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REGULATION OF EMIGRATION PROCESSES IN UKRAINE: THE IMPACT OF GLOBALIZATION FACTORS

РЕГУЛЮВАННЯ ЕМІГРАЦІЙНИХ ПРОЦЕСІВ УКРАЇНИ: ВПЛИВ ГЛОБАЛІЗАЦІЙНИХ ФАКТОРІВ

The article provides economic substantiation to emigration processes, globalization and factors of globalization, that expand their essence and characterize their role in the system of migration relations.. The list of general factors of globalization of economy is formed, among them: GDP at current prices, inflow of foreign investments into Ukraine, export and import of goods and services, volume of investments into Ukraine in transportation, warehousing, postal and courier activities. The influence of the factors of globalization on the international emigration processes in Ukraine is investigated and it is proved that there is a close connection between the factors and emigration, with the value of the coefficient of multiple correlation - 0,97. The choice of indicators for the analysis of their influence on international emigration in Ukraine in the context of Ukraine's international economic activity is substantiated. The general interdependence between factors and the number of interstate emigrants in Ukraine in the form of the equation of multiple regression is revealed and viewed. The link between the indicators of globalization and international emigrants in Ukraine by means of an average elasticity factor is illustrated and characterized. A function has been provided for forecasting the change in the number of emigrants in Ukraine provided that the trend function is appropriate to the connection, taking into account the accuracy of the approximation. The methods of regulation of emigration flows in Ukraine are proposed with the help of influence on factors of globalization among them there are: creation of a favorable investment climate in the field of infrastructure, growth of Ukraine's GDP, growth of exports of goods and services, reduction of state dependence on imports. It is proved that correlation-regression analysis will determine the ways of regulating international flows of emigration in Ukraine in the conditions of globalization, to show the connection between individual factors and emigration and carry out projected values.

Keywords: globalization, emigration processes, factors of globalization.

У статті надано економічне обґрунтування еміграційним процесам, глобалізації та факторам глобалізації, які розширюють їх сутність та характеризують їх роль в системі міграційних відносин. Сформовано перелік загальних факторів глобалізації економіки, серед них: ВВП у фактичних цінах, притік іноземних інвестицій в Україну, експорт і імпорт товарів та послуг, обсяг інвестицій в Україну в транспортування, складське господарство, поштову та кур'єрну діяльність. Досліджено вплив факторів глобалізації на міжнародні еміграційні процеси в Україні і доведено, що між факторами та еміграцією присутній тісний зв'язок, зі значенням коефіцієнту множинної кореляції - 0,97. Обґрунтовано вибір показників для аналізу їх впливу на міжнародну еміграцію в Україні в контексті здійснення Україною міжнародної економічної діяльності. Виявлено і відображено загальну взаємозалежність між факторами та кількістю міждержавних емігрантів в Україні у вигляді рівняння множинної регресії. Відображено і охарактеризовано зв'язок між показниками глобалізації та міжнародними емігрантами в Україні за допомогою середнього коефіцієнту еластичності. Надано функцію для здійснення прогнозування зміни кількості емігрантів в Україні за умови застосування відповідної до зв'язку функції тренду, з урахуванням величини достовірності апроксимації. Запропоновано методи регулювання еміграційних потоків в Україні за

допомогою впливу на фактори глобалізації, серед яких слід виділити: створення сприятливого інвестиційного клімату в області інфраструктури, зростання ВВП України, зростання обсягів експорту товарів та послуг, зменшення державної залежності від імпорту. Доведено, що кореляційно-регресійний аналіз дозволить визначити методи регулювання міжнародних потоків еміграції в Україні в умовах глобалізації, відобразити зв'язок між окремими факторами та еміграцією та здійснювати прогнозовані значення. Виконано аналіз за F-критерієм Фішера та t-тест (за t-критерієм Стьюдента), за допомогою яких виявлено, що відмінності порівнюваних величин статистично не значимі.

Ключові слова: глобалізація, еміграційні процеси, фактори глобалізації.

Introduction. Over the last century, the cooperation of the countries of the world in the economic, political, ideological, military, information and cultural spheres has become very important, which has become the cause of the spread of world integration and unification of countries. The process of globalization has led to the emergence of new factors that have become a consequence of the development of international emigration in Ukraine. The influence of these factors can have a significant impact on the number of emigrants, and have both positive and negative consequences.

