POPULATION NUMBER, POPULATION DENSITY

Károly Kocsis

Changes in population

Between 1910 and 1950

In 1910, more than a quarter (26.7%, 467 million people) of the 1.75 billion inhabitants of *Earth* lived in Europe. At the same time, the Carpathian Basin (comprising roughly the Hungarian half of the Austro-Hungarian Monarchy, including the Kingdom of Hungary and the Kingdom of Croatia-Slavonia) was home to 20.4 million people, that is, 1.2% of the world population 1. Between 1910 and 1950, the number of people on our planet increased by 44.9%, far above the growth of population in Europe and the Carpathian Basin (13.1% and 14.7% respectively), which had been ravaged by the *two world wars*. In the case of Europe and Hungary, the lower growth rate, aside from the wartime losses (including the tragic loss of Jewish lives in the *Holocaust*), was the result of declining natural increase and a negative migration balance. Over these decades, population growth calculated for the presentday territory of Hungary (20.9%) somewhat exceeded the European average 2. This was largely due to a wave of Hungarian refugees from the annexed areas that flooded the rest of Hungary, especially Budapest and the surrounding area, in the aftermath of both world wars. Turning to the areas annexed from Hungary in 1920, we observe that between 1910 and 1950 the population in Transylvania (with the Banat and Partium) increased by only 3.3%, in Vojvodina by 8.2%, and in Slovakia by 18% 3. These low growth rates reflect the waves of emigration and *expulsion* that mostly affected ethnic *Hungarians* and *Germans*. As a result of losses suffered during World War II and the subsequent forced migrations, the population declined significantly in the Carpathian Basin (and in Hungary) between 1941 and 1949. Over that period, decreases of 953,000 and 111,000 people were recorded in the Carpathian Basin and in Hungary respectively.

Between 1950 and 1990

Due to the above mentioned trends in vital statistics, the world population grew to 2.5 billion in 1950, while the population of *Europe* grew to only 527.7 million,



and that of the Carpathian Basin to 23.4 (Hungary's to 9.2) million. As a result, Europe's share of the world population decreased to 20.8% and that of the Carpathian Basin to 0.9%. In the decades between 1950 and 1990, the world population more than doubled from 2.5 billion to 5.3 billion (110%). In this period, the population of Europe and the Carpathian Basin increased by only 29% (from 528 million to 684 million in Europe) due essentially to further declining natural reproduction. As a result, Europe's share of the world population was only 12.8% in 1990 and that of the Carpathian Basin was 0.6%. During the *decades* of communism, the population of Hungary increased at an even slower pace (by 12.7%), as from 1981 the number of deaths exceeded that of live births, turning the previous natural increase into a decrease. During this period, the population increased by 55.1% in Zakarpattia and by 53.2% in Slovakia due to the especially high natural increase. In Transylvania, the population increase was 43%, reflecting the mass influx of Romanians from beyond the Carpathians. At the level of the districts, a significant natural increase in the population was recorded only in those areas of the Car- Transylvania, where the proportion of Romanians in

pathian Basin with the highest fertility (e.g. the Northwestern and Northeastern Carpathians: in Orava, Spiš, Šariš, Eastern Zakarpattia and Maramureş); otherwise internal migration was the decisive factor. From the 1950s, in the communist countries of the region, the collectivisation of agriculture, forced industrialisation, and public investment in housing diverted excess rural labour from agriculture to the newly created (or old) industrial centres, usually towns. As a result, the spatial concentration of the population increased during the communist period, particularly in cities and agglomerations around the capitals (e.g. Budapest, Zagreb, Belgrade, Bucharest) 4. On occasion, this process of urbanisation served not only communist social purposes (the transformation of a rural-peasant society with significant autonomy into one based on urban labour), but also Romanian and Slovak ethno-political aspirations. Such a policy was manifested in efforts to industrialise (and transform the ethnic structure of) those major Romanian and Slovakian cities with ethnic Hungarian (or German) majorities at the end of World War II. These efforts were particularly spectacular in

Year	Population			Population increase, decrease				
	Number	Density (people/sq km)	Time period	During the given time period		Annually		
				Total	In %			
1910	20,392,098	65.0	1900-1910	1,611,497	8.6	0.9		
1920	20,760,939	66.2	1910-1920	368,841	1.8	0.2		
1930	22,705,402	72.4	1920-1930	1,944,463	9.4	0.9		
1941	24,352,227	77.7	1930-1941	1,646,825	7.3	0.7		
1949	23,399,027	74.6	1941-1949	-953,200	-3.9	-0.5		
1960	26,278,893	83.8	1949-1960	2,879,866	12.3	1.1		
1970	27,920,722	89.1	1960-1970	1,641,829	6.2	0.6		
1980	29,841,426	95.2	1970-1980	1,920,704	6.9	0.7		
1990	30,203,450	96.3	1980-1990	362,024	1.2	0.1		
2001	29,462,666	94.0	1990-2001	-740,784	-2.5	-0.2		
2011	28,553,022	91.1	2001-2011	-909,644	-3.1	-0.3		
2019	28,086,309	89.6	2011-2019	-466,713	-1.6	-0.2		
Remark: The area of the Carpathian Basin in the Table includes the following regions: Hungary, Slovakia, Zakarpattia (UA), Trar sylvