

Socio-Demographic Factors influencing the Sustainable Development of Carpathian Euroregion: Case of Tourism Development

Volodymyr Humeniuk¹, Nataliia Kaziuka^{*2}, Yevheniia Sheketa³

¹Tourism Department, Ivano-Frankivsk National Technical University of Oil and Gas, Ivano-Frankivsk, Ukraine.
Email: grc@ukr.net

²Tourism Department, Ivano-Frankivsk National Technical University of Oil and Gas, Ivano-Frankivsk, Ukraine.
Email: natalinki@ukr.net

³Finance, Banking and Insurance Department, Ivano-Frankivsk College of Lviv National Agrarian University, Ivano-Frankivsk, Ukraine. Email: sheketa-evgenija@ukr.net

**Corresponding author | ORCID: 0000-0001-9440-7431*

How to cite this paper: Humeniuk, V., Kaziuka, N. and Sheketa, Y. (2021). Socio-Demographic Factors influencing the Sustainable Development of Carpathian Euroregion: Case of Tourism Development. *Grassroots Journal of Natural Resources*, 4(1): 106-122. Doi: <https://doi.org/10.33002/nr2581.6853.040108>

Received: 02 February 2021

Reviewed: 12 February 2021

Provisionally Accepted: 19 February 2021

Revised: 15 March 2021

Finally Accepted: 20 March 2021

Published: 25 March 2021

Copyright © 2021 by author(s)

This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).
<http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

In this article, a number of demographic factors influencing the processes of sustainable economic development in particular context of tourism in the Carpathian Euroregion have been analyzed. It is generally articulated that tourism is one of the priority economic activities recommended for this region. The socio-demographic changes can be a driving force for creating and solving existing and future socio-economic problems. A comparative analysis of socio-demographic indicators such as birth rate, mortality, median age of population, average life expectancy, migration processes, etc. has been carried out for five countries constituting the Carpathian Euroregion. It is observed that demographic trends have become persistently negative with long-term consequences, they are manifested in low life expectancy, high mortality, rapidly ageing population. The public policy in Carpathian Euroregion should be aimed at enhancing social development, reviving the family and serving the interests of people. It is impossible to solve these problems without overcoming poverty, income growth, improving the welfare of the entire population and reforming the labour market.

Keywords

Tourism; Socio-demographic factors; Birth rate; Mortality rate; Migration



Introduction

The strategy of sustainable economic development of the Carpathian Euroregion should concentrate on productive forces, economic structure, specialization and location of production keeping in view the contemporary situations. It must be consistent with the available resources and replenishment potential of the environment of all constituent territories in the Carpathian Euroregion. The examination of demographic changes can make it possible to integrate such tenets while evolving a sustainable economic development strategy for the Carpathian Euroregion in the future. Favourably, the socio-demographic component significantly affects the regional development through organizational, economic-innovative, socio-environmental and information levers. Identifying and integrating the demographic processes specific to the region can be a driving force for solving a number of socio-economic and environmental problems. It will also contribute to the development of the region in terms of resource-saving and innovative and high-tech productions. However, extent and use of available resources, resource limitations, flow of capital investment, orientation of economic and organizational progress should be consistent not only with the existing but also future needs of the populations residing in constituent territories of the Carpathian Euroregion.

The development of tourism is linked to the sustainable regional development, elimination of infrastructure restrictions, spatially balanced production and social infrastructure, environmental security, and competitive economy in mountain areas. In context of Carpathian Euroregion, tourism is entrusted as one of the promising areas for sustainable development. This region has a unique natural, historical and cultural heritage, recreational and resource potential; and it is characterized by a favourable economic, geographical and geopolitical combinations as along with relatively high environmental security.

When the service sector is becoming dominant, tourism plays a key role in international social activities, as it contributes to comprehensive sustainable economic development, employment and poverty reduction. Tourism plays a significant role in GDP shaping, creating additional jobs and employment, and improving foreign trade. Acting as a catalyst for socio-economic development, tourism has a significant impact on key areas of the region, e.g., transport, communications, infrastructure, construction, agriculture, consumer goods production, etc. Therefore, the transformation of socio-demographic indicators affects the development of tourism as one of the main components of sustainable economic development of the Carpathian Euroregion. Thus, the analytical study on socio-demographic characteristics coupled with the development of recommendations for their improvement has laid the foundation for this article.

Social and demographic factors, the influence of which is multifaceted, cause a permanent impact on the development of tourism. This directly concerns the quantitative and structural characteristics of the population, including the population size, its distribution in separate regions, the sex-age structure (with the allocation of the working-age population), marital status, family composition (increase in the number of working women and change in income per family, increase in the proportion of single people, tendencies to later marriage and family formation, increase in the number of childless couples in the population, decrease in immigration restrictions, increase of paid business trips and more flexible working hours, increase of people's awareness of their tourism opportunities), etc. These indicators, to some extent, affect the structure of leisure time of the population, which creates objective social and demographic conditions for tourism development. Currently, quite often there are inconsistencies between the structure of leisure and economic opportunities of the population. There is a situation in which part of the population who has free time cannot use tourist services. In turn, representatives of commercial structures, that have the material means to organize recreation using travel agencies, often cannot afford even a short-term absence. Socio-demographic factors affect tourism processes through changes and tourist flows. For example, the increase in potential tourists directly depends on population growth. However, even as the population grows, different growth rates in different countries can significantly affect both incoming and outgoing tourist flows. Changes in the age structure of the population also affect the functioning of tourist processes.

Issues of tourism development can be dealt not only by studying the needs of existing and potential customers, but also by assessing demographic trends in the world. For instance, the decline in population reproduction in some countries is accompanied by an increase in the number of elderly tourists. This trend is associated with falling birth rates and increasing life expectancy. Companies in the tourism industry must take this situation into account, as the needs of older people are very different from those of young people. Young people prefer not to stay in the same place, but to travel around the country or countries, visiting different places. The increase in birth rates, in turn, leads to an increase in the number of tourists with young children. Thus, the demographic factors affect developing the array of this service and are crucial for the tourism industry.

Demographic characteristics, along with cultural and ethnic models, economic development of adjacent territories and extent of barrier functions of state borders, influence the processes of cross-border cooperation. In addition, to neutralize the effect of negative demographic changes and their potential impact on regional labour markets, it is the intensification of cross-border cooperation that can enhance the development and implementation of new and innovative regional strategies. The most important issue in the context of identifying resources to improve the efficiency of cross-border regions through the route of improving the foreign economic relations formed over a period of time revolves around sustained spatial structures fostering the coordination and synchronization of development programs on both sides of the border, which, in turn, leads to convergence of regions in cross-border space (Artyomov, 2012).

In recent years, the importance of social indicators in economics has been rising remarkably, especially in context of tourism. Such indicators may be the householders' behaviours, their social status, age and other demographic indicators. These behavioural and social indicators have profound effect on the macro-economic variables, such as saving and consumption (Doker, Turkmen and Selcuk, 2016). Socio-economic development of the regions is impossible without solving demographic problems, developing and implementing an effective policy in the demography arena. The works of many scientists are devoted to the study of the impact of demographic trends on economic development (Gasparyniene and Remeikiene, 2016). Docquier *et al.* (2019) explore demographic trends and human development; Strulik (1999) studies the development of demography and economic cycles; Hallett *et al.* (2019) research sustainable fiscal strategies under changing demographics; and Volodymyr Gumeniuk explores the impact of demographic factors on the financial stability of tourism enterprises (Gumeniuk, 2015). O'Sullivan (2020) argues that stabilization of the population is needed to ensure stable economic development of the state. It can be a factor in reducing resource consumption and will help equalize incomes. Kitao and Mikoshiba (2020) find that a rise in the labour supply of females and the elderly of both genders in an extensive margin and in labour productivity can significantly mitigate effects of demographic aging on the macroeconomy and reduce fiscal pressures, despite their negative effects on equilibrium wages during the transition. Their study suggests that a combination of policies that remove obstacles hindering labour supply and enhance a more efficient allocation of male and female workers of all age groups will be critical to keep government deficit under control by raising income across the nation.