Finding ways to regulate migration in a globalizing devoted their works: A. Gaidutsky (Gaidutsky, 2007, pp. 88-92), J. Goldin, C. Geoffrey and B. Meera (Goldin, Geoffrey and Meera, 2012, p. 384), Y. Gumenyuk (Gumenyuk, 2013, p. 169), R. Jones, D. Cox, E. Dionne, W. Galston, B. Cooper and R. Lienesch (Jones, Cox, Dionne, Galstone, Cooper, Lienesch, 2016, p. 68), J. Olshevska (Olshevska, 2008, pp. 132-139), T. Petrova (Petrova, 2000, pp. 213-223), M. Ruhs (Ruhs, 2013, p. 23), A. Timoshenko (Timoshenko, 2017, pp. 159-166) and others.

The problem of a large flow of emigrants in Ukraine is not sufficiently explored, since the factors that have an impact on this process are numerous and, over time, their number may only increase. Therefore, the exploration of these indicators in the light of a certain type of international activity in Ukraine should take place periodically in order to be able to analyze their impact on the emigration processes in Ukraine.

Setting objectives. The purpose of the article is to identify factors and assess the link between the factors of globalization and emigration processes in Ukraine, which will offer methods for stabilizing the emigration processes.

Methodology. During the exploration, the following methods were used: dialectical, comparative characteristics, scientific abstraction, economic-statistical, graphical, tabular, economic modeling. The theoretical basis in the article was the works of domestic and foreign scientists.

The basis for the exploration is the statistical data of the State Statistics Service of Ukraine on economic activity in Ukraine (State Statistics Service of Ukraine), which were used to derive a model of the connection between the factors of globalization and migration processes in Ukraine.

Research results. Emigration international processes are a change in the place of residence of individuals or a group of people from their place of birth to other countries for social, political, economic, religious and financial reasons.

Emigration is divided into several types: voluntary and forced. The only common characteristic of both types is that the implementation of procedures that facilitate the departure of a person abroad is voluntary.

Many factors contribute to the increase in emigration flows: political, economic, social, infrastructure, information, etc. With the spread of globalization processes, the factors of the globalization of economies have also become a driving force in the growth of emigrants in the world. Understanding the link strength between the factor and the emigration makes it possible to assess whether it has an impact on emigration or not. The correlation analysis determined the presence of the connection and its density, and, by regression, reflected this influence as a function and calculated the coefficients of average elasticity for each factor.

For the correlation-regression analysis of the impact of globalization factors on emigration flows in Ukraine, the following key economic indicators of Ukraine's globalization were selected: the number of people, GDP in actual prices, inflow of foreign investments into Ukraine, exports of goods and services, imports of goods and services, and the volume of investments in Ukraine in transportation, warehousing, postal and courier activities. The structure of the main indicators for the correlation-regression analysis is shown in Table.

Table - Output data for correlation-regression analysis

Factor	Number of departures from Ukraine	GDP at current prices	Inflow of foreign investments in Ukraine	Export of goods and services	Import of goods and services	The volume of investments in Ukraine in transportation, warehousing, postal and courier activities	
Units of measurement	persons	million UAH	million dollars USA	million dollars USA	million dollars USA	million dollars USA	
Designation of the factor	y	x₁	x₂	x₃	x₄	x₅	
Year	2010	14677	1404669	5851,2	63189,91	62387,24	923,6
	2011	14588	1299991	6033,7	82186,41	84365,41	1027,1
	2012	14517	1404669	5290,7	81378,97	89871,43	1073,1
	2013	22187	1465198	5462,1	77142,19	83443,59	1427,6
	2014	21599	1586915	2451,7	65422,54	60801,85	1535,3
	2015	21409	1988544	3763,7	47863,80	43039,47	1355,3
	2016	6465	2383182	4405,8	46229,71	44576,31	1088

Source: authors representation based on the data retrieved from State Statistics Service of Ukraine

According to table correlation-regression analysis was performed, which determined the existence of a link between all the indicators, expressed the regression function and constructed trend graphs for each factor separately and calculated the elasticity coefficients. In order to assess GDP, it was chosen because it reflects the level of economic development of the country, the number of exits - migration status and migration attractiveness of the country, investment volumes -

economic attractiveness for investing foreigners in Ukraine, export and import - trade activity of the country.

