UKRAINE'S POPULATION COMPARED TO EUROPEAN POST-COMMUNIST COUNTRIES IN 1990 AND 2020

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Abstract

The aim of the study is to present the changes in the population and its demographic structure in Ukraine compared to other European post-communist countries. Classic demographic indicators were applied. In comparison to other analyzed countries, Ukraine has an average pace of population decline, a low aging rate and a persistently clear advantage of the number of women over men. This is the result of all three factors: loss of part of the territory with the population inhabiting it, natural decrease and negative migration balance.

1. Introduction

After the collapse of the system of communist states, and especially after the collapse of the USSR, processes of systemic transformation began in this European post-communist countries (Brusylovska, 2016; Norkus, 2012; Polìtični ..., 2016). They have not bypassed Ukraine either, although they are delayed in it (Brusylovskaya, 2018; Kuczabski, Michalski, 2014; Rozumnij (Ed.), 2011; Tomahìv, 2014). One of the very visible processes in the former European communist countries after 1990 is their population decline (it occurs in most of them) and population aging (it occurs in all of them). It can be argued here whether this mainly results from processes referred to as the second demographic transition (SDT) (Lesthaeghe, 2010; Mezentseva, Kondras, 2015) or whether it is a resultant of SDT and the effects of systemic transformation processes (Basten et al., 2013).

The aim of the study is to present the changes in the population of Ukraine and its demographic structure compared to other European post-communist countries. With this in view, the years 1990 and 2020 were compared, but in some analyses (due to the availability of data), close years were used for the analysis. The spatial scope of the analysis covers

broadly understood European post-communist countries, i.e. the Transcaucasia countries were also included in the analysis.

2. Data and methods

Apart from data for Kosovo, all other data used in the study come from the World Development Indicators (World Bank). Unfortunately, data for Kosovo were incomplete in this database. Therefore, the decision was made to obtain it directly from the Kosovo Agency of Statistics (Demographic..., 2008; Kosovo…; Kosovo…, 2020). Detailed data for Ukraine was obtained from the State Statistics Service of Ukraine website (State ...).

Commonly used statistical methods (see: Gerasimenko (ed.), 2000; Pedčenko, 2018) and demographic indicators (see: Dorošenko, 2005; Gudzelâk, 2013) were applied in the analysis. Only the aging index structure requires more detailed explanation due to its numerous versions. This is the number of people aged 65 and over per 100 population aged 0–14 (Koval'čuk, Ìšenko, 2018). Therefore, it belongs to the classic indicators of the old age of the population.

However, when looking at the data presented in the further part of the study, one should bear in mind that they only approximate the actual situation. The reason mainly lies in long-term migrations whose effects are largely not reflected in official statistics. Hence, the official data on the number of the population, its structure and demographic indicators should be considered approximate.

3. Results

Table 1 shows the official population size at the beginning and the end of the analyzed period. We can see that Ukraine was the second largest country among the post-communist European countries. In general, this area is dominated by small or very small countries. Only Russia can be classified as a country with a large population, and Ukraine, Poland and Romania with an average population.

Fig. 1 shows what percentage, according to the official data, of the 1990 population was the population in 2020. According to this criterion, countries can be broken down into four groups. Countries with a very large decline (>20%) in the population were classified in the first group: from Latvia to Bulgaria. Countries from Romania to Hungary are among the countries with a large decline in the population (6–20%). Ukraine was also placed in this group, with a decrease of 14.9%. The third group includes countries with little changed population (±5%): from Russia to Slovenia. There is only one country that has recorded a very marked increase in its population size – Azerbaijan (by 41.2%). Thus, it is clearly visible that the area under analysis is dominated by depopulation or stagnation in the size of the population inhabiting it (with the exception of Azerbaijan, of course).

The second, even more pronounced process is the rapidly progressing aging of the population. In the period 1990–2020, in all the analyzed countries, this process was very clearly visible (Fig. 2). While in 1990 in 67% of the countries the value of the aging index was below 50, and in none it was over 100, in 2020, only in 8% it was below 50 and in as many as 58% it was above 100. For Ukraine, it was 56 at the

Table 1. Population (million people) in 1990 and 2020

country	1990	2020	country	1990	2020
Albania	3.3	2.8	Latvia	2.7	1.9
Armenia	3.5	3.0	Lithuania	3.7	2.8
Azerbaijan	7.2	10.1	Moldova	3.0	2.6
Belarus	10.2	9.4	Montenegro	0.6	0.6
Bosnia and Herzegovina	4.5	3.3	North Macedonia	2.0	2.1
Bulgaria	8.7	6.9	Poland	38.1	38.0
Croatia	4.8	4.0	Romania	23.2	19.3
Czechia	10.3	10.7	Russia	148.0	144.1
Estonia	1.6	1.3	Serbia	7.6	6.9
Georgia	4.8	3.7	Slovakia	5.3	5.5
Hungary	10.4	9.7	Slovenia	2.0	2.1
Kosovo	2.0	1.8	Ukraine	51.9	44.1

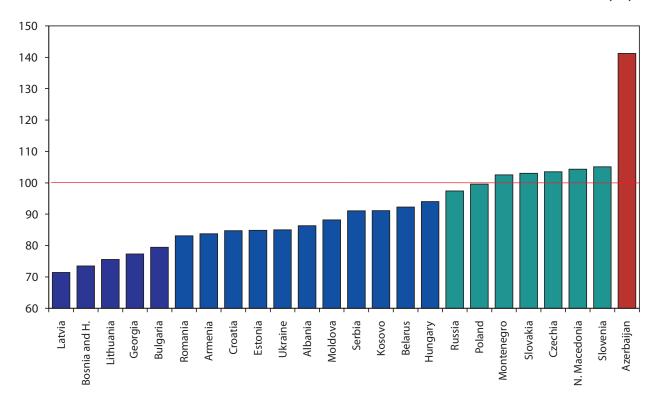Source: World Bank; Kosovo: Demographic ..., 2008; Kosovo ... .

Fig. 1. Change in the official population size between 1990 and 2020 [1990 = 100%]

Source: World Bank; Kosovo: Demographic…, 2008; Kosovo…

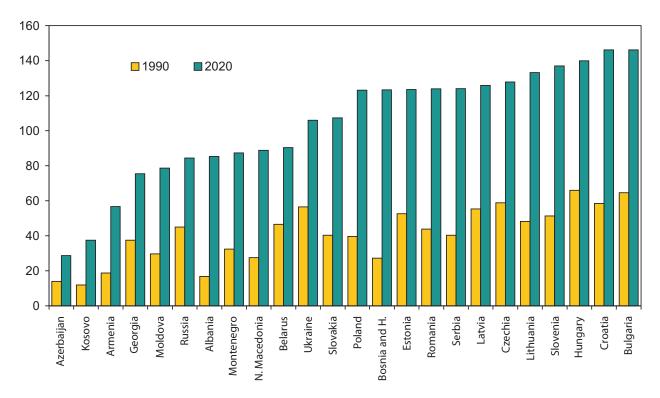

Fig. 2. Aging index in 1990 and 2020

Source: World Bank; Statistički… 2020 ; Kosovo in…, 2020.

beginning of the analyzed period, and 106 at the end of the analyzed period. Looking at the values of the aging index, one may be tempted to claim that it adopts higher values in richer countries, and lower values in poorer countries – but there are also exceptions. The largest increase (by about five times) in the value of the aging index in 2020 compared to 1990 was recorded in Bosnia and Herzegovina and in Albania. The smallest one (less than twofold) was in Russia, Ukraine and Belarus. The process of aging of the population will continue (Michalski, Stępień, 2021).

The third important indicator describing demographic structures is the femininity ratio (Fig. 3). There are slight regularities in the fact that its higher values were recorded in the countries of the former Soviet Union (except for Azerbaijan). On the other hand, lower values are in countries with a dominance or a high percentage of people professing Islam. Looking at the changes in its value, it decreased in 25% of the countries and increased in 75% of them. Ukraine was not only among the countries with its high values, but also its further increase was noted (115.0 at the beginning and 115.8 at the end of the analysis period, respectively).

Fig. 4 shows detailed changes in the total resident population broken down into women and men in Ukraine in 1990–2020. It shows that until 1993 the population of Ukraine was slightly increasing. The breakthrough year was 1994, when the population decreased by 317,000. Until 2006, this decline amounted to over 300,000 residents per year. Later, the rate of decline decreased. The second breakthrough year was 2015, when the population decreased by as much as 2.5 million compared to the previous year. But this was due to Russia's annexation of the Autonomous Republic of Crimea and the city of Sevastopol, plus the loss of separatist territories in the Luhansk and Donetsk oblasts. Currently, the drops are again high and oscillate around 200,000 people per year.