Referring above contexts, it is important to take into account, in a consistent manner, the demographic factors and regional development in context of tourism. The analysis of changes in socio-demographic processes allows to establish a coherence and linkages. Thus, demographic processes play a role in the changes that are clearly taking place in the global tourism scenario.

Methodology

The methodology of analytical research in this article involves the use of general and special research methods. Synthesis and generalization methods of analysis were used to present the results of the study clearly and consistently. Historical and logical methods were applied to analyze the scientific opinion of other researchers. Methods of economic, statistical, and comparative analysis with detailing and systematization were employed to process the main statistical indicators and assessing their dynamics.

Mathematical modeling was used to forecast the values of population of the Carpathian Euroregion. Lastly, graphics and tabular form have been used for visual representation of statistical data and supporting certain theoretical and practical aspects.

Results and Discussion

Europe is currently experiencing an unprecedented process of reterritorialization in the context of European Union integration: central to this process is the implementation of various cross-border cooperation schemes, commonly known as Euroregion (Popescu, 2008). Furthermore, Euroregion is a form of cross-border cooperation between territorial communities or local authorities of border regions of two or more States that have a common border. Euroregion aims at coordinating joint efforts addressing various spheres of life and national and international laws to tackle problematic issues. This operates in the interests of the people who inhabit cross-border territories.

Establishing the Euroregion, Europe is gradually leaving behind the principle of regionalization at the level of political and national boundaries and focusing primarily on economic and sustainable ecological development. This creates a unique space for primarily cross-border areas of neighbouring States, which often differ in terms of development from the core parts of the country.

The Carpathian Euroregion

The Carpathian Euroregion comprises 19 administrative units of five countries from Central and Eastern Europe: Poland, Slovakia, Hungary, Ukraine and Romania. Its total area is about 160,000 km² or over 60,000 miles². It is inhabited by over 15 million people. The Carpathian Euroregion is designed to bring together the people who inhabit the region of the Carpathian Mountains and to facilitate their cooperation in the fields of science, culture, education, trade, tourism and economy (Carpathian Euroregion, 2021).

The goals of the Carpathian Euroregion are defined as: “promoting a cooperation in the economic, social, scientific, environmental, educational, cultural spheres and sports, lobbying and implementing cross-border projects, and cooperating with national institutions and organizations” (Khiminets, 2012). Intended outcomes for the Carpathian Euroregion are: establishing an effective functioning model of the Carpathian Euroregion agreed upon by all the participating nations - Poland, Slovakia, Hungary, Romania and Ukraine; fostering sustainable partnerships and information flow between authorities, local governments, NGOs (non-governmental organizations) and expert groups in the border regions; developing CBC (cross border cooperation programme) initiatives that have strategic importance for cross-border cooperation in the context of sustainable development (Regional Development Association for the Carpathian Euroregion, 2021).

The Carpathian Euroregion can be characterized by both strengths and weaknesses. Strong aspects include the activities undertaken within a single ecosystem (in Western Europe, there is a positive experience of solving common issues by Euroregions, which also operate within ecosystems such as the Baltic or Alpine); the presence of a common border with European Union, which facilitates the implementation of EU-funded joint projects; the possibility of financing cross-border projects under joint EU programs; availability of common technical infrastructure within the Carpathian Euroregion; common cultural heritage; favourable, relatively clean environment in the territory of the Euroregion; the presence of the Carpathian Biosphere Reserve, the largest in Europe, in the Ukrainian, Polish and Slovak parts of the Carpathian Euroregion (Carpathian Horizon, 2013).

As for the weaknesses of the Carpathian Euroregion, it has large territorial scale of the association covering 19 regions of five States, the distance between the centres of which sometimes reaches 500 km, which complicates multilateral contacts within the association. It must also be mentioned that member States need additional coordination within the Euroregion (i.e., coordination of decisions at the national level, etc.). Competences of the national parties, derived by different systems of administrative-territorial organization

in the five States cause the problem of defining similar administrative units with the same powers, especially at the local level, within which cooperation could develop. On top of all, there is lack of common sources of funding for the entire Carpathian Euroregion, especially within the framework of EU cooperation programs.

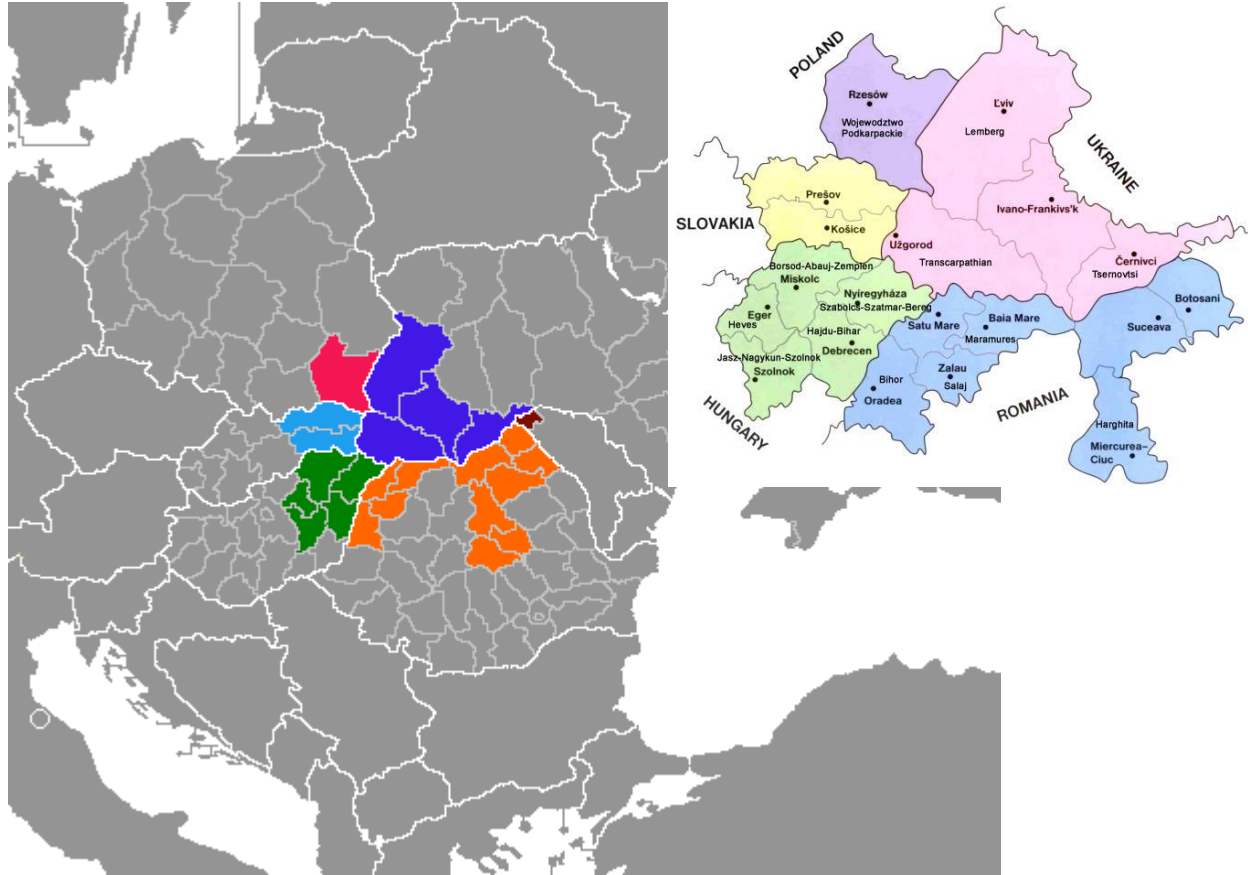


Figure 1: The Carpathian Euroregion on the map of Europe

It is worth noting that in connection with the accession of a number of neighbouring European countries to the EU changed the conditions and procedures for European Commission funding of cross-border programs in Slovakia, Hungary, Romania and Poland. It puts several new requirements for cross-border regional EU financial resources aimed at strengthening cross-border cooperation on the eastern borders of this association (Artyomov, 2012). Improving the quality of human capital in the region is also a priority for the common interests of the Carpathian Euroregion. To increase the competitiveness of the region, it is essential to integrate the preservation of historical and cultural heritage, development of tourism by building transport, information and social infrastructure of the Ukrainian Carpathians.