In determining the connection of multiple regression, one can see that the relationship between these figures is present and the coefficient of the multiple correlation is 0.97 and indicates the close relationship between the dependent variable (the number of exits from Ukraine) and the independent variables (GDP in actual prices, inflow of foreign investments, export and import of goods and services, and volume of investments into Ukraine in transportation, warehousing, postal and courier activities). The determination coefficient is 0.95 and indicates that the variable (y), which was determined based on the constructed model, corresponds to real data. The standard error is approximately 3196, that is, according to the given model, the possible deviation of the number of those who left Ukraine for 3196 people. Let us show the function of multiple regression in formula 1.

$$y = 33107,83 - 0,017x_1 + 1,228x_2 - 0,543x_3 + 0,168x_4 + 25,484x_5 \quad (1)$$

where y – the number of people who left Ukraine, persons;
 x_1 – GDP of Ukraine in actual prices, UAH million;
 x_2 – inflow of foreign investments into Ukraine, mln. USA;
 x_3 – exports of goods and services from Ukraine, mln. USA;
 x_4 – import of goods and services to Ukraine, mln. USA;
 x_5 – volume of investments in Ukraine in transportation, warehousing, mail and courier activity, mln. USA

With this function it is possible to forecast how to change the number of emigrants from Ukraine when changing each factor of this model. Constant 33107.83 indicates that there is a large number of indicators that also affect the change in the number of emigrants from Ukraine.

In order to reflect separately the presence of communication and the influence of each factor on emigration from Ukraine, a graphical method was chosen, which depicted a trend line, which reflects a trend chart that is possible to make a forecast of emigrants in Ukraine when changing the factors of globalization. The expediency and accuracy of the forecast reflects the accuracy of the approximation on the graph (Figures 1 - 5).

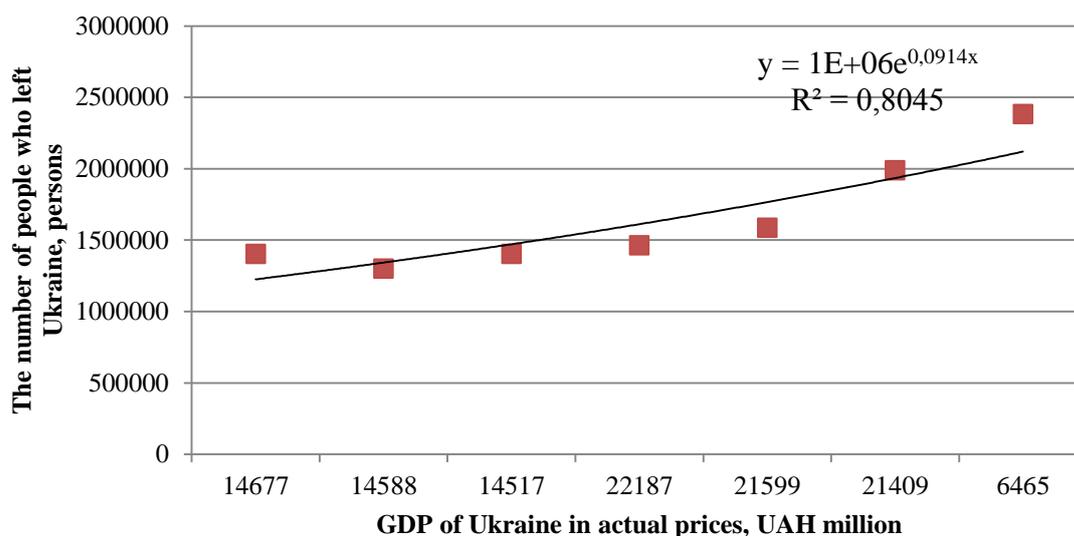


Figure 1 - Connection between the number of emigrants from Ukraine and Ukraine's GDP in actual prices

Source: authors representation based on the data retrieved from State Statistics Service of Ukraine

In accordance with Figure 1, the most accurate forecast will be when applying the exponential trend line. In this case, the value of the reliability of the approximation is 0.8045, which indicates a good coincidence of the calculated direct with the initial data. According to the preliminary calculations, the average coefficient of elasticity reflects the presence of feedback, which indicates that if GDP in actual prices changes by 1% according to the average, the number of departures from Ukraine will change to -1.73% also in accordance with average value.

