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IMPACT OF IMMIGRATION FLOWS ON SOCIO-ECONOMIC WELL-BEING OF RECIPIENT COUNTRIES

The article under consideration deals with the major countries-leaders for the number of immigrants. The structure of immigration flows in the USA and Germany is considered and determined why these countries are attracting immigrants. The influence of immigrant flows on the socio-economic well-being of recipient countries by means of constructing a regression model. The conclusions are formulated and optimal migration policies to improve the socio-economic situation of countries are proposed.
Key words: international migration, immigration, labor migration, refugees, socio-economic well-being, GDP per capita, USA, Germany.

Formulation of the problem. International migration and globalization are closely interconnected processes. An important form of these links is the migration flows, that is, interstate movements of people caused by the objective unevenness of world economic development, inequality of economic conditions and opportunities in different countries, different degrees of their involvement in the processes of modernization and globalization.

Relevance of the research lies in the fact that the main role in the modern international movement of the population is labor migration. Its scale is steadily increasing, and practically all countries of the world are involved in this process, and new leaders in the number of migrants are emerging in the international arena. International labor migration has become large scale and is becoming a typical phenomenon of socio-economic life in the modern world. Great influence on the size and composition of the population of the countries and their labor force, external migration make, that is emigration and immigration. External migration plays a multilateral role in the development of mankind, serving as a form of adaptation of man to the changing conditions of its existence. In addition, in recent years, the number of refugees from underdeveloped countries has increased rapidly to more developed countries, especially the countries-leaders, whose control of flows becomes difficult.

In particular, international migration now plays a positive as well as negative role for donor countries and recipient countries. Migration affects the national labor market, the social and economic aspects of the life of a society of individual countries, thus, it is an important process in modern conditions, which requires a separate study.

Analysis of recent research and publications. Research on international migration was conducted by both foreign and domestic scientists and they contributed greatly to the study of international economic relations and international migration by S. Beloshitsky, B. Dmitruk, J. Dorigo, M. Engler, A. Figueroa, S. Khrupoyvch, E. Lee, O. Malinovskaya, V. Maysey, O. Melnychenko, A. Petroe, E. Ravenstein, M. Rosenblum, S. Sichko, K. Shymanska, N. Svetlova, V. Tobler, N. Udovychenko, V. Vasilev and others. In addition to these authors, the following organizations deal with the issue of migration: International Organization for Migration, International Labor Organization, United Nations, Council of Europe and Migration Service of Ukraine, and State Statistics Service of Ukraine.

Separation of previously unresolved parts of the common problem. As a result of globalization and greater integration of countries in recent times, in connection with military actions and conflicts between states, the theme of migration is becoming urgent and more states and academics focus their attention on this problem. Considering the recent works of migration scientists, there are works on the topic of immigration to different countries of the world, and the implications for these countries are considered, but this topic was not considered using econometric models and mathematical analysis. Therefore, this article will be considered not only with the description, but with regression models development.

The purpose of the article is to identify major immigrant countries-leaders, analyze the structure of migrants in these countries and determine their impact, as well as identify which countries are attracting migrants and their impact on the economic and social well-being of countries, which is confirmed by regression analysis. In addition, the main objectives of the migration policies of these countries and their effectiveness will be determined, as well as the action plans for improving the economic and social well-being of the countries.

Presentation of the main material of the study. For analysis there were two countries chosen as the leaders in the number of immigrant flows and their total number in the country, thus the United States and Germany were chosen.

The United States is the first in the world in terms of the inflow of foreign migrants to the country. Population of foreign origin in the USA (legal and illegal) is 46 627 thousand people, or 14.5% of the total population of the United States 321 565 thousand people, estimated 2015. Over the past fifteen years, their number has increased by 11 813 thousand people [1]. It should be noted that 27% of migrants in the United States are illegal [2].

The main sources of immigrants are Mexico (approximately 12.1 million people, or 26% of the total number of immigrants by 2015), China (2.1 million people or 4.5%), India (2 million people, or 4.2%), the Philippines (1.9 million people or 4.1%) [1]. Looking at regions, the first three continents of origin of the foreign population are Latin American (52.7%), Asia (28.6%) and Europe (12.1%) [2].

The main and most common ways of immigration in the United States are through channels based on family relationships or employment. It is worth noting that the main advantage of issuing green cards remains family relationships, rather than on the basis of work, despite the fact that people who migrate on the basis of family relationships are less qualified and occupy places of people with a high level of qualification that is a problem for the country's economy. As a result, almost one third of US immigrants do not have a high school diploma, about 40% have a high school diploma but no higher education, and only 27% have higher education.