4. Discussion

Looking at the changes in the population number presented in Fig. 1, there are no spatial regularities. There are also no clear correlations with:
1. The dominant religion in a given country. On the one hand, there is Muslim Azerbaijan with a very large and moderate population growth, and on the other – also Muslim Kosovo and Albania with an average population decline. The same case is with Orthodox Christianity: a slight population growth in Montenegro and North Macedonia and a very large decline in Georgia and Bulgaria. It is no different in the case of Catholicism – on the one hand, there is Slovenia with a moderate increase in the number of the population, and on the other hand – Lithuania with a large decrease.
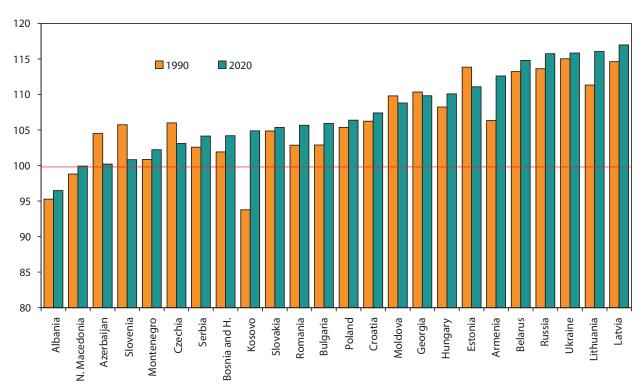

Fig. 3. Femininity ratio in 1990 and 2020
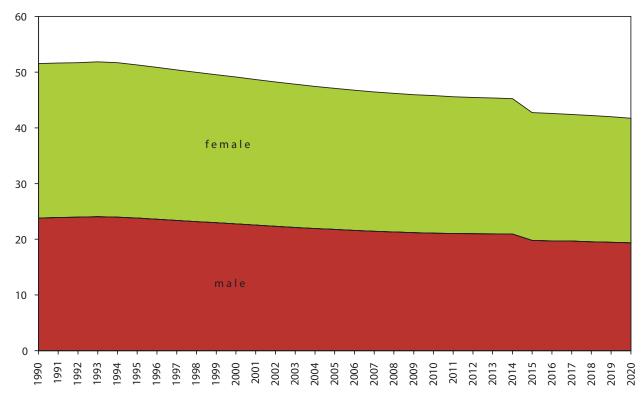
Source: World Bank; Statistički… 2020 .

Fig. 4. Change in the official population (in millions) of Ukraine in 1990–2020

Source: State Statistics Service of Ukraine.

2. The level of wealth of the society. A comparison of two societies with the highest population growth – Azerbaijan (GDP per capita, PPP in 2020 = 14,500 current international $) and Slovenia (40,100), and two with the largest population decline: Latvia (32,000) and Bosnia and Herzegovina (15,600) – is the best illustration of this thesis.

3. Armed conflicts in some countries during this period. On the one hand, we have Azerbaijan and North Macedonia, where the population has increased, and on the other – Bosnia and Herzegovina and Georgia, where the population has clearly decreased.

In the countries of the region, three groups of factors affect changes in the number of the population. The first two are demographic in nature and are related to vital statistics and international migration. Changes in national borders constitute the third factor.

Apart from the collapse of larger states: the USSR, Yugoslavia, Czechoslovakia – several countries lost their parts. Thus, Serbia lost Kosovo; Moldova lost Transnistria, Georgia lost Abkhazia and South Ossetia, Azerbaijan lost part of Nagorno-Karabakh. But Ukraine suffered the most losses: Russia annexed the Autonomous Republic of Crimea and Sevastopol and triggered the emergence of the so-called Luhansk People's Republic and the Donetsk People's Republic.

A decrease in the number of live births is an important factor affecting the number of the population. All the analyzed countries record a decrease in the total fertility rate (TFR). While still in 1990 seven countries ensured replacement fertility, there were none in 2019 (Tab. 2). The situation in Ukraine is particularly bad, as in 2019 it had the lowest TFR among all the analyzed countries. This is largely due to the economic situation in the country (Aksyonova, Kurylo, 2018). The decrease in fertility is in line with the SDT, but alarmingly large.

