46% in Poland), which is only 24% of the working-age population. More than half of migrants in the EU are employed in work that requires basic training. 46% of migrants in Poland, 56% in Italy and only 21% in Russia stated that they are highly qualified for the job they perform. According to statistics, 26.8% of migrant workers worked abroad in their speciality and qualification, 36% - in jobs that did not require skills, about 30% were retrained.

Some experts believe that labour migration has a positive impact on Ukraine's economy: remittances increased from $ 7 billion in 2015 to $ 10 billion in 2018 or about 8% of GDP. This is a significant contribution to household income. Net remittances to Ukraine, 2015-2018 are presented in Figure 4. In 2019, the volume of private remittances to Ukraine amounted to almost 12 billion dollars. Transfers from Ukraine abroad in 2019 amounted to nearly $ 0.6 billion in equivalent. Of these, nearly $ 2.3 billion came to Ukraine through money transfer systems or about one-fifth of all private transfers to Ukraine. And from Ukraine - almost 0.4 billion dollars, i.e. about two-thirds of all private transfers from Ukraine.
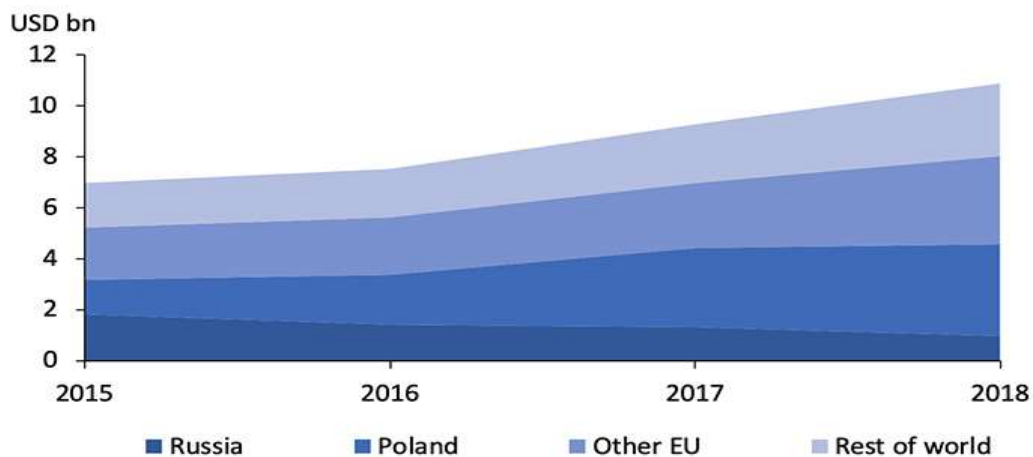

Figure 4 Net remittances to Ukraine, 2015-2018 by country of employment

By country, the volume of transfers made through money transfer systems was distributed as follows:

to Ukraine: from the USA – 18%; from Israel – 14%; from Italy – 9%; from Russia – 7%; from Poland – 7%; from other 219 countries – 45%;

from Ukraine: to Russia – 31%; to Georgia – 11%; to Azerbaijan – 6%; to China – 5%; to Uzbekistan – 5%; to the other 195 countries – 42%.

The pay gap between Ukraine and European countries that receive migrants remains significant. Although the average monthly salary in Ukraine has increased significantly, from $ 192 in 2015 (the lowest figure during the economic crisis) to $ 326 in 2018, it is only about a quarter of the average salary in Poland or the Czech Republic and less than one-tenth in Western or northern countries EU.

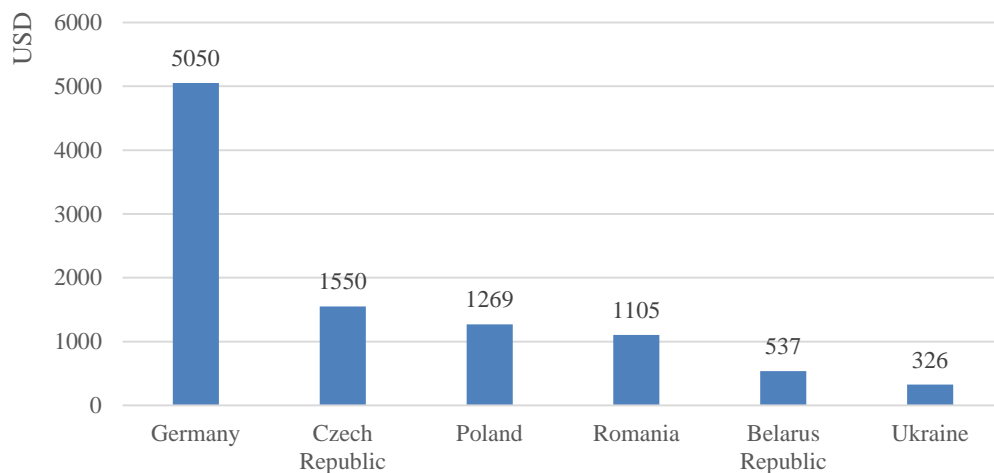The monthly average wage of workers is shown in Fig. 5.

Figure 5 The average monthly salary of Ukrainian migrants in European countries

Thus, the wage gap will continue to be an incentive for migration.

Further growth and openness of the EU countries to labour migrants from Ukraine is forecast. This is due to demographic change and the ageing of European populations, so due to staff shortages, governments will adjust their immigration policies.

Labour migration remains an essential factor for Ukraine's economy.

However, it is thought that the effects of migrants and Ukraine's economy may change in the long run. The reason may be such phenomena as price competitiveness, investment climate, public finances.

It is quite challenging to regulate the process of international labour migration. However, it is necessary to create a database of statistics to understand the critical trends of migration processes and predict their possible impact on the development of Ukraine's economy. Therefore, migration processes become part of strategic planning both at the national level and at the level of individual regions most involved in migration processes. In the system of public administration, it is essential to introduce tools to reduce regional differences, to introduce diaspora policies in order to attract Ukrainians abroad to the economy and social life of the country.

Public policy should encourage migrants to invest in Ukraine.

Comprehensive reforms of Ukraine's socio-economic spheres should promote the country's economic growth and social development, which will meet people's expectations compared to potential countries for employment.

This uncontrolled flow of labour causes negative consequences for the development of the country (region) of the outflow of migrants:

- reducing the quality of human capital in the region, reducing its productivity;
- undermining the institution of the family, separation from public life in the countries of origin;
- increasing competition in the labour market, respectively, reducing wages in destination countries, rising unemployment;
- deepening stratification of society, social inequality.

Therefore, the state's migration policy should promote the protection and return of skilled migrants. So, it is necessary to create appropriate conditions for the development of small and medium-sized businesses, rural development and more.

6. CONCLUSION

This study examines the main aspects of the development of international labour migration and the nature of its impact on the socio-economic development of the region.

A model complex for forecasting migration flows is proposed, taking into account the socio-economic development of the regions. To forecast the migration flows of the regions of Ukraine, the index of regional migration attractiveness of the region is determined, the most attractive regions for migration are identified. The nature and prospects of migration processes, both external and internal, for Ukraine have been studied and determined. It is shown that uncontrolled migration flows lead to a deepening of the imbalance of development of the regions of Ukraine. An essential element of migration policy should be the formation of appropriate conditions for investing migration capital in Ukraine, reducing the outflow of highly qualified personnel abroad and the formation of mechanisms for the return of migrant workers to Ukraine.

Further research should clarify the nature and density of the relationship between the individual structural elements of the socio-economic potential of the region and migration flows. It is advisable to use the gravitational model as a means of forecasting the socio-economic potential of the region based on the identified trends in the migration of the region.

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