The Influence of Demographic Factors on Regional Development

Changes in the population and scale of production, combined with irrational consumption patterns, are placing an increasingly heavy burden on the life-sustaining potential of our planet. These interacting processes affect the exploitation of the atmosphere, land, water, energy and other resources. Without proper regulation of this activity, fast-growing cities face serious environmental problems: the growing number and expansion of urban boundaries force them to pay more attention to the activities of local governments and regional development management. A key element of this complex interconnection system is the human factor, which should be duly taken into account in the development and implementation of a comprehensive

policy for sustainable development. Such policies should consider the links between demographic trends and factors, resource use, technology diffusion and sustainable development.

Demographic policy must also consider the role that people play in addressing environmental and sustainable development issues. In this context, it is advisable to raise the awareness of policymakers at all levels on this issue and to provide them with more accurate information, which should form the basis of their national and international policies, while expanding their capacity to assess such information qualitatively. The population of an area influences key components of social division of labour in the regional and State labour markets. The decrease in the population causes an increase in the qualitative characteristics of the labour force. A decrease in its mobility in terms of labour capacity, while reducing production in various sectors of the economy, is a result of the lack of labour shortages. Even when the financial situation of the companies improves with extended investments in human capital, the negative demographic trends, in particular the decrease of the workers population, will lead to intensified competition among companies for attracting and retaining the workforce (Ozolina-Ozolaa and Gaile-Sarkane, 2017).

In relation to declining workforce, the ageing population affects the overall scenario. Ageing population increases not only because of better quality of life, but also because of high mortality of the working population, low birth rate and share of younger age groups in the total population. Besides, in developed countries, modern technologies fighting against mortality prove more effective, significantly increasing the healthy life of older peoples (Emerson and Knabb, 2020).

The ageing of the population and resulting reduction of labour supply require a remedy aiming at increasing the economic activity of citizens of older age groups, developing effective mechanisms to stimulate the production. Moreover, ageing coupled with emigration is one of the most important demographic problem in rural areas. The phenomenon of ageing is getting worse every year in Euroregion causing considerable decrease in availability of the workforce (Sytnyk *et al.*, 2020). Thus, reducing number of employed population due to the demographic changes, and emigration processes are limiting factors for economic and social growth. As a result, labour may become one of the scarcest resources. D'Albis, Boubtane and Coulibaly (2021) have analyzed the effects of demographic variables on the labour income share by distinguishing between natural increase and migration. They showed empirically that these two variables have opposite effects on the economy: natural increase reduces per capita total income and the labour income share, whereas migration increases per capita total income and labour income share.

The migration trends show that the region faces the same problems as most developed countries face. The lack of an effective migration policy increases illegal labour migration, employment in the shadow economy, and, as a result, crime, social spending in the absence of adequate income, and non-payment of taxes. Ukraine is characterized by a number of factors that exacerbate migration processes. Such factors include the imperfection of Ukrainian legislation. First, it is the inadequacy of migration and labour legislation vis-à-vis realities of the modern labour market. Second, the existence of shadow employment attracts the increased demand for low-paid, socially vulnerable categories of workers.

Among other factors are the imperfection of the mechanism for coordinating the actions of the authorities in the development and implementation of migration policy in Ukraine, and the management of migration flows. Managing the migration flows and the reduction of mortality can solve the problems of restoring demographic potential in the short and medium term. At the same time, the issue of decreasing birth rate should be addressed through a range of measures having social and economic nature. Joanna Tyrowicz and Velde (2018) studied problem of labour force reallocation. They showed that changes in the demand for labour were accommodated mostly through demographic flows, with a smaller role left for job transitions. The speed of changing the ownership structure in the economy has driven exits to retirement, in particular the early exits.

First, the stability of the overall socio-economic situation and the strengthening of the systems of social, political and economic guarantees, including the expansion of real access to quality education and health care, are crucial. Noticeably, public policy in Carpathian Euroregion creates incentives for the participation of all stakeholders in executing the appropriate actions. Thus, a significant number of enterprises under the ambit of framework of social programs can implement measures related to maternity support (assistance to preschool children, to health and recreation of children, and to mothers, education, etc.). Virtually, all reforms in the social sphere of Ukraine in the recent years have contributed to increased availability and quality of health services, education and social security – trying to improve the demographic situation.

Next, social policy reform should be carried out considering the need to address demographic problems. To this end, a demographic examination of the decisions made in this region should be conducted. Thus, negative demographic processes, which have led to an increase in the burden on the working population, are accompanied by increased pressure on the health care and social security system. Such processes exacerbate the problem of paying pensions and social benefits while restraining their growth. The existing problems in the field of health care for workers and the increase in the birth rate are increasingly calling for reforming the system of compulsory social insurance.

Meanwhile, the unprecedented increase in international migration flows has placed immigration issues at the forefront of media coverage and political debates of destination countries. This debate often focuses on the potential negative consequences of immigration in context of labour market prospects for the native population or of its negative effect on the public accounts (Mestres, Casasnovas and Castelló, 2021). Bairoliya and Miller (2020) developed a dynamic general equilibrium model to analyze the impact of social insurance policy and demographic changes on rural-urban migration. Their quantitative analyses indicate that different social insurance programs not only have differential effects on net migration flows but also on the age and income distribution of migrants.

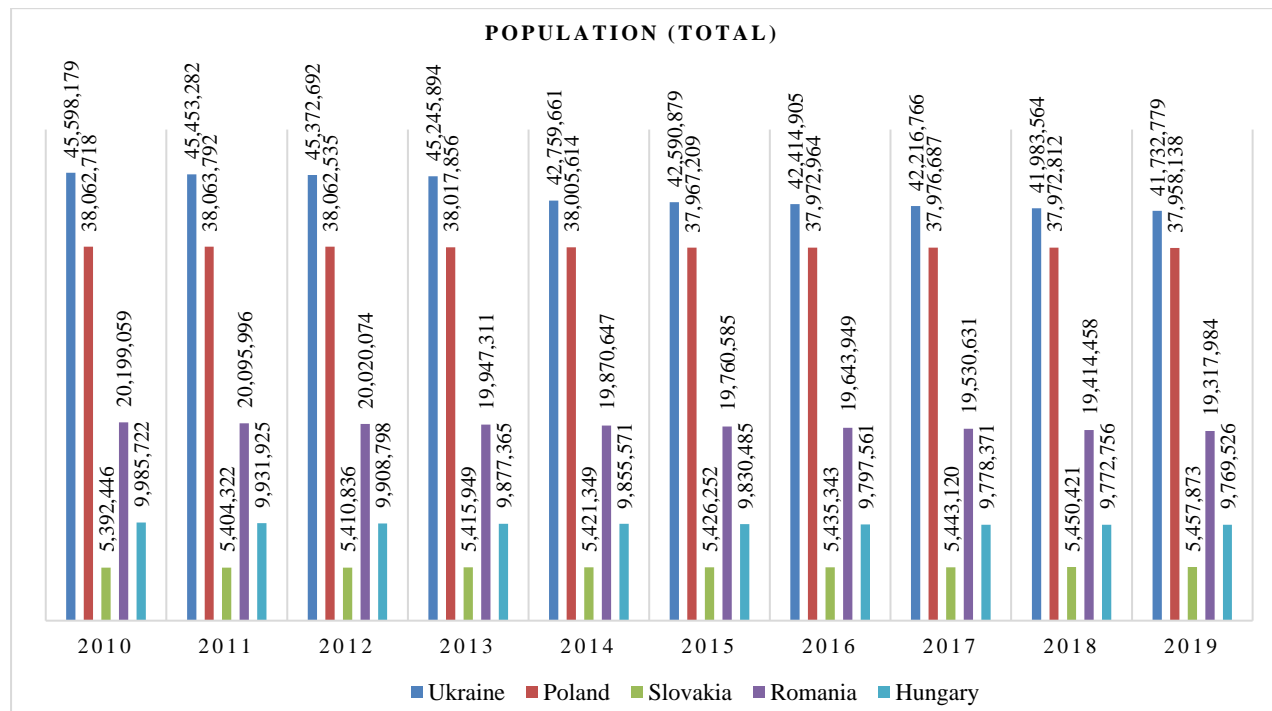
The level of scientific and technological development, the degree of professional and practical training, and the development of qualitative characteristics of labour potential depend on changes in demographic characteristics. However, a growing population is not a guarantee of socio-economic progress. A significant role is played by the personal interest of citizens in the development of economic processes, the degree of professional skills, the presence of incentives from government agencies, economic and political freedom of labour force to choose a profession, and appropriate wages. The labour activity of the population also depends on the demographic situation, in addition to such important indicators such as gender and age structure of the population, marital status, level of professional training. It should be noted that demographic policy is more dependent on women, requiring greater choice of place and working conditions, appropriate length of the working day, and reduced period of employment.