The low level of the total fertility rate in most countries also results in a low birth rate (Tab. 3). This is combined with medium and high mortality rates. No wonder then that while in 1990 a natural decrease was noted only in two countries, then in 219 already in 15 countries. It is no different in Ukraine, where at the beginning of the analyzed period there was a slight positive natural increase, while at the end of this period it amounted to -6.6‰ (and next to Bulgaria, it was the worst result in the analyzed group of countries).

The third important component affecting the changes in the population number is migration. Table 4 presents the net migration rate estimates prepared by specialists from the World Bank. However, it should be taken into account that, depending on the country, they may reflect reality better or worse. A lot depends on the adopted definition of

Table 2. Total fertility rate in 1990 and 2019

Country	1990	2019	Country	1990	2019
Albania	**2.98**	1.60	Latvia	2.02	1.61
Armenia	**2.54**	1.76	Lithuania	2.03	1.61
Azerbaijan	**2.74**	1.80	Moldova	**2.41**	1.27
Belarus	1.91	1.38	Montenegro	2.08	1.75
Bosnia and Herzegovina	1.77	1.25	North Macedonia	2.21	1.49
Bulgaria	1.82	1.58	Poland	2.06	1.42
Croatia	1.63	1.47	Romania	1.83	1.76
Czechia	1.90	1.71	Russia	1.89	1.50
Estonia	2.05	1.66	Serbia	*1.80	1.52
Georgia	**2.18**	2.06	Slovakia	2.09	1.56
Hungary	1.87	1.49	Slovenia	1.46	1.61
Kosovo	**3.90**	1.97	Ukraine	1.85	1.23

* – data for 1991
Values ensuring replacement fertility are in bold. Following Smallwood and Chamberlain (2005), the threshold for replacement fertility was adopted at around 2.10 children per woman.
Source: World Bank.

Table 3. Birth, death and natural increase rates (per 1,000 people) in 1990 and 2019

Country	Birth rate		Death rate		Natural increase rate	
	1990	2019	1990	2019	1990	2019
Albania	24.9	11.6	6.0	8.1	18.9	3.5
Armenia	21.8	13.6	8.5	9.8	13.3	3.8
Azerbaijan	25.9	14.1	6.1	5.6	19.8	8.5
Belarus	14.0	9.3	10.8	12.8	3.2	-3.5
Bosnia and Herzegovina	14.8	7.9	7.7	10.9	7.1	-2.9
Bulgaria	12.1	8.8	12.5	15.5	-0.4	-6.7
Croatia	11.6	8.9	10.9	12.7	0.7	-3.8
Czechia	12.6	10.5	12.5	10.5	0.1	0.0
Estonia	14.2	10.6	12.4	11.6	1.8	-1.0
Georgia	17.3	13.2	9.4	12.8	7.9	0.4
Hungary	12.1	9.5	14.0	13.3	-1.9	-3.8
Kosovo	29.7	15.6	7.1	6.9	22.6	8.7
Latvia	14.2	9.8	13.1	14.5	1.1	-4.7
Lithuania	15.4	9.8	10.8	13.7	4.6	-3.9
Moldova	18.6	9.9	10.4	11.7	8.2	-1.8
Montenegro	16.5	11.7	7.2	10.8	9.3	0.9
North Macedonia	17.7	10.7	7.5	10.1	10.2	0.5
Poland	14.4	9.9	10.2	10.8	4.2	-0.9
Romania	13.6	9.6	10.6	13.4	3.0	-3.8
Russia	13.4	9.8	11.2	13.3	2.2	-3.5
Serbia	*11.9	9.3	*11.7	14.6	*0.2	-5.3
Slovakia	15.1	10.5	10.3	9.8	4.8	0.7
Slovenia	11.2	9.3	9.3	9.9	1.9	-0.6
Ukraine	12.6	8.1	12.1	14.7	0.5	-6.6

* – data for 1991
Source: World Bank.

Table 4. Net migration rate (per 1,000 people) in 1990 and 2019

Country	1992	2017	Country	1992	2017
Albania	-136.5	-24.4	Latvia	-44.6	-38.2
Armenia	-144.2	-8.5	Lithuania	-27.1	-57.9
Azerbaijan	-15.6	0.6	Moldova	-44.3	-2.5
Belarus	-6.2	4.6	Montenegro	-33.3	-3.9
Bosnia and Herzegovina	-175.0	-32.2	North Macedonia	-50.3	-2.4
Bulgaria	-41.7	-3.4	Poland	-4.2	-3.9
Croatia	-31.4	-9.7	Romania	-22.8	-18.9
Czechia	2.9	10.4	Russia	16.8	6.3
Estonia	-73.0	14.8	Serbia	23.3	2.8
Georgia	-121.4	-13.4	Slovakia	-2.8	1.4
Hungary	9.6	3.1	Slovenia	-8.7	4.8
Kosovo	no data	no data	Ukraine	1.4	1.1

Source: World Bank.

a long-term migrant and the techniques used to estimate their number. Hence, the data presented in this table should be approached with caution.