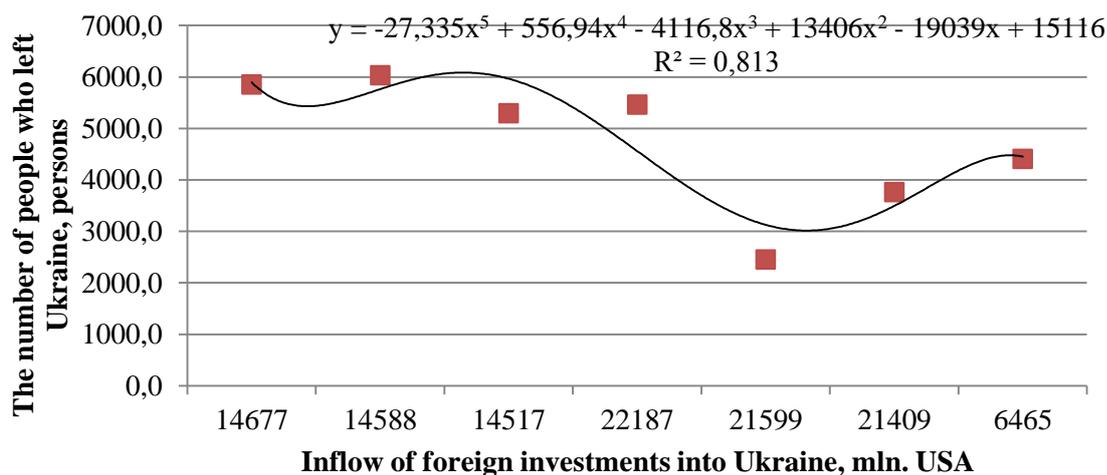


Figure 2 - Connection between the number of emigrants from Ukraine and the inflow of investments

Source: authors representation based on the data retrieved from State Statistics Service of Ukraine

In Figure 2 shows the accuracy of the approximation, which is 0.813. This suggests that the implementation of the forecast for this function will be relatively

accurate. The average coefficient of elasticity also indicates a feedback, and notes that when the inflow of foreign investments into Ukraine is changed by 1% relative to its average value, the number of exits will change by an average of 0.35%.

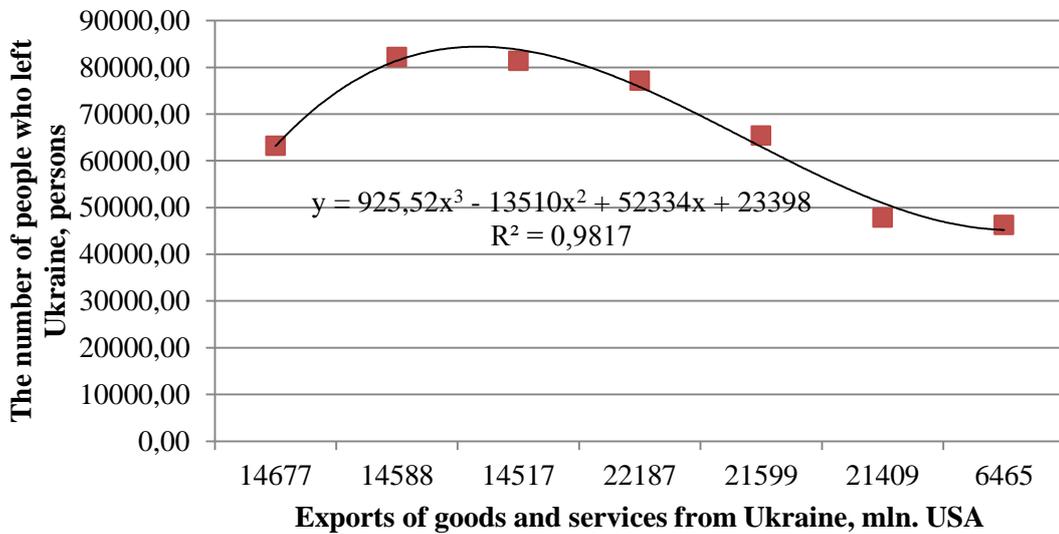


Figure 3 - Connection between the number of emigrants from Ukraine and the export of goods and services from Ukraine