The main incentives for immigration in the United States are getting jobs and higher wages for low-skilled workers, finding better life and great career opportunities for highly skilled immigrants [3, p. 5].

In the United States, there is a problem of disproportionate immigration of the workforce, mainly migrants with either a low level of education or people with higher education and high qualifications. Looking at employment levels by skill levels, the best jobs for low-skilled immigrants include such occupations as: house workers and maids, cooks, janitors, farm workers, builders and gardeners. The best occupations among high-skilled immigrants include managers and administrators, computer software developers, nurses, instructors, accountants and auditors, system analysts, computer technicians and doctors [3, p. 5].

Thus, immigration in the United States can be considered as labor migration and considering the economic and social consequences of labor migration in the USA. For example, it should be noted that the local population and immigrants complement each other in different fields of activity, which professions are lacking in the country. In general, the local population is employed in the technological and more intensive sectors of employment than immigrants who are engaged in manual work. Thus, if we consider the economic effects of immigration, the specialization of labor allows to work more productively and use less resources, which increases the productivity of the national market, and hence the GDP of the country. It should be noted that the population also benefits from immigrants by reducing the prices of goods and services from the specialization in production [3, p. 8].

In addition, market productivity increase attracts investment in the country, as well as business owners and landowners increase the return on their investments and land. As a result, the growth of labor productivity entails technological progress in the country, as a result of increased innovation. Thus, immigrants with advanced skills play an important role in innovation, their number is increasingly being increased on the basis of work and student visas, and studies have shown that highly educated immigrants receive twice as many patents in science, technology, engineering, and mathematics. Thus, we can conclude that highly skilled immigrants stimulate not only innovations, but also increase patent activity, by attracting additional resources and increasing specialization [3, p. 12].

Despite the many benefits immigration has ambiguous nature for the local population, some of them benefit from their increase, some lose, and the poorer locals are more negatively affected, mainly due to the fact that immigrants occupy local jobs, residents and create competition in the labor market. Thus, the benefits are not evenly distributed to all citizens of the country. The main factor influencing the country's economy is not the number of immigrants, but their qualitative indicators.

In order to more accurately answer the question how the influx of immigrants in the United States affects the welfare of the country, a regression analysis was made. In order to construct a regression model, GDP-per capita was chosen as the dependent variable, while the following variables were taken for the independent variables: inflows of foreign population by nationality (persons) – IOFP, unemployment (% of total labor force) – Unemp, consumer price index – CPI, average annual wages (in 2016 constant prices at 2016 USD exchange rates) – AAW [4–8]. For the possibility of more detailed analysis and obtaining reliable results in the regression model, annual figures were used for 26 years from 1990 to 2015. As a result, the following model was constructed:

$$\textbf{GDP per capita} = \beta 1 * \textbf{IOFP} + \beta 2 * \textbf{Unemp} + \beta 3 * \textbf{CPI} + \beta 4 * \textbf{AAW}. \quad (1)$$

As a result of the analysis, four of these indicators have a significant effect on the selected dependent variable, according to the coefficient of significance, that is, they are close to 0.000 and correlate with each other. The determination coefficient (R-square), which shows the degree of explanation of the dependent parameter (GDP per capita) by the selected variables, is close to 1 and equals 0.998; the selected factors explain the dependent variable by 99.8%. This indicates the adequacy of this model and the fact that there is a high dependence between the variables.

For this model, the value of the t-criterion is 2.78. The t-statistic of immigration flows, unemployment rate, consumer price index (CPI), and average wage exceeds the t-criterion, indicating that these indicators have a significant impact on the dependent variable – GDP per capita in the United States. Thus, the final regression model looks like this:

$$\textbf{GDP per capita} = 0.025\ \textbf{IOFP} - 0.077\ \textbf{Unemp} + 0.830\ \textbf{CPI} + 0.194\ \textbf{AAW}. \quad (2)$$

As a result of the analysis, it was found that the most influential factor is the consumer price index. The value of the standardized beta coefficient shows that an increase in the CPI in the United States will lead to an increase in GDP per capita, that is, there is a direct relationship between the indicators. Thus, since CPI is a reflection of inflation in the country, the increase in prices for goods and services leads to an increase in the country's GDP in dollar terms and there is an increase in per capita GDP in the United States.

The next significant indicator is the average wage in dollars US has been adjusted at the rate of 2016, which also has a direct dependence on GDP per capita. That is, an increase in US wages will lead to an increase in GDP per capita. Thus, with an increase in the average wage, tax deductions increase in the state budget, which contributes to increasing the demand of the state for goods and services, and the country increases it's GDP.

