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DEMOGRAPHIC CHANGES IN POST-SOCIALIST COUNTRIES IN THE PERIOD 1992-2017

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Abstract: Demographic potential is one of the key determinants of regional development. On a global level, it is the balance of births and deaths that defines population change. However, on a regional level, migration balance needs to be considered as well. Another significant factor is the structure of population with regard to age and professional activity. This paper aims to assess the demographic changes in selected European and Central Asian countries over the 1992-2017 period and set these findings against changes in the standard of living measured by HDI and economic wellbeing measured by GDP per person employed. The regression function was applied to determine trends of the study variables, Webb's method was employed to assess demographic activity and multidimensional comparative analysis was used to construct a demographic index and create a ranking of objects. Among the countries researched, in 1992 only eight could be categorized as demographically active, and in 2017 this number went down to five. In comparison to 1992, the demographic potential of most of the study countries dropped by an average of 0.05.

Keywords: demographic potential, Webb's method, demographic potential index.

1. Introduction

Demographic potential is one of the key determinants of regional growth. In the analysis of human resources, the two significant descriptors that have to be considered are population size and its age structure. Demographic potential which plays an important role in local and regional development, is based on two fundamental phenomena: the natural movement of the population (births and deaths) and migration. In fact, demographic potential is closely linked to the socioeconomic development of a region.

The necessary condition for regional policies to be effective is access to reliable information about the actual population size and its qualitative features within the region.

Ageing is a characteristic feature of changes in demographic structures observed in all European countries. Individual populations differ, among others, in terms of how advanced these changes are, measured by the ratio of elderly people to total population. What is characteristic of the developed countries is the high proportion of older persons in their population and the fast growing old-to-young ratio (*World Population Prospects*, n.d.).

To assess population ageing Najman and Szklarska (2011) adopted the following measures: percentage of persons aged 65+, old-age rate, occurrence of diseases and disabilities, life expectancy and the role of migration in population ageing. They demonstrated that the average age of populations in Europe and Central Asia (ECA), and the Baltic countries increased from 29.4 years in 1970 to 35.6 in 2010. The reason behind that was not the significantly extended life expectancy, but rather the exponential decline in birth rate.

Bussolo, Koettl, and Sinnott (2015) carried out an overview of the population key ageing factors when researching birth rates in the ECA and Baltic states. They confirmed that the main reason for the increasing average age in Europe and Central Asia is the dramatically dropping fertility rates (which in some countries declined beneath the replacement rate), rather than a significant improvement in life expectancy. The increase of persons aged 65 years and above also reflects the decrease in the number of younger age groups, and not a significant increase of the elderly population. Ageing has also been affected by temporary demographic shocks, including the baby boom, and sharp declines in fertility rates and the increased migration of young adults during the period of transition to a free market economy. Most likely, migration flows will not be large enough to compensate for the expected, growing shortages in the labour force considering, in particular, the political sensitivity to migration growth. Nevertheless, migration may play an important role in mitigating the effect of ageing on the economy.

In most countries the number of elderly persons and their percentage has been exponentially growing over the last few decades, and these trends are expected to accelerate in the coming ones. Population ageing will probably become the most important social change of this century (Balachandran, de Beer, James, van Wissen, and Janssen 2019).

Analysing the annual global population growth rate, Roser, Ritchie, and Ortiz-Ospina (2019) demonstrated that it dropped from 2.2% (in 1968) to 1.05% (in 2018). They determined the main factors to be as follows:

- 1) anticipated life expectancy. Better health leads to decreased mortality, thus it is a factor that increases population size. Anticipated life expectancy which projects age at death has doubled across the world,

- 2) mortality of babies and children. Young age mortality severely affects demographic changes,

3) fertility rates. Rapid population growth was only a temporary phenomenon in many countries. This growth is nearing its end as the average number of births per woman is decreasing,

4) age structure.

Population explosions are temporary. In many countries the demographic transition has already ended, and since the global birth rate has now decreased by half, one do know whether the world as a whole is approaching the end of a rapid population growth. On the global level population changes are determined by the balance of two variables: the number of persons born and those deceased in a given year.

However, on the regional or national level, one more variable has to be considered: migration to (immigration) or migration from (emigration) a region/country.

According to Eurostat and OECD data, the number of foreign citizens and foreign-born citizens has increased during the studied period from a few to several times over. However, the natural increase played a relatively minor role in the general population growth. In recent years, experts on demography determined a group of demographic, economic and social indicators that may potentially affect fertility rates. Naturally, there are many other factors involved which are hard to measure, e.g. a country's social policy. Countries with a relatively high fertility rate are very often countries with a sharply increased migration, and a high percentage of immigrants and their descendants in the population. The impact immigration processes have on the birth rate and its share in total birth rates keeps increasing systematically (Krywult-Albańska and Wałaszek, 2011).

Bleha and Durcek (2017) studied the transformation of fertility and family behaviour in post-socialist countries. It was fast and the changes were striking. The description of the changes is the subject of dispute and the mechanisms have still not been explained in a fully satisfactory manner. To date, relatively little attention has been paid to changes in spatial aspects regarding the extension of changes in family behaviour. The authors of the article aimed to answer the question whether the changes are spreading stochastically in post-socialist countries or if there are obvious spatial patterns, and tried to find out whether there are any change cores that can be understood as innovations, whether spatial clustering occurs and the scope is hierarchically ordered. These questions are still valid.

The following thesis was put forward: the increase in demographic potential is accompanied by an increase in wealth measured by GDP per employee.

The aim of the paper was to assess the demographic changes that took place in selected European and Central Asian countries over the 1992-2017 period, and collate them to the changes in the quality of life measured by HDI and economic wellbeing measured as GDP per person employed. One of the country selection criteria was the experience of transition they shared, and the fact that after 1992 these countries found themselves in a new economic and political situation.

2. Characteristics of the studied countries

The onset of political and economic changes in the former socialist bloc can be traced back to the elections held in Poland in June 1989. In October of the same year, there were massive demonstrations in the German Democratic Republic which led to the collapse of the Berlin Wall. Around that time the Hungarian Socialist Workers' Party disintegrated. In November the Velvet Revolution began in what was then Czechoslovakia, and in Bulgaria Todor Zhivkov was removed from power. The entire process ended with the December Uprising in Romania. The new political order was reinforced by free elections held in 1990 in, successively: East Germany (March, reunification of East and West Germany), Hungary (April), Romania (May), Czechoslovakia and Bulgaria (June). In Poland the elections were held later, in autumn 1991, but they were preceded by electing Poland's president by popular vote (November-December 1990). The republics of the Soviet Union (USSR) gained autonomy in 1988-1991 and subsequently emerged as independent countries. In effect, 14 new, post-Soviet countries, emerged on the world's political map. In June 1991 the Socialist Federal Republic of Yugoslavia (SFRJ) broke up and a new political order was established in that region. Three out of the six constituent republics of Yugoslavia declared independence: Croatia, Slovenia and Macedonia. In April 1992, independence was proclaimed by the Republics of Bosnia and Herzegovina, Serbia and Montenegro. SFRJ was replaced by the Federal Republic of Yugoslavia with its capital in Belgrade, which lasted until 4 June 2003 when a new state – Serbia and Montenegro – was created which aspired to be the sole successor to Yugoslavia. The last vestiges of the former Yugoslavia came to an end very quickly, as the union dissolved on 3 June 2006 with Montenegro and Serbia declaring independence as two separate states. On 17 February 2008 the Republic of Kosovo unilaterally declared independence from Serbia, even though to this very day Kosovo is not recognized by Serbia as an independent state (Podolak, 2013).

Nejasmic (2002) analysed the demographic changes in post-socialist European countries in the 1990s, i.e. 19 countries with a total of 339.4 million inhabitants. Between 1990 and 1999 the overall population of the analysed countries decreased by 5.6 million people, or 1.6%. The general depopulation affected almost all countries. The birth rate fell in the total population from 13.6 per thousand to 9.0 per thousand, and all countries experienced a decline. In the late 1990s the 'birth norm' was lowered to an average of one child per family (with the exception of Albania). In post-socialist countries (in general) natural depopulation has occurred, with a clear tendency towards the growth of negative values. In the overall population the share of older people '65 and over' amounted to 12.9%. There was a strong trend of demographic senescence. The most favourable demographic situation occurs in Albania, followed by Slovakia, SFR Yugoslavia, Poland, Macedonia, Bosnia and Herzegovina, Slovenia, Lithuania, Czechia, Croatia, Moldova, Romania, Belarus, Estonia, Bulgaria, Ukraine and finally Latvia with the worst demographic indicators. In the 1990s in almost all European post-socialist countries a demographic collapse

occurred! Such demographic circumstances have already become a limiting factor for the economic and social development of the countries analysed.

According to Brainerd research, the former socialist countries of Eastern Europe and the former Soviet Union have undergone an extraordinary demographic transformation in 20 years (1989-2008). In many respects, fertility and family formation now resemble those of Western Europe – with fertility rates below substitution levels. The second aspect of this demographic transformation are the almost unprecedented changes in adult mortality rates (Brainerd, 2010).