Source: authors representation based on the data retrieved from State Statistics Service of Ukraine

In Figure 3 it is noticeable that the value of the accuracy of approximation has a high value that is as close as possible to 1 and is 0,9817. Consequently, the forecast of the number of emigrants when changing the export of goods and services will be accurate. The coefficient of elasticity is -2.18, which indicates that if the average export of goods and services from Ukraine will change by 1%, the average value of exits from Ukraine will decrease by 2.18%.

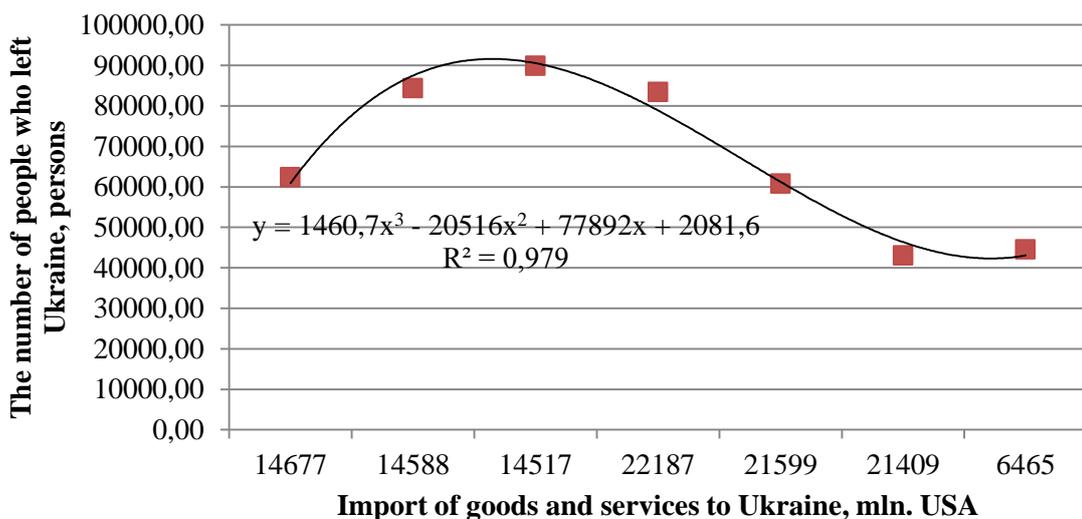


Figure 4. Connection between the number of emigrants from Ukraine and the import of goods and services to Ukraine

Source: authors representation based on the data retrieved from State Statistics Service of Ukraine

In this graph, the value of the accuracy of approximation has also great importance. Accordingly, the calculation of the forecast will be accurate. With the calculated average coefficient of elasticity it is obvious that with a change in the volume of imports of goods and services to Ukraine by 1% - the number of emigrants from Ukraine will change by 0.68%.