Birth Rate in Relation to Labour Resources

The study of demographic processes is impossible without an assessment of births and deaths because these phenomena are the basis for the restoration of labour resources. Analysis of the impact of demographic trends on the development of the region should begin with the birth rate, because this indicator is closely related to socio-economic changes in modern conditions caused by production fall, dwarfing wages, degrading living standards, inflation, housing problems, especially, if we are talking about young people. Analysis reveals a decrease in the population of the Carpathian Euroregion (Figure 2) by 5,001,824 people. It is the largest decrease (that took place in Ukraine) by 3,865,400 people when compared to 2010. These processes can be explained by a steady downward trend in the birth rate – a decrease by 196,031 people in the region as a whole from 2010 to 2019 (Figure 3). Noticeably, there is also a decrease in mortality by 138,042 people (Figure 4).

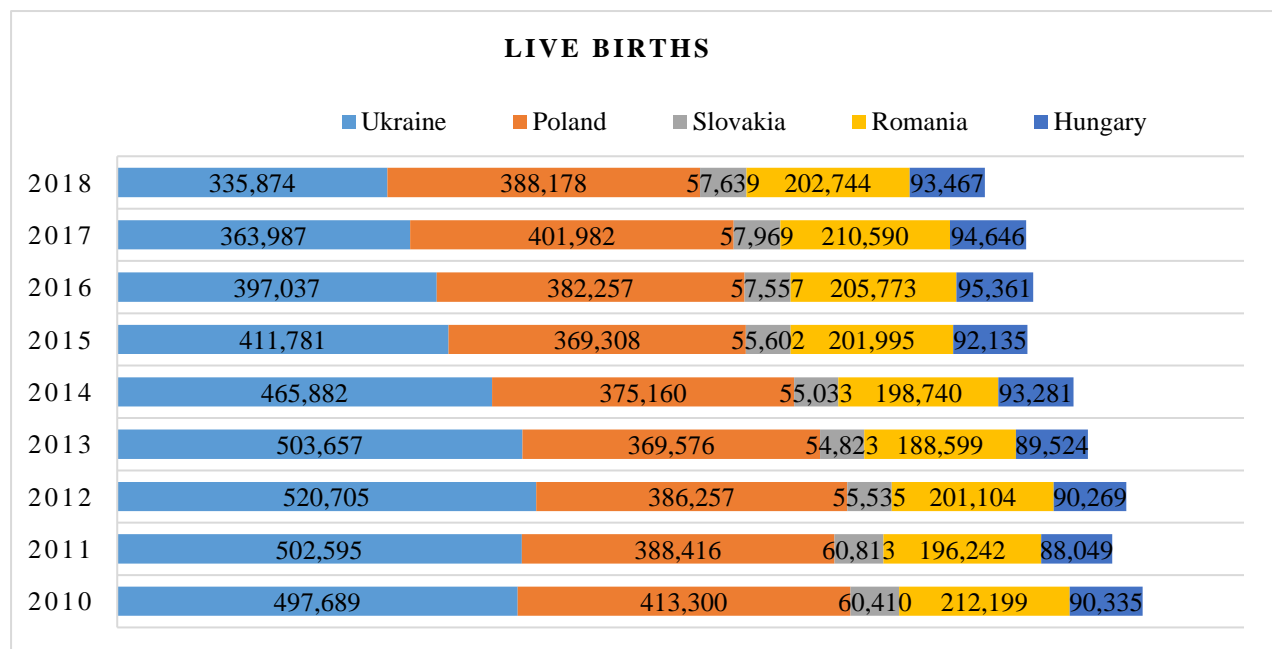
To increase the birth rate, it is advisable to provide material conditions for the reproduction of the population, increase the general welfare of society, overcome the trend of impoverishment of the nation and

increase its income. The birth rate can also be increased by providing material incentives for the birth and upbringing of children, and in particular the payments should be made not after the birth of a child, but with the beginning of pregnancy – to ensure healthy development of fetus (Beluzo *et al.*, 2020).



*Prepared by the authors based on the Eurostat data: <https://ec.europa.eu/eurostat>

Figure 2: Total population by countries of the Carpathian Euroregion*



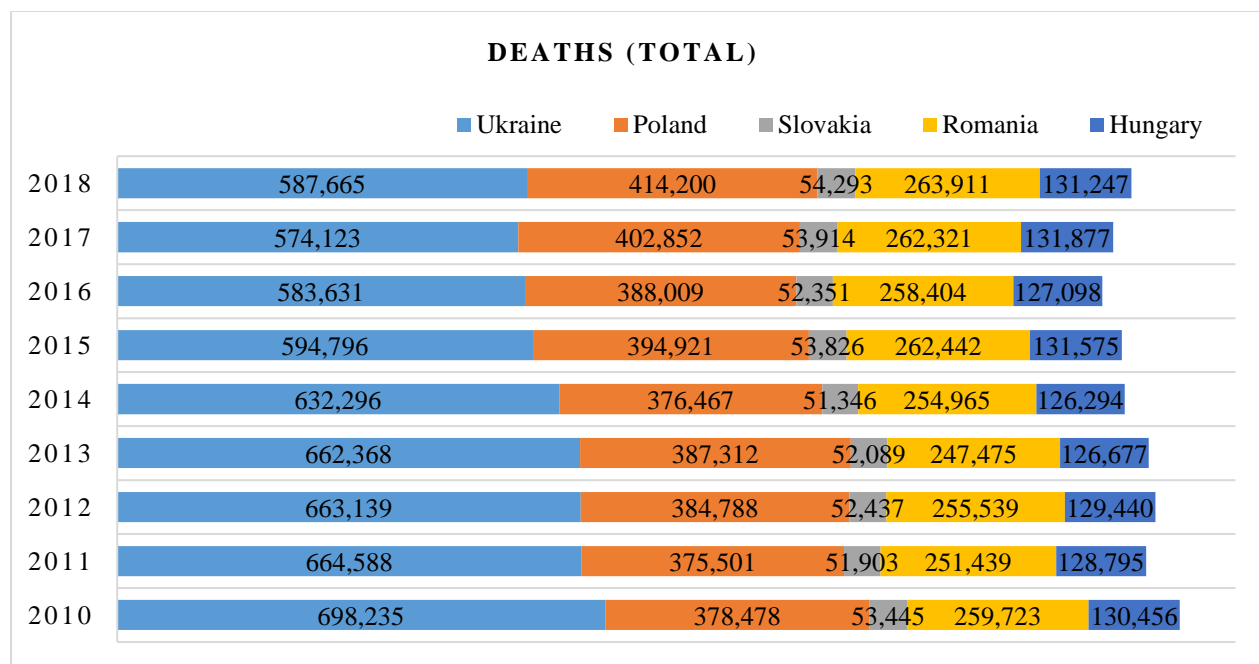
*Prepared by the authors based on the Eurostat data: <https://ec.europa.eu/eurostat>

Figure 3: Live births by countries of the Carpathian Euroregion*

Thus, it can be observed a narrowing demographic base of potential labour restoration due to low birth rates, high mortality rates and deteriorating age structure. Such processes in the long run will have a negative impact on the economic development of the Carpathian Euroregion.

Mortality Rate

The next factor influencing the employment, development of labour potential, gender composition and age structure is the mortality rate, which retrospectively depends on socio-economic development, health care, social welfare and environmental conditions. Thus, during the analyzed period, the reduction of overall mortality rate in the countries of the Carpathian Euroregion occurred only in Ukraine (by 110,570 people); while in the other countries there was an increase in mortality rate from 2010 to 2019 (Figure 4). Nevertheless, comparing the overall mortality rates with the birth rates in the Carpathian Euroregion, it is noted that the mortality rate significantly exceeds the birth rate. At the same time, the birth rate is declining faster than the mortality rate.



* Prepared by the authors based on the Eurostat data: <https://ec.europa.eu/eurostat>

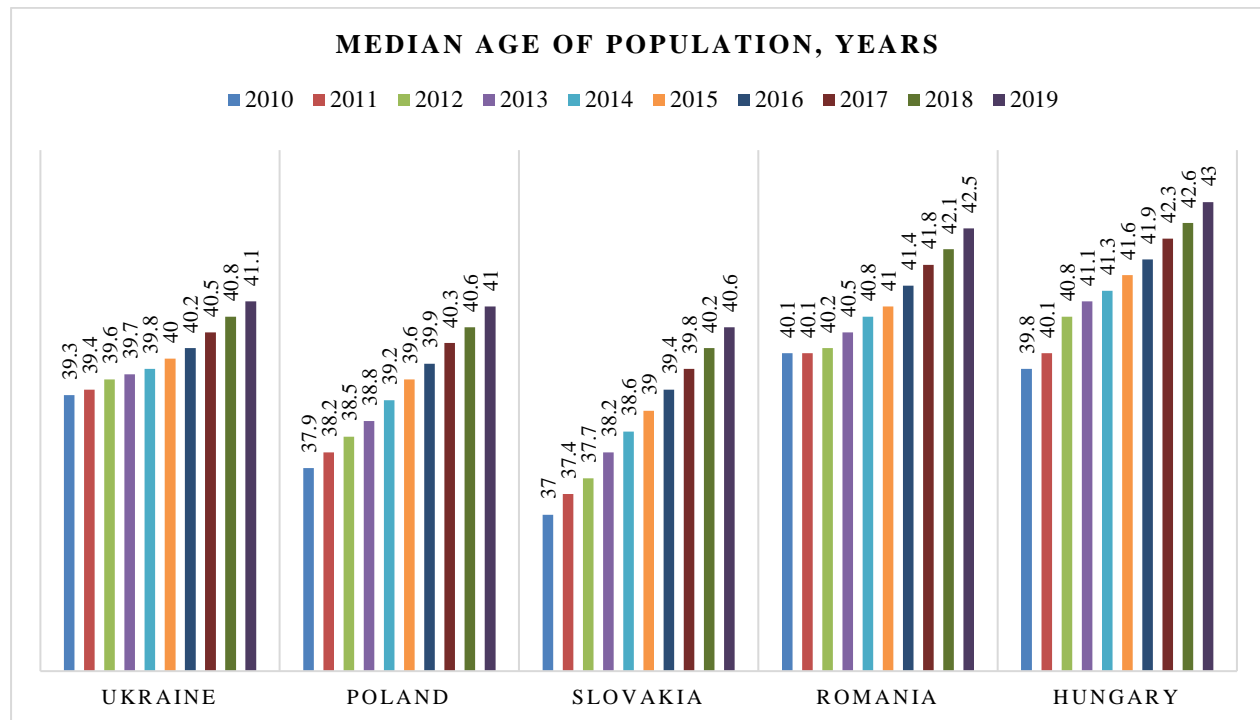
Figure 4: Total deaths by countries of the Carpathian Euroregion*

The high mortality rate of the working population is associated not only with the insufficient health care and medical care, but is also the result of social and political factors. Currently, bottleneck is the development and implementation of comprehensive programs aimed at reducing mortality, especially in working age. In this situation, the priority is to develop a set of measures aimed at achieving this goal. These should be the measures in the field of general medicine, preventive medicine, occupational injury reduction, and enhancing employers' motivation to ensure safe occupational conditions. In addition, measures should also include improving the system of compulsory social insurance against accidents at work and occupational diseases, measures to prevent and combat alcoholism, drug addiction and social evils.

Mortality is an indicator reflecting the level of material and spiritual life of a person, his/her life, nutrition, environment, level of health care, and socio-economic development of the country. Therefore, without creating an effective mechanism for the functioning of such processes, it is impossible to reduce mortality in the region. To reduce mortality, it is advisable to implement multiple measures to improve the material

conditions of the population, to improve living environmental conditions, to reduce stress, and to overcome negative social evils such as alcoholism and drug addiction.

Estimation of the general population ageing is effective for determining the dependence of employment on demographic variables. The real physical ability to work reflects the relationship of conditions and factors in which an individual lives and works. Cooley and Henriksen (2018) in their paper argue that changing demographics, in particular aging populations combined with increased life expectancy, may be part of the explanation as to why we observe falling productivity growth.



* Prepared by the authors based on the Eurostat data: <https://ec.europa.eu/eurostat>

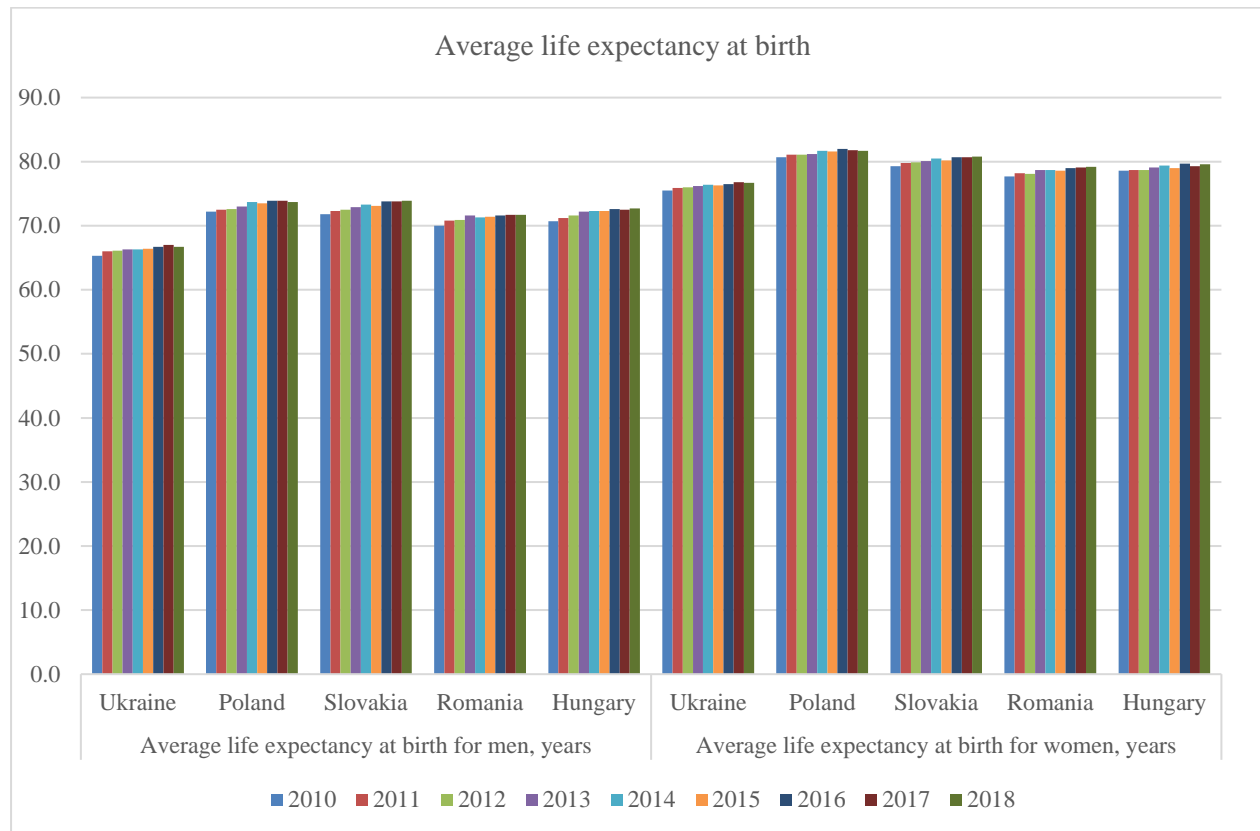
Figure 5: Median age of population by countries of the Carpathian Euroregion*

Statistical data reflects that the average age of the population of the Carpathian Euroregion is increasing (Figure 5), which is not always associated with an increase in life expectancy (Figure 6) but mainly with a decrease in fertility. At the same time, the dynamics of mortality contributed, rather, to a decrease in middle age due to reduced mortality in younger age groups and growth in middle and older age. It is observed that the decline in the proportion of the population in younger age groups has led to a corresponding increase in the proportion of older people.

Thus, to improve the demographic situation, it is necessary to implement programs to increase the welfare of the population, reform the education system, use health insurance, increase wages, and improve the general living conditions of people. Concerning migration processes, it is effective to implement employment expansion policies and create new jobs that will correspond to the existing structure of the workforce and the magnitude of professional training.

Conclusively, the following changes can be observed in the demographic structure of the Euroregion's population: ageing population (declining birth rate causes an increase in the share of older people, and the number of younger age groups, in particular from 15 to 24 years, is steadily declining); increased number of working women, increase of women's desire to make a career (this leads to late marriage, postponement of childbirth, and increase in the number of childless married couples); and increased singles (in large cities they

can be up to half of the total population). Thus, the processes of population reproduction are influenced by the socio-economic laws. Besides, other factors that have ambiguous influences on births and deaths, such as political, psychological, historical, and cultural, can be singled out. These factors, in turn, also cause significant differentiation in the demographic processes of different regions comprising rural or urban settlements altogether.



* Prepared by the authors based on the Eurostat data: <https://ec.europa.eu/eurostat>

Figure 6: Average life expectancy at birth by countries of the Carpathian Euroregion*

Effects of Migration on Euroregion's Economy

In modern circumstances, the structure of employment is also significantly influenced by migration trends, which depend on many socio-economic processes associated with both economic transformations taking place in the country and changes in social and industrial relations. The demographic situation has an impact on the structure of employment through the mechanical and natural movement of the population. Thus, an important indicator reflecting the demographic trends of the region is the magnitude of labour migration. When migration is not always considered a positive phenomenon, it facilitates the exchange of labour, skills and abilities. It also reflects negative processes: dissatisfaction with work, wages, working conditions, difficult economic or environmental situation in the country or region. External migration causes the loss of skilled labour, intellectual richness, and labour potential of the region.

Besides, the departure of citizens abroad threatens to be leaching of the domestic labour force, the deteriorating demographic situation within the country, the shortage of qualified personnel in enterprises, and so on. However, from alternative point of view, it is the labour migration that provides the highest level of social adaptation to the living standards of developed European countries, that allows them to gain experience in the market and business environment of EU countries. These social processes of adaptation are incomparable in importance with that acquired during cross-border trade and other forms of foreign

economic activity within cross-border regions. It also provides the accumulation of sufficient financial resources that can be effectively used for investment in Ukraine (Mikula, 2013).

Table 1: Migration indicators by countries of the Carpathian Euroregion*

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Change from 2009
<i>Emigration (Males)</i>											
Poland	115,188	109,991	133,744	140,586	137,775	140,515	148,879	133,162	120,564	105,386	-9,802
Slovakia	953	844	751	778	1,088	1,442	1,554	1,535	1,365	1,280	327
Romania	105,778	85,663	87,389	70,163	65,303	87,356	104,700	100,533	122,791	118,803	13,025
Hungary	6,034	7,333	8,193	12,831	19,679	23,342	23,685	21,689	22,062	27,291	21,257
<i>Emigration (Females)</i>											
Poland	114,132	108,135	132,054	135,017	138,671	127,784	109,958	103,279	97,928	84,408	-29,724
Slovakia	1,026	1,045	1,112	1,225	1,682	2,202	2,316	2,266	2,101	2,018	992
Romania	140,848	112,322	108,162	100,023	96,452	85,515	90,018	107,045	119,402	112,858	-27,990
Hungary	4,449	6,032	6,907	10,049	15,012	18,871	19,540	18,200	17,767	20,887	16,438
<i>Total</i>											
Ukraine	629,372	667,316	652,301	664,382	644,029	519,914	519,045	246,188	430,290	610,687	-18,685
Poland	229,320	218,126	265,798	275,603	276,446	268,299	258,837	236,441	218,492	189,794	-39,526
Slovakia	1,979	1,889	1,863	2,003	2,770	3,644	3,870	3,801	3,466	3,298	1,319
Romania	246,626	197,985	195,551	170,186	161,755	172,871	194,718	207,578	242,193	231,661	-14,965
Hungary	10,483	13,365	15,100	22,880	34,691	42,213	43,225	39,889	39,829	48,178	37,695
<i>Immigration (Males)</i>											
Poland	130,381	101,648	95,739	128,318	128,486	125,641	125,535	121,428	117,960	123,699	-6,682
Slovakia	3,970	3,247	3,013	3,218	2,967	3,109	4,102	4,422	3,911	3,946	-24
Romania	79,398	85,486	83,931	94,047	84,790	70,841	73,670	79,387	101,036	98,271	18,873
Hungary	15,739	14,290	15,404	18,630	21,899	30,835	33,151	30,121	38,903	48,922	33,183
<i>Immigration (Females)</i>											
Poland	58,785	53,483	61,320	89,228	91,825	96,634	92,612	86,874	91,393	90,384	31,599
Slovakia	2,376	2,025	1,816	2,201	2,182	2,248	2,895	3,264	3,277	3,307	931
Romania	56,446	64,399	63,754	73,219	68,856	65,194	59,125	58,068	76,399	74,307	17,861
Hungary	12,155	11,229	12,614	15,072	17,069	23,746	25,193	23,497	29,167	34,015	21,860
<i>Total</i>											
Ukraine	642,819	683,449	669,397	726,226	675,942	542,506	533,278	256,808	442,287	629,276	-13,543
Poland	189,166	155,131	157,059	217,546	220,311	222,275	218,147	208,302	209,353	214,083	24,917
Slovakia	6,346	5,272	4,829	5,419	5,149	5,357	6,997	7,686	7,188	7,253	907
Romania	135,844	149,885	147,685	167,266	153,646	136,035	132,795	137,455	177,435	172,578	36,734
Hungary	27,894	25,519	28,018	33,702	38,968	54,581	58,344	53,618	68,070	82,937	55,043
<i>Migration balance</i>											
Ukraine	13,447	16,133	17,096	61,844	31,913	22,592	14,233	10,620	11,997	18,589	5,142
Poland	-40,154	-62,995	-108,739	-58,057	-56,135	-46,024	-40,690	-28,139	-9,139	24,289	64,443
Slovakia	4,367	3,383	2,966	3,416	2,379	1,713	3,127	3,885	3,722	3,955	-412
Romania	-110,782	-48,100	-47,866	-2,920	-8,109	-36,836	-61,923	-70,123	-64,758	-59,083	51,699
Hungary	17,411	12,154	12,918	10,822	4,277	12,368	15,119	13,729	28,241	34,759	17,348

* Calculated by the authors based on the Eurostat data: <https://ec.europa.eu/eurostat>

Labour emigration is dominating among the migration processes that affect changes in the structure of employment, apart from internal migration (relocating from rural areas to urban areas). That is mostly illegal emigration, aimed at going abroad in search of more earnings and self-interest, aspirations, hopes. This situation is associated with reduced employment, lower production, rising inflation and declining incomes. Immigrants are also affected most by the global crisis caused by COVID-19. These factors not only negatively affect the economic situation in the region, but also the demographic situation of the population. Young specialists and the specialists who are forced to work abroad (mostly not in their specialty) are losing their qualification skills and are withdrawn from production.

Case of Tourism in Context of Demographic Factors and Sustainable Development

Mankind's desire for economic and technological development is largely ensured by the irrational and destructive exploitation of natural resources and the environment. The result is a large-scale global environmental crisis, and the contradictions between economic and environmental systems have reached alarming levels. This has led most developed countries to think about what should be done to achieve sustainable development. To accomplish the sustainable development, States need to cultivate a new qualitative society that does not endanger the lives of future generations, and in which everyone has everything necessary for development and lives in harmony with the environment.

Notably, tourism, based on the globalization priorities of the sustainable development, plays a major role in the social and transformational processes of the world economy. The range of functions performed by tourism allows to use it as an effective tool to stimulate socio-economic growth at the macro and meso levels of management. The functions of tourism are primarily manifested in the territories of specific regions, and the possibilities of its development are determined by the conditions of the regions. Therefore, the consideration of tourism as a tool of socio-economic development is especially relevant from the standpoint of the regional approach.

The principal way to implement the strategy of sustainable development in the Carpathian Euroregion is to develop an appropriate methodology taking into account all components of sustainable development and the mechanism of their implementation. The development of tourism is a priority in the implementation of the framework of sustainable development, as it is in the plane of state economic, social and environmental policy of these countries. The development of tourism in the context of sustainable development should be formed and maintained at the regional level, and its provision should be carried out vertically i.e., from a specific administrative-territorial unit to the national and world levels. To position and promote tourism services in the region, it is necessary to identify the resource security of the territory, balance the economic, social and environmental interests of local development policy actors, as well as carefully analyze the situation in the leading sectors of the economy. For the countries of the Carpathian Euroregion, the sphere of tourism is an important and strategic direction of the State policy implementation, considering the available natural resources and recreational potential at suitable geographical locations of these countries.

On the one hand the tourism industry is a factor of globalization, whereas on the other hand, it develops under the influence of many other factors such as information technologies, social differentiation of society, climate characteristics, etc. All components of the society can be stimulating or inhibiting factors in the development of tourism; their number, relationship and intensity of impact depend on the hierarchical level of the tourism market and its focus. The study of socio-cultural factors that affect the development of tourism enables not only to predict its development but also to explore the relationship and, accordingly, the impact of tourism on the development of society, in general, and social component, in particular.

The demographic situation refers to external factors influencing the tourism business. External (exogenous) factors influence tourism through demographic and social change. These factors include age of the population, number of working women and change in income per family, proportion of single people, tendencies to late marriage and family formation, number of childless couples in the population, immigration restrictions, paid business trips and more flexible working hours, and people's awareness of their tourism opportunities.

The size and location of the population directly determines the volume of the consumer tourism sector. Thus, the growth of population in the world as a whole and its individual regions directly determine the number of tourists. Demographic factors such as the growth of the world's population, its uneven density and concentration in large cities (urbanization) lead to an increase in tourism potential, increased tourist flows. Moreover, age, sex, marriage and family structure of the population are significant factors in the development of the tourism industry. It means that there is a clear trend that tourist mobility depends on the

age, gender and marital status of the population. For example, persons aged 18-30 are most inclined to active form of tourism. Similarly, unmarried people are significantly more mobile than married people, and women are more interested in tourism than men. Likewise, increase in life expectancy and changes in the demographic movement made it possible for older people, who have financial means, to adopt tourism. Hence, socio-demographic changes are directly linked to the sustainable development of the region in particular context of tourism.

Conclusions

In recent years, the demographic problems come first if we talk about socio-economic development of a region. Currently, the fall of the certain demographic characteristics of a population is an obvious fact. Demographic trends have become persistently negative with long-term consequences. They are manifested in low life expectancy, high mortality (especially of working age), rapidly ageing population, and so on. As a result, the current demographic situation reduces the pace and quality of economic growth and complicates the transition to intensive forms of economic development. This trend may provoke shortage of labour and poor quality of labour productivity, limit wage growth, and, consequently, reduce the income of the working population. One of the most worrying trends in demographic change is the high mortality rate, especially of people of working age (especially males). Since the demographic factors play crucial role in providing the region with labour resources, the public policy in Carpathian Euroregion should be aimed at enhancing social development, reviving the family and serving the interests of people. It is impossible to solve these problems without overcoming poverty, income growth, improving the welfare of the entire population and reforming the labour market. These are the reasons of migration processes and uncongenial behavior of the individuals. Additionally, solution of demographic problems should be based not on quantitative but on qualitative parameters, and the main efforts should be aimed at resolving issues related to population reproduction, social protection, environmental situation, healthy lifestyle, access to quality medical education and sociocultural development.

Demographic factors, together with socio-economic, material and technical and political are dynamic factors of the development. Various socio-demographic groups of the population tend to give priority to certain types of tourism. The processes happening in the demographic environment determine the flow of tourists when more and more people have a desire and opportunity to travel. Features of development and interaction of the tourism components, on the one hand, depend on several factors including natural, cultural, demographic, social, economic, etc., whereas, on the other hand, they affect the regional development and its individual components.

References

- Artyomov, I. (2012). Cross-border cooperation of Ukraine: status, problems, prospects: monograph. Uzhhorod: Lira.
- Bairoliya, N. and Miller, R. (2020). Social insurance, demographics, and rural-urban migration in China. *Regional Science and Urban Economics*, 17: 192-203. DOI: <https://doi.org/10.1016/j.regsciurbeco.2020.103615>.
- Beluzo, C., Silva, E., Alves, L., Bresan, R., Arruda, N., Sovat, R. and Carvalho, T. (2020). A demographic and epidemiological dataset having infant, mother, prenatal care and childbirth data related to births and neonatal deaths in São Paulo city Brazil – 2012–2018. *Data in Brief*, 32: 106-119. DOI: <https://doi.org/10.1016/j.dib.2020.106093>.
- Carpathian Euroregion (2021). The official site of Carpathian Euroregion. Available online: https://en.wikipedia.org/wiki/Carpathian_Euroregion [Accessed on 18 February 2021].
- Carpathian Horizon (2013). Analytical document "Carpathian Horizon 2013" - justification of the feasibility of developing and implementing a separate EU operational program for the Carpathian region in the next financial perspective. Available online: <https://webcache.googleusercontent.com/search?q=cache:zQzrBAa7HqUJ:https://www.irf.ua/deput>

- atam_evroparlamentu_prezentuvali_kontseptsiyu_rozvitku_karpatskogo_evroregionu/files/ukr/programs/euro/carpathian_full.pdf+&cd=3&hl=ru&ct=clnk&gl=ua&client=firefox-b-d [Accessed on 18 February 2021].
- Cooley, T. and Henriksen, E. (2018). The demographic deficit. *Journal of Monetary Economics*, 93: 45-62. DOI: <https://doi.org/10.1016/j.jmoneco.2017.11.005>.
- D'Albis, H., Boubtane, E. and Coulibaly, D. (2021). Demographic changes and the labour income share, *European Economic Review*, 131: 103-116. DOI: <https://doi.org/10.1016/j.euroecorev.2020.103614>.
- Daitoh, I. (2010). Productive consumption and population dynamics in an endogenous growth model: Demographic trends and human development aid in developing economies. *Journal of Economic Dynamics and Control*, 34(4): 696-709. DOI: <https://doi.org/10.1016/j.jedc.2009.11.004>.
- Docquier, F., Kone, Z., Mattoo, A. and Ozden, C. (2019). Labour market effects of demographic shifts and migration in OECD countries. *European Economic Review*, 113: 297-324. DOI: <https://doi.org/10.1016/j.euroecorev.2018.11.007>.
- Doker, C., Turkmen, A. and Selcuk, E. (2016). What are the Demographic Determinants of Savings? An Analysis on Transition Economies (1993-2013). *Procedia Economics and Finance*, 39: 275-283. DOI: [https://doi.org/10.1016/S2212-5671\(16\)30324-0](https://doi.org/10.1016/S2212-5671(16)30324-0).
- Emerson, P. and Knabb, S. (2020). A demographic headwind: Will an aging society reduce the real interest rate and potential growth? *The Journal of the Economics of Ageing*, 17: 100-119. DOI: <https://doi.org/10.1016/j.jea.2019.01.004>.
- Eurostat (2021). The official site of European statistics. Available online: <https://ec.europa.eu/eurostat> [Accessed on 18 February 2021].
- Gasparenienea, L. and Remeikienea, R. (2016). Economic and demographic characteristics of the subjects, operating in digital shadow economy. *Procedia Economics and Finance*, 39: 840-848. DOI: [https://doi.org/10.1016/S2212-5671\(16\)30253-2](https://doi.org/10.1016/S2212-5671(16)30253-2).
- Gumeniuk, V. (2015). Structural transformation on the market of health resort services in the conditions of modern human development safety risk in Ukraine. *Financial and credit activity: problems of theory and practice*, 19: 285-292. DOI: <http://doi.org/10.18371/FCATP.V2I19.57438>.
- Hallett, A., Jensen, S., Sveinsson, T. and Vieira, F. (2019). Sustainable fiscal strategies under changing demographics. *European Journal of Political Economy*, 57: 34-52. DOI: <https://doi.org/10.1016/j.ejpoleco.2018.07.003>.
- Khiminets, V. (2012). Potential for sustainable development of the Carpathian Euroregion. *Economist*, 10: 18-22.
- Kitao, S. and Mikoshiba, M. (2020). Females, the elderly, and also males: Demographic aging and macroeconomy in Japan. *Journal of the Japanese and International Economies*, 56: 88-97. DOI: <https://doi.org/10.1016/j.jjie.2020.101064>.
- Manfredi, P. and Fanti, L. (2006). The complex effects of demographic heterogeneity on the interaction between the economy and population. *Structural Change and Economic Dynamics*, 17(2): 148-173. DOI: <https://doi.org/10.1016/j.strueco.2004.12.003>.
- Mestres, A., Casasnovas, G. and Castelló, J. (2021). The deadly effects of losing health insurance. *European Economic Review*, 131: 34-46. DOI: <https://doi.org/10.1016/j.euroecorev.2020.103608>.
- Mikula, N. (2013). Carpathian region: current issues and prospects of development, Lviv, Cross-border cooperation. Series "Problems of regional development". Available online: <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiKtce5r8fvAhVmsYsKHdm3BKoQFjAAegQIBBAD&url=http%3A%2F%2Fird.gov.ua%2Firdp%2Fp20130008.pdf&usg=AOvVaw0fFdIhAivNxQB86oYf6H8a>.
- Momota, A. and Futagami, K. (2005). Demographic structure, international lending and borrowing in growing interdependent economies. *Journal of the Japanese and International Economies*, 19(1): 135-162. DOI: <https://doi.org/10.1016/j.jjie.2003.12.006>.
- O'Sullivan, J. (2020). The social and environmental influences of population growth rate and demographic pressure deserve greater attention in ecological economics. *Ecological Economics*, 172: 92-105. DOI: <https://doi.org/10.1016/j.ecolecon.2020.106648>.

- Ozolins-Ozolins, I. and Gaile-Sarkane, E. (2017). Job Change in Latvia: The Role of Labour Market Conditions and Employees' Socio-Demographic Characteristics. *Procedia Computer Science*, 104: 197–204. DOI: <https://doi.org/10.1016/j.procs.2017.01.106>.
- Popescu, G. (2008). The conflicting logics of cross-border reterritorialization: Geopolitics of Euroregions in Eastern Europe. *Political Geography*, 27(4): 418-438. DOI: <https://doi.org/10.1016/j.polgeo.2008.03.002>.
- Regional Development Association for the Carpathian Euroregion (2020). The Carpathian Euroregion Strategy 2020 & Beyond. Regional Development Association for the Carpathian Euroregion. Available online: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwjLs_egzpfvAhVSAxAlHZzgCTMQFjAAegQIAhAD&url=http%3A%2F%2Fcarpathianeuroregion.org%2Ffiletol%2Fstrategia-english.pdf&usg=AOvVaw1URMwCG2j5jx7ZPKHzg-5r [Accessed on 18 February 2021].
- Strulik, H. (1999). Demographic transition, stagnation, and demo-economic cycles in a model for the less developed economy. *Journal of Macroeconomics*, 21(2): 397-413. DOI: [https://doi.org/10.1016/S0164-0704\(99\)00109-3](https://doi.org/10.1016/S0164-0704(99)00109-3).
- Sytnyk, N., Humeniuk, V., Sych, O. and Yasinovska, I. (2020). Development of the Carpathian Region in the Context of EU Macro-Regional Strategy. *Journal of Settlements and Spatial Planning*, 11(1): 31-43. DOI: <https://doi.org/10.24193/JSSP.2020.1.04>.
- Tyrowicz, J. and Velde, L. (2018). Labour reallocation and demographics. *Journal of Comparative Economics*, 46(1): 381-412. DOI: <https://doi.org/10.1016/j.jce.2017.12.003>.

Authors' Declarations and Essential Ethical Compliances

Authors' Contributions (in accordance with ICMJE criteria for authorship)

<i>Contribution</i>	<i>Author 1</i>	<i>Author 2</i>	<i>Author 3</i>
Conceived and designed the research or analysis	Yes	Yes	No
Collected the data	No	Yes	No
Contributed to data analysis & interpretation	Yes	Yes	Yes
Wrote the article/paper	Yes	Yes	Yes
Critical revision of the article/paper	Yes	No	No
Editing of the article/paper	No	Yes	Yes
Supervision	Yes	Yes	Yes
Project Administration	Yes	Yes	No
Funding Acquisition	Yes	Yes	Yes
Overall Contribution Proportion (%)	30	40	30

Funding

No funding was available for the research conducted for and writing of this paper.

Research involving human bodies (Helsinki Declaration)

Has this research used human subjects for experimentation? No

Research involving animals (ARRIVE Checklist)

Has this research involved animal subjects for experimentation? No

Research involving Plants

The research did not involve plants or animal species. No

Research on Indigenous Peoples and/or Traditional Knowledge

Has this research involved Indigenous Peoples as participants or respondents? No

(Optional) PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)

Have authors complies with PRISMA standards? No

Competing Interests/Conflict of Interest

Authors have no competing financial, professional, or personal interests from other parties or in publishing this manuscript. No

Rights and Permissions

Open Access. This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made. The images or other third-party material in this article are included in the article's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>.