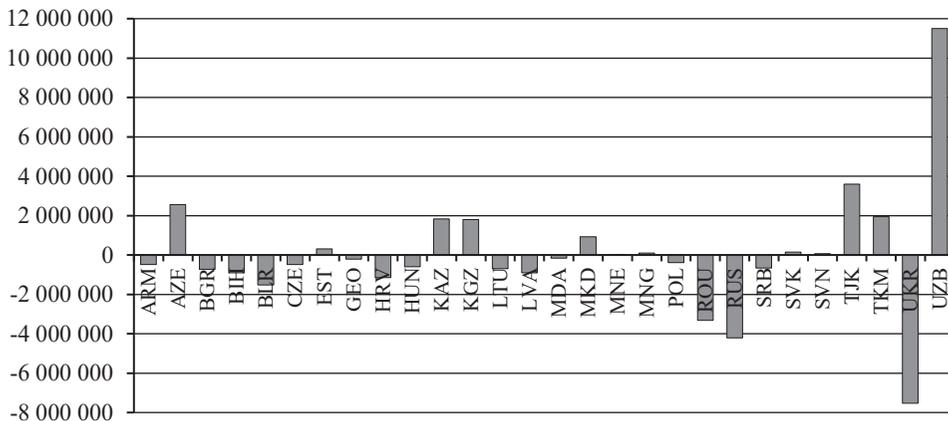


Fig. 1. Difference in total population in the period 1992-2018

Source: own study using (*The World Bank*, n.d.).

From among all the newly created states, 29 were selected for a detailed analysis on the basis of, among others, access to data. There is huge social and geographic diversity among the studied countries, the largest of them being Russia with a population that makes up approximately 35% of the total population of the countries surveyed. The research period was 1992-2018, during which significant changes took place in the countries in question. The largest population growth was seen in Uzbekistan with around 11.5 mln, in contrast to the largest decline in Ukraine of approximately 7.5 mln people (Figure 1). Such major changes are to a large degree the effect of the change of borders and migration of people during the formation of the new states.

3. Research material and methods

Multidimensional comparative analysis is a useful tool in studying complex phenomena. It allows to:

- construct a ranking of objects according to a predetermined criterion, i.e. a complex phenomenon measured by a synthetic variable;

- study the variance occurring between objects and classify them into typologically similar groups.

For the purposes of this paper, regression was used to determine trends in study variables (Nowak, 2002), while Webb's methodology (Runge, 2007) was applied to assess population changes, and multidimensional comparative analysis (MCA) was used to build the Demographic Potential Index (DPI) and object ranking (Kukuła, 2000).

$$DPI = q_i = \frac{1}{s} \sum_{j=1}^s z_{ij}; \quad \bar{q} = \frac{1}{r} \sum_{i=1}^r q_i; \quad S(q) = \left[\frac{1}{r} \sum_{i=1}^r (q_i - \bar{q})^2 \right]^{0,5}, \quad (1)$$

where standardized variables z_{ij} were calculated on the basis of formulas for stimulants (2) and destimulants (3):

$$z_j = \frac{x_j - \min_i x_j}{\max_i x_j - \min_i x_j}; \quad \max_i x_j \neq \min_i x_j, \quad (2)$$

$$z_j = \frac{\max_i x_j - x_j}{\max_i x_j - \min_i x_j}; \quad \max_i x_j \neq \min_i x_j'. \quad (3)$$

The size of population is affected by two basic phenomena: natural movement of people and migration. To assess the demographic situation it is useful to compare natural increase with migration balance according to Webb's typology, which distinguishes eight demographic types: four active (A, B, C, D) and four non-active (E, F, G, H). The best situation occurs in classes marked as B:C, where both elements – natural increase and migration rates are positive. The least favourable indicators (negative natural increase and negative net migration) occur in classes F and G:

A – positive natural increase surpasses negative net migration

B – positive natural increase surpasses positive net migration

C – positive net migration surpasses positive natural increase,

Table 1. Demographic variables used in the research

Variable symbol	Indicator	Variable type
X ₁	Rate of natural increase (RNI)	S
X ₂	Net migration	S
X ₃	Age dependency ratio, old (% of working-age population)	D
X ₄	Age dependency ratio, young (% of working-age population)	S
X ₅	Death rate, crude rate (per 1,000 people)	D
X ₆	Life expectancy at birth, total (years)	S
X ₇	Age dependency ratio (number of 65+ persons to 15-64 years old persons)	D

Source: own study.

- D – positive net migration surpasses negative natural increase,
- E – negative natural increase surpasses positive net migration,
- F – negative net migration and even bigger negative natural increase,
- G – negative natural increase and even bigger negative net migration,
- H – negative net migration surpasses positive natural increase.

The types of demographic data used for the analysis of selected countries are outlined below (Table 1).

Rate of natural increase and net migration were applied to assess the studied countries in terms of their demographic activity in accordance with Webb's typology.

With the application of MCA and on the basis of these demographic variables the Demographic Potential Index (DPI) was construed; variability and correlation between candidate variables were verified.

The changes in social potential were correlated with GDP increase (GDP per person employed (constant 2011 PPP \$)).

4. Research findings

To assess demographic activity in accordance with Webb's methodology, natural increase and net migration were used.

The key statistics for natural increase in the studied countries are presented in Figure 3. A consistent decline in average values of RNI can be observed already since the 1960s. In 1960 RNI was 16 thousand per 1 thousand population, which is in sharp contrast to 1992 when it dropped to 7 and 2017 – with RNI as low as 3. Annual average decline, as per trend function, was 0.26 person per 1 thousand population. The maximum and minimum values also point to a declining trend, however it was not possible to estimate the trend function for these extreme values.

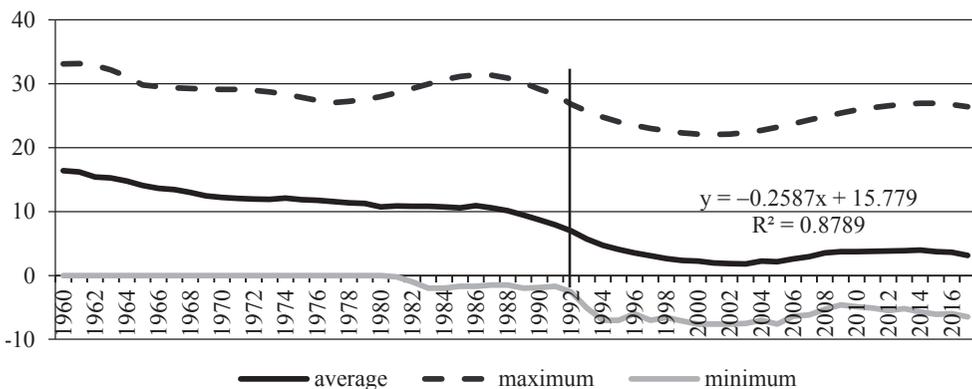


Fig. 2. Natural increase in the studied countries

Source: own study using (*The World Bank*, n.d.).

The second indicator analyzed was net migration. The net migration rate (NMR) showed a large variation across the studied countries. In 1992 it was positive in Russia (approximately 2.5 mln people) and negative in Kazakhstan (around 1.4 mln), but in 2017 these extreme values decreased significantly from + 912 thousand NMR in Russia to – 370 thousand in Romania. In 1992 the total net migration in the research countries was negative with around –3.2 mln people. In 1997 the total NMR was slightly lower, i.e. – 2.8 mln people, and in 2002 it was still negative with a total NMR of – 490 thousand people. In 2007 and 2012 total NMR was positive with, respectively, 700 thousand and 580 thousand people, whereas in 2017 it became negative again with a total NMR of –180 thousand people.

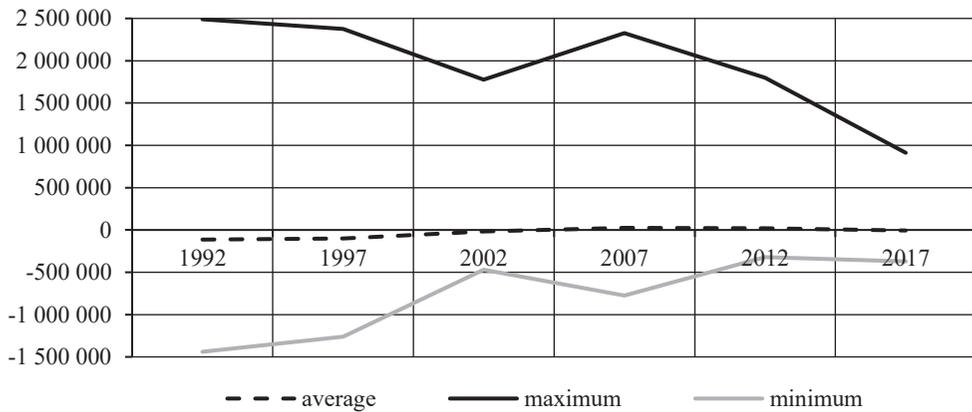


Fig. 3. Net migration rate in the studied countries

Source: own study using (*The World Bank*, n.d.).

These indicators were used to estimate demographic activity. Countries considered “demographically active” are those which demonstrate positive population balance (A – D types). Non-active countries show negative population balance, i.e. their population is in decline (E – H types).

Among the countries surveyed, only eight could be classified as demographically active in 1992. Despite the dropping natural increase rate and simultaneous decline in net migration, in 2017 there were 13 demographically active states, with only five of them being the same as in 1992 (Table 2).

Throughout the entire period of study only four states consistently showed a positive population balance: Uzbekistan, Turkmenistan, Russia and Czechia. Over the 1992-2017 period, a negative population balance was observed in 12 states.

A country’s demographic potential is also hugely affected by age dependency ratios for old (ADRO) and young people (ADRY) as a percentage of total working age population. As the trends show (Figure 5), the percentage of old people grew by an annual average of 0.2 percentage points (pp), although in some countries this

Table 2. Countries by type of demographic activity

Country code	Classes 1992	Classes 1997	Classes 2002	Classes 2007	Classes 2012	Classes 2017
ARM	E	H	H	H	H	H
AZE	A	H	B	B	B	B
BGR	F	G	G	G	F	G
BIH	H	H	H	H	G	F
BLR	H	D	F	D	D	D
CZE	D	D	D	D	C	C
EST	F	G	G	G	G	D
GEO	H	H	G	G	H	H
HRV	F	H	F	G	G	F
HUN	D	D	D	E	E	E
KAZ	H	H	B	A	B	A
KGZ	H	A	H	G	A	A
LTU	H	G	G	G	G	F
LVA	F	G	G	G	G	F
MDA	H	H	G	G	G	F
MKD	H	H	H	H	H	H
MNE	H	H	H	A	H	H
MNG	H	H	A	A	A	A
POL	H	H	G	G	H	H
ROU	H	G	G	G	G	F
RUS	D	D	D	D	C	C
SRB	D	G	G	G	E	E
SVK	A	E	D	H	C	C
SVN	H	D	D	D	C	D
TJK	H	H	A	A	A	A
TKM	B	A	A	A	A	A
UKR	E	G	F	E	E	E
UZB	A	A	A	A	A	A

Source: own study.

growth was almost double (maximum value trend). The trend for minimum values describes countries in which the percentage of elderly declined by an annual average of 0.08 pp.

In accordance with the methodology adopted for the purposes of this study, among the suggested variables only four met the criteria of variability and correlation allowing for the construction of a synthetic variable, which were X2 to X5 variables. The values of the Demographic Potential Index measured in such a way are presented in Table 3.

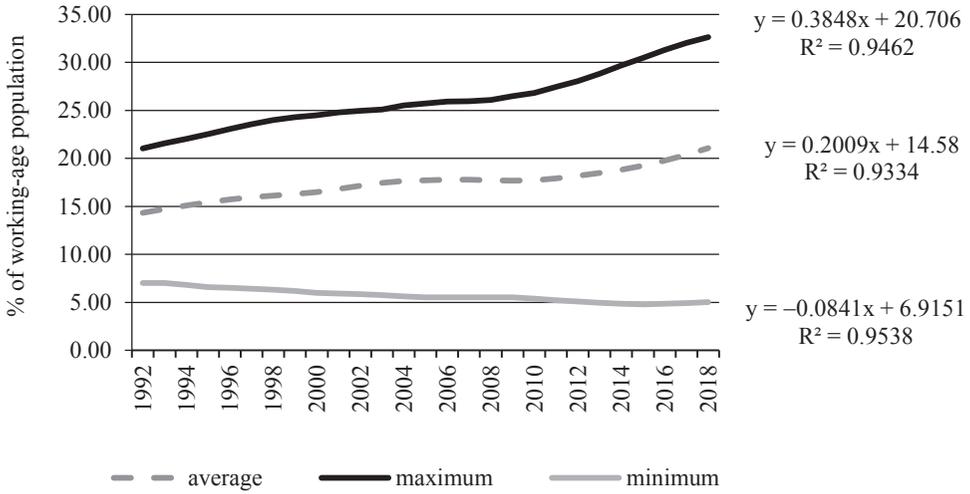


Fig. 4. Age dependency ratio, old people

Source: own study using (*The World Bank*, n.d.).

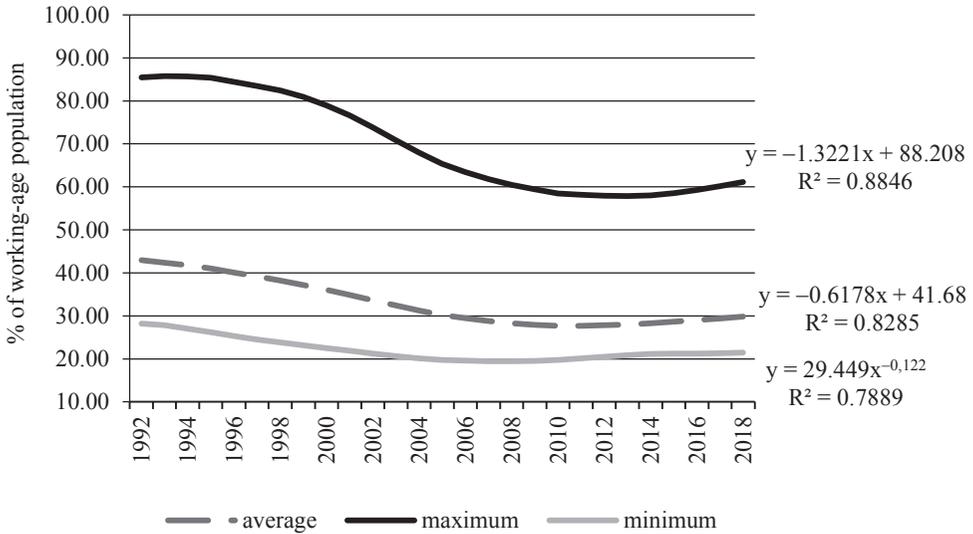


Fig. 5. Age dependency ratio, young people

Source: own study using (*The World Bank*, n.d.).

Throughout the research period, the highest DPI was observed for Tajikistan, approximately 0.8 DPI. In contrast, a DPI of below 0.1, the lowest in the ranking, was noted for Romania. Most countries demonstrated a definite drop in DPI in 2017 in comparison to 1992.

Table 3. Demographic Potential Index (DPI) by country

Country	1992	1997	2002	2007	2012	2017	Difference 2017-1992
ARM	0.4467	0.3932	0.3169	0.3111	0.3063	0.3535	-0.0932
AZE	0.6089	0.5628	0.4992	0.5107	0.4735	0.4816	-0.1273
BGR	0.0777	0.0802	0.0584	0.0712	0.0363	0.0738	-0.0039
BIH	0.3191	0.3297	0.2589	0.2092	0.1412	0.1695	-0.1496
BLR	0.2128	0.1969	0.1410	0.1695	0.1774	0.2355	0.0227
CZE	0.1544	0.1918	0.1809	0.2146	0.1380	0.1875	0.0331
EST	0.1552	0.1590	0.1170	0.1255	0.1010	0.1594	0.0042
GEO	0.2672	0.2274	0.1984	0.2035	0.1975	0.2615	-0.0057
HRV	0.1474	0.1766	0.1195	0.1131	0.0820	0.1009	-0.0465
HUN	0.1068	0.1529	0.1372	0.1393	0.1018	0.1393	0.0325
KAZ	0.4106	0.3653	0.4323	0.4746	0.5128	0.5475	0.1369
KGZ	0.6517	0.6321	0.5719	0.6190	0.6404	0.6856	0.0339
LTU	0.2283	0.2195	0.1463	0.1020	0.0613	0.0906	-0.1377
LVA	0.1472	0.1405	0.0981	0.0846	0.0422	0.1062	-0.0409
MDA	0.3545	0.3435	0.2933	0.2721	0.2410	0.2706	-0.0840
MKD	0.4003	0.3857	0.3193	0.2965	0.2329	0.2467	-0.1536
MNE	0.3623	0.3421	0.2785	0.2753	0.2398	0.2635	-0.0988
MNG	0.7057	0.6637	0.6028	0.6084	0.6072	0.6557	-0.0500
POL	0.2611	0.2754	0.2081	0.2082	0.1351	0.1626	-0.0985
ROU	0.1843	0.1765	0.1134	0.0958	0.0911	0.0821	-0.1021
RUS	0.3625	0.3642	0.3617	0.3649	0.4064	0.4312	0.0687
SRB	0.2526	0.1943	0.1480	0.1628	0.1321	0.1459	-0.1068
SVK	0.2748	0.2929	0.2517	0.2453	0.1996	0.2294	-0.0455
SVN	0.2004	0.2122	0.1656	0.1605	0.1293	0.1607	-0.0397
TJK	0.8187	0.8080	0.7747	0.7933	0.7717	0.8026	-0.0161
TKM	0.7712	0.7083	0.6323	0.6455	0.6231	0.6543	-0.1169
UKR	0.1490	0.1236	0.0908	0.1256	0.1363	0.1799	0.0309
UZB	0.7569	0.7117	0.6238	0.6419	0.5828	0.6155	-0.1413
average	0.3496	0.3368	0.2907	0.2944	0.2693	0.3033	
deviation	0.2163	0.2007	0.1949	0.2026	0.2113	0.2116	
minimum	0.0777	0.0802	0.0584	0.0712	0.0363	0.0738	
maximum	0.8187	0.8080	0.7747	0.7933	0.7717	0.8026	

Source: own study using (*The World Bank*, n.d.).

Assuming that a satisfactory value of DPI is above 0.5 (on a 0 to 1 scale), in 1992 and 2017, only six and five countries exceeded these values, respectively. The arithmetic means of DPI were below 0.5 in successive years. Moreover, the spread of DPI values also remained at the level of around 0.7.

GDP per capita is commonly used to measure national wealth. In this paper, GDP per person employed (Figure 7) which measures the rate of output per unit of labour

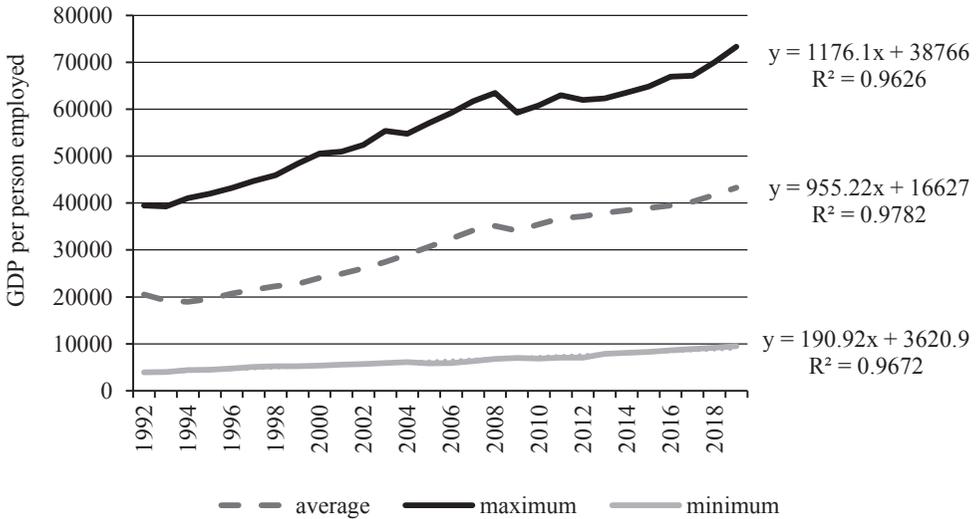


Fig. 6. GDP per person employed, in USD

Source: own study using (*The World Bank*, n.d.).

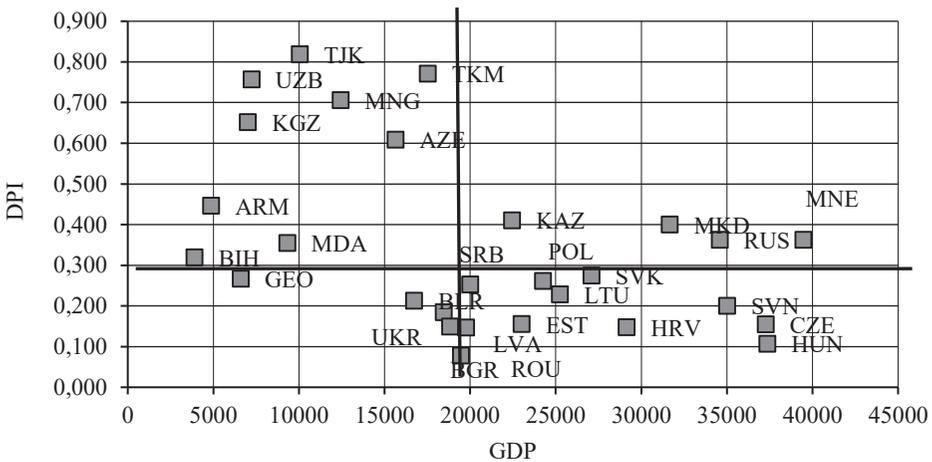


Fig. 7. DPI and GDP per person employed in 1992

Source: own study using (*The World Bank*, n.d.).

input was used. For measuring regional production it alleviates the measurement problem of commuting the classical indicator GDP per capita, and thus provides a more truthful picture of regional productivity than GDP per capita does (BSR. ESPON.EU, n.d.). The trends of mean values and extreme values point to the constant

growth in the wealth of the studied countries. GDP per person employed showed an annual average increase of 955 USD. GDP increased by 1176 USD in the wealthy countries, whereas in the poorer ones it increased by only 190 USD.

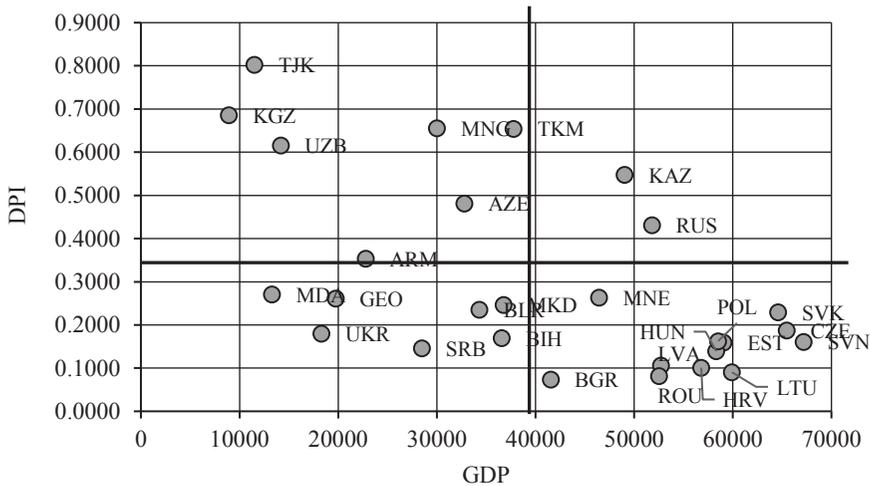


Fig. 8. DPI and GDP per person employed in 2017

Source: own study using (*The World Bank*, n.d.).