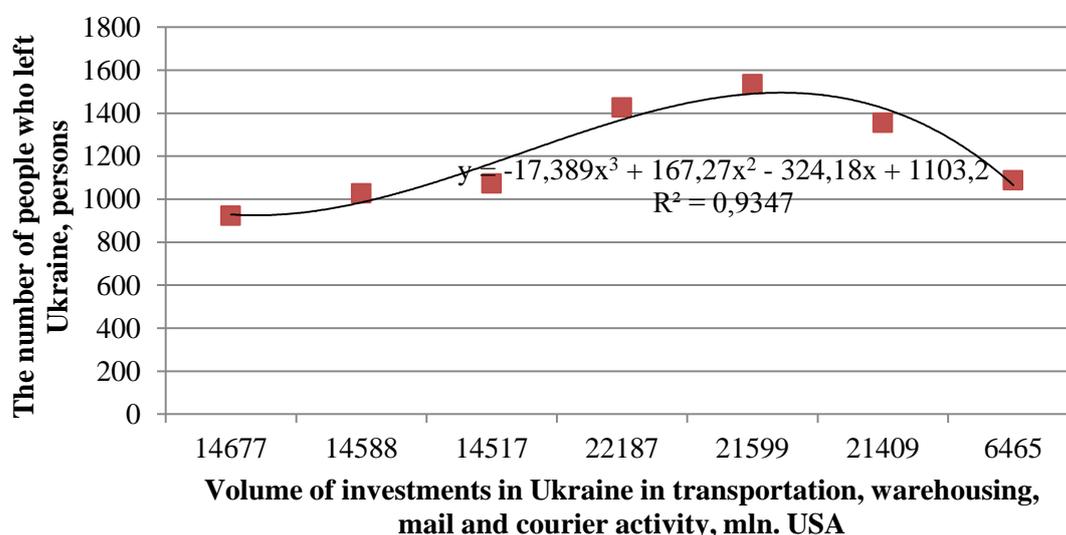


Figure 5 - Connection between the number of emigrants from Ukraine and the volume of investments in Ukraine in transportation, warehousing, postal and courier activities

Source: authors representation based on the data retrieved from State Statistics Service of Ukraine

According to the previous Figures 1-4, as in this Figure 5, the polynomial trend line most accurately reflects the predicted value. The value of the accuracy of approximation has also high importance and indicates that the forecast will be accurate. The coefficient of elasticity shows: if the volume of investments in Ukraine in transportation, warehousing, mail and courier activity changes by 1%, then the number of exits from Ukraine will change by 1.86%.

Fischer F test and t-test (according to Student's t-criterion) were also analyzed (Rudenko, 2012, p. 304). The calculated Fisher criterion is 3.6. The Fisher's criterion for regression with the number of researches - 7 and the degree of freedom 1, with a significance level of 0.4, is 3.2, which suggests that the probability of a 60% constructed dependence corresponds to the initial data. Student's actual criterion with a significance level of 0.05 is 12.71. Actual indicators of t-criteria for each of the factors of globalization are: -1.82; 0.53; -0.6; 0.27 and 2.67 respectively, and they are smaller than the standart value, which indicates that the differences in the comparable values are statistically not significant.

According to the conducted research, it can be concluded that the smallest degree of emigration in Ukraine is influenced by the import of goods and services to Ukraine, in the second place - such factor as exports of goods and services, in third place - inflow of foreign investments into Ukraine, on the fourth - GDP in

actual prices, and to a large extent the number of people who left Ukraine is affected by the volume of investments in Ukraine in transportation, warehousing, postal and courier activities. According to the above, the main methods of regulating emigration in Ukraine should be:

1) creation of a favorable investment climate in Ukraine in the field of infrastructure by strengthening the national monetary unit, introduction of laws that will facilitate the process of investing and reducing tax from the process of investing foreign funds;

2) GDP growth in Ukraine should increase the number of jobs by opening new and expanding already existing production opportunities of Ukraine, increasing productivity through material and social incentives, and introducing technological innovations into production;

3) the growth of exports of goods and services, for which Ukraine needs to enter new markets that will be more favorable for trade, create free trade zones and customs unions between other countries;

4) decrease in the volume of import of goods and services. At the beginning, it will be enough to increase volumes of own production of goods in the same way as mentioned above for GDP growth and to implement the latest information systems for ease of provision and improvement of service quality.

Conclusions. Emigration in Ukraine has a cyclical character, and the main problem is the imperfect legislative framework, which does not provide full protection of emigrants abroad, does not contain solutions to all possible cases of emigration processes, does not contribute to the reduction of emigrants' volumes.

The scientific novelty of the research is the acquired scientific and practical principles of the identification of factors influencing international migration in Ukraine. It was presented in the form of econometric models, in which, unlike the existing, main factors are indicators of globalization processes of Ukraine, and due to which a close contact is established among international emigration and export, import and volume of foreign investments in Ukraine in transportation, warehousing, postal and courier activities.

The practical significance of the research results is that the reflection of the impact of globalization factors on emigration in Ukraine will make it possible to regulate migration flows from Ukraine, by influencing its indicators of globalization in the global economy. The theoretical value of the research is the disclosure of the theoretical application of the econometric method of analysis, which can be used for the analysis of migration processes.

Identifying the main priority ways of regulating emigration flows in Ukraine in the context of globalization needs further research. Analysis of methods for regulating emigration in the leading countries of the world, their comparison with Ukrainian methods, and expediency of the introduction of foreign methods in Ukraine.

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