In the analyzed area, there are many types of migration; also their directions and intensity changed in the following years. In simplified terms, it can be assumed that at the beginning of the transformation process, in almost all countries, emigration was the prevailing type, which then transformed into transit migration in the richer countries, and then into the predominance of immigration. A comparison of Czechia, Slovakia, Poland and Ukraine is a good illustration of this thesis. Czechia is an example of a rich country and has the most favorable migration balance (Drbohlav, Janurová, 2019). In the case of Slovakia and Poland, we see a „transition" of these countries from the emigration to the immigration one. The process is much more advanced in Slovakia than in Poland. Immigrants from Ukraine play a large role here (Bajziková, Bajzik, 2020; Jaroszewicz, 2018). On the other hand, Ukraine is currently the largest country of emigration in the region (Píontkívs´ka et al., 2018; Vakhitova, Fihel, 2020). However, the data presented in Tab. 4 do not reflect that. Moreover, in recent years, Ukraine has clearly seen changes in the direction of emigration. While in 2005–2008 almost half of the economic emigration from Ukraine fell to Russia, in 2015–2017 it was slightly over 1/4, and Poland came first (Prižkov et al. (eds.), 2018).

In addition, other types of migration can also be seen in the analyzed region, such as immigration of ethnic Russians and economic migrants from the former Soviet Union republics (Lang, 2017). Due to warfare, there were unusual migrations in the 1990s in most of the countries of the former Yugoslavia (Harvey, 2006).

5. Conclusions

In the first half of the 20th century, Ukraine underwent a series of man-made demographic catastrophes: World War I, the Bolshevik Revolution, Holodomor, the massive deportations and executions of Stalin's Great Terror, and World War II (Kul'čic'kij, 2004; Romaniuk , Gladun, 2015). The Holodomor caused particularly large losses (Matviyishyn et al., 2021). There are all signs that, since regaining the independence, the demographic situation in Ukraine is bad again.

Analyzing the changes in the population in Ukraine compared to other European post-communist countries, we conclude that the process of depopulation is significant. However, there are nine other countries that have officially recorded an even greater decline in the population. It is accompanied by a progressive aging of the society (here Ukraine is in the middle of the rank of countries) and an increase in the already high percentage of women in the society.

All three factors influencing the changes in the population number and its age structure discussed in the article are unfavorable for Ukraine.

In 2015, as a result of direct and indirect Russian aggression, the population of Ukraine decreased by 2.5 million citizens, and the threat from Russia is still real (Harris, Sonne, 2021).

Natural increase in Ukraine is very clearly negative. Next to Bulgaria, Ukraine has the worst situation

in this respect among the analyzed group of countries. Unfortunately, the very low TFR indicates that there will still be few births. Simultaneously, the increase in the number of deaths resulting from the COVID-19 pandemic will cause the natural decrease in Ukraine to be even greater.

Since regaining independence, Ukraine has experienced three "revolutions": the revolution for independence, the Orange Revolution and the Dignity Revolution. Two of them did not lead to changes for the better; on the contrary, Ukraine's prospects for political and economic development have deteriorated (Cleary, 2016). Only the last of these "revolutions" gave a real chance for the development of Ukraine and improving the quality of life of its citizens. But the anti-Ukrainian policy of Russia stood in the way here (Kuzio, 2017; Shelest, 2015). No wonder then that a negative net migration still remains.

As mentioned, it can be assumed with high probability that the COVID-19 pandemic will further accelerate the depopulation processes in Ukraine. Although too little time has passed to unequivocally assess its impact on demographic trends, one may be tempted to say that it causes a reduction in the number of people (Islam et al., 2021). But paradoxically, due to higher mortality of older people than younger ones (Cohen et al., 2021) – it may inhibit the trend of population aging. On the other hand, unfavorable changes in reproductive attitudes (Berger et al., 2021) may do the opposite.

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