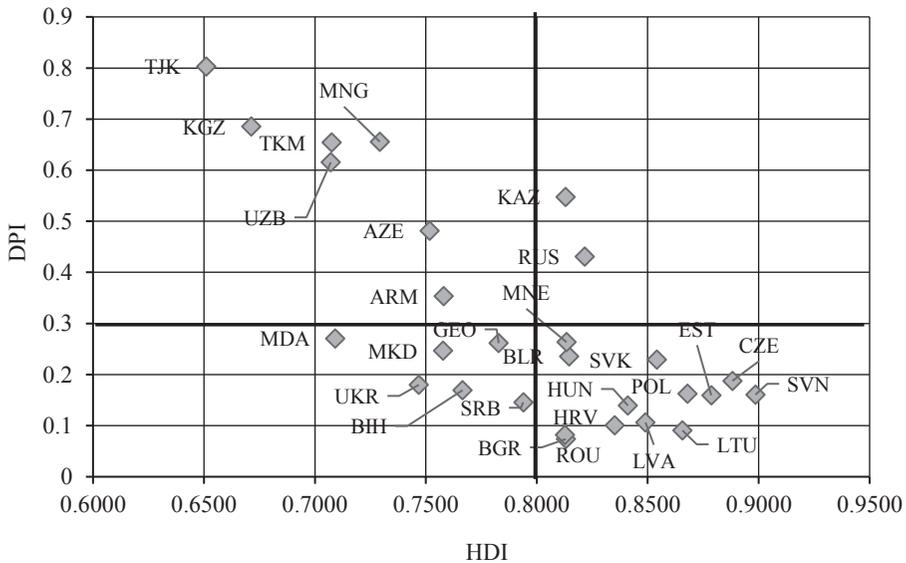


Fig. 9. DPI and HDI in 2017

Source: own study.

To answer the question of whether an increase in national wealth is beneficial for a country's demographic potential, DPI values were compared with GDP per person employed for individual countries in 1992 and 2017 (Figures 8 and 9). In 1992, the two indicators were above average for four countries, located in the upper quarter of the graph, i.e. Montenegro, Russia, Kazakhstan and Macedonia, whereas in 2017 there were only two, Kazakhstan and Russia. What is characteristic of most European states is a below average DPI and above average GDP per person employed.

When it comes to the Human Development Index (HDI), a composite measure that takes into account GDP per capita, life expectancy and education, in 2017 the studied countries were classified as countries with high and very high human development. Only Kyrgyzstan and Tajikistan showed medium human development. The comparison of HDI values with the DPI proposed by the author for 2017 confirms the position of Kazakhstan and Russia, with above average values for both indexes (Figure 10).

5. Conclusion

The demographic potential of the selected European and Central Asian countries was assessed by applying the Demographic Potential Index (DPI). For the vast majority of countries (21 out of 29), DPI in 2017 was lower than in 1992. This declining trend can be mostly attributed to a drop in natural increase rate, population ageing, migration and a shrinking young population.

The highest DPI values were observed for Asian countries.

The number of demographically active countries increased from 8 in 1992 to 13 in 2017. These were the only countries that maintained their positive population balance resulting from a positive natural increase and migration balance. The remaining countries recorded a population drop.

The hypothesis that an increase in the demographic potential is accompanied by increasing wealth, measured at GDP per person employed, was not positively verified. The average DPI of 0.35 in 1992 dropped to 0.30 in 2017. In contrast, GDP per person employed grew from 25 thousand USD in 1992 to 40 thousand USD in 2017. Only two countries recorded above average values of both indexes in 2017.

Despite the decreasing values of DPI, which is a composite of purely demographic indicators, the quality of life measured by HDI kept increasing.

The findings of this research, apart from their cognitive value, can also be applied as a tool informing political decision-making with regard to regional and global development.

Many reasons remain unknown as to the root of the region's demographic transformation. Further research is needed on the unique and mysterious demographics of post-socialist countries, especially in Asia.

One should ask whether such demographic circumstances have become a limiting factor for the economic and social development of the analysed countries.

The question is still open as to whether there are spatial patterns of demographic change.

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ZMIANY DEMOGRAFICZNE W PAŃSTWACH POSTSOCJALISTYCZNYCH W LATACH 1992-2017

Streszczenie: Potencjał demograficzny jest jednym z podstawowych czynników determinujących rozwój regionów. Na poziomie globalnym o zmianach populacji decyduje bilans liczby osób urodzonych i liczby osób, które umierają. Na poziomie regionalnym należy również uwzględnić bilans migracji. Istotna jest także struktura populacji w aspekcie wieku czy aktywności zawodowej. Celem opracowania była ocena zmian demograficznych w wybranych krajach Eurazji w latach 1992-2017 oraz zestawienie ich ze zmianą jakości życia mierzoną indeksem HDI i poziomem dobrobytu mierzonym PKB na 1 zatrudnionego. W opracowaniu wykorzystano funkcje regresji – dla określenia trendów badanych zmiennych, metodologię Webba – do oceny aktywności demograficznej, oraz metodę wielowymiarowej analizy porównawczej – do budowy indeksu demograficznego i rangowania obiektów. Z badanych krajów w 1992 r. jedynie 8 można było zaliczyć do jednostek aktywnych demograficznie, a w 2017 r. jedynie 5. W większości krajów poziom potencjału demograficznego obniżył się w porównaniu do 1992 r. – średnio o 0,05.

Keywords: potencjał demograficzny, metoda Webba, indeks potencjału demograficznego.