There is a reciprocal relationship between the unemployment rate and GDP per capita in the United States. That is, reducing unemployment in the country will lead to an increase in GDP per capita. This dependence is theoretically correct, since the increase in the number of people employed in the country leads to an increase in the production of goods and obedience, and hence GDP of the country.

With regard to the flows of immigrants and their impact on GDP per capita, they have a direct dependence, that is, an increase in the flows of immigrants in the United States will lead to an increase in GDP per capita. Since immigration to the US, mainly in search of work, increasing the flow of migrants contributes to more production in the country, due to which GDP per capita increases.

Thus, we obtained 4 independent variables that affect the dependent variable, one of which has a reverse dependence, and three straight lines. After analyzing the results obtained in the regression model, it can be concluded that immigration, although having a small impact on other selected independent variables, still exists, and an increase in the number of immigrants may have many social disadvantages for the country, but from the economic point of view, an increase in the flows of immigrants leads to increase per capita GDP in the US, which is a positive factor both for the country's economy and for the population.

Germany ranks second in the number of immigrants, their number is 12 006 thousand people, or 14.8% of the total population of Germany, 80 970 thousand people. The dynamics of migration processes in the country over the past fifteen years has increased by 3 013 thousand people [1; 3].

The main donors of migrants to Germany are Poland (1 930 thousand people, or 16.1% of the total number of immigrants by 2015), Turkey (1 656 thousand people or 13.8%), Russia (1 081 thousand, or 9%), Kazakhstan (1 017 million), Romania, the Czech Republic and Italy (a total of 1 548 thousand people, ie, the total for these three countries accounts for 12.9%) [9].

To date, Germany has had a negative impact by a large number of immigrants, in particular from large refugee flows in recent years, mainly from the Syrian Republic, Afghanistan, Iraq, Iran, and Eritrea. Also, the problem was the large number of Turkish immigrants in the country. The immense influence of their migration is that it is basically a poor people with no money, no language knowledge, or a high qualification for employment, which causes a negative attitude of the indigenous population to immigrants. Only a small portion of all immigrants migrate through employment. According to European Union studies, only half of all immigrants within the EU were caused by employment reasons, and immigrants from outside the EU due to employment was much less [10, p. 8]. However, the country needs immigrants, namely, highly skilled, as the country has a problem with the aging of the nation and is not able to cope with this problem on its own, which can lead to a reduction of the country's economic growth. The main areas of activity in which the country needs immigrants is working in sectors such as: health, logistics and security, technology, manufacturing and machine building, hospitality and restaurant business [11, p. 2]. The main areas in which immigrants now occupy are: public catering and hotel business (24% of immigrants), business services (11%), agriculture (11%), and transport and warehousing (10%) [12, p. 5].

In order to confirm the impact of immigrant flows on the welfare of the country, a similar regression was also built in Germany, where the dependent variable was also taken – GDP per capita (current US $) – GDP per capita, and the following variables were selected for independent variables: inflows of foreign population by nationality (persons) – IOFP, average annual wages (in 2016 constant prices at 2016 USD exchange rates) –AAW, consumer price index – CPI, Tax revenue (total US dollars / capita) – TR [4; 5; 6; 8; 13]. In the regression model, the calculation period for 26 years from 1990–2015 was chosen. As a result, the following model was constructed:

$$\textbf{GDP per capita} = \beta 1 * \textbf{IOFP} + \beta 2 * \textbf{AAW} + \beta 3 * \textbf{CPI} + \beta 4 * \textbf{TR}. \quad (3)$$

As a result of the analysis, four of these indicators have a significant effect on the selected dependent variable, according to the coefficient of significance, that is, they are close to 0.000 and correlate with each other. The determination coefficient (R-square) is close to 1 and equals 0.996, the chosen factors explain the dependent variable by 99.6%. This indicates the adequacy of this model and the fact that there is a high dependence between the variables.

For this model, the value of the t-criterion is 2.78. The t-statistic of immigration flows, average wages, CPIs and per capita tax revenues exceeds the t-criterion, indicating that these indicators have a significant impact on the dependent variable – GDP per capita in Germany. Thus, the final regression model has the following form:

$$\textbf{GDP per capita} = -0.130\ \textbf{IOFP} + 0.534\ \textbf{AAW} - 0.561\ \textbf{CPI} + 1.072\ \textbf{TR}. \quad (4)$$

Thus, analyzing the results of this model is a direct dependence of the average wage, per capita tax revenues and per capita GDP, with an increase in these GDP per capita GDP in Germany is also increasing. This dependency is typical with an increase in the average wage, and tax revenue in the budget is increased in the form of income taxes and cooperative taxes, in addition to this, there are other taxes which, with their increase, replenish the budget of the country, and consequently the increase of budget expenditures and GDP of the country increases, and hence the GDP per capita.

The inverse relationship exists between the inflows of immigrants and CPI to GDP per capita in Germany, with declining GDP figures growing. That is, a decrease in the CPI leads to an incentive to export more and produce more goods and services, and hence the GDP of the country is increasing. A decrease in the number of immigrants, mostly low-skilled to increase the production of goods and services, and therefore the GDP of the country is increasing, especially this trend is observed in recent years, when the number of refugees in Germany has increased, and the total number of immigrant flows increased from 842.4 thousand for the year people in 1990 to 965.9 thousand people in 2012, and in 2015 the figure was 2.02 million people. During the analyzed period GDP per capita increased accordingly from 22.2 thousand dollars to 47.9 thousand dollars in 2014, but this figure dropped significantly at the end of the period when the impact of a large number of refugees came to its strength and the figure fell to 41.2 thousand dollars, which has a negative impact on the economy and welfare of the country. A large number of refugees entail an additional burden on the country's economy, and the growth of spending in the state is greater than the growth of production. That is why the economic and social consequences cannot be called positive because of the large number of unskilled migrants and large numbers of refugees in the country and the lack of immigrants who migrated for employment and have a high degree of qualification.

Thus, after conducting a regression analysis, 4 independent variables were obtained that affect the dependent variable, two of which have a reciprocal relationship and two straight lines. Thus, we can conclude that in recent years, the flows of immigrants to Germany have a negative impact on the economy, which is also confirmed by the regression model.

Conclusions. Thus, after analyzing the flows of immigrants in the US and Germany, we can conclude that there is more labor immigration in the US, and refugees are mostly migrating to Germany, and consequently the consequences for the countries are different, which is also confirmed by regression analysis. For the socio-economic prosperity of the United States, although there is certain shortcomings from immigrants, the main problem of which is illegal migration, but still positive effects more, and with regression analysis a direct correlation was found between GDP per capita and flows of migrants. In Germany, due to the large number of recent refugees, immigration has a negative impact on the country's economy and on its social status; the increase in immigration flows has a negative impact on GDP per capita. The US migration policy is concerned, it is quite rigid and there are certain restrictions on the issuance of work visas and residence permits (green cards), which also contributes to a large number of illegal immigrants. But on the other hand, only the most skilled and useful personnel for the economy remain in the country. Nevertheless, the United States still needs to review its migration policy in order to encourage immigrants to migrate legally and may need more serious oversight of migration to the country as a whole. With regard to Germany's policy, they should target it to attract highly skilled workers to help increase production in Germany and eliminate the problem of aging the nation, but now the country is pursuing a policy of refugee support and granting them benefits. Thus, Germany's migration policy is now ineffective for the economic development and public welfare of the country's population.

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ВПЛИВ ІММІГРАЦІЙНИХ ПОТОКІВ НА ЕКОНОМІЧНИЙ І СОЦІАЛЬНИЙ ДОБРОБУТ КРАЇН-РЕЦИПІЄНТІВ

Резюме
У статті визначено основні країни-лідери за кількістю іммігрантів. Розглянуто структуру імміграційних потоків в Сполучених Штатах Америки та Німеччині, а також визначено, чим ці країни приваблюють іммігрантів. Проаналізовано вплив потоків іммігрантів на соціально-економічний добробут країн-реципієнтів за допомогою побудови регресійної моделі. Сформульовано висновки, а також запропоновано оптимальні міграційні політики для покращення соціально-економічного стану країн.
Ключові слова: міжнародна міграція, імміграція, трудова міграція, біженці, соціально-економічний добробут, ВВП на душу населення, США, Німеччина.

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ВЛИЯНИЕ ИММИГРАЦИОННЫХ ПОТОКОВ НА ЭКОНОМИЧЕСКОЕ И СОЦИАЛЬНОЕ БЛАГОПОЛУЧИЕ СТРАН-РЕЦИПИЕНТОВ

Резюме
В статье определены основные страны-лидеры по количеству иммигрантов. Рассмотрена структура иммиграционных потоков в США и Германии, а также определено, чем эти страны привлекают иммигрантов. Проанализировано влияние потоков иммигрантов на социально-экономическое благополучие стран-реципиентов с помощью построения регрессионной модели. Сформулированы выводы, а также предложены оптимальные миграционные политики для улучшения социально-экономического положения стран.
Ключевые слова: международная миграция, иммиграция, трудовая миграция, беженцы, социально-экономическое благополучие, ВВП на душу населения, США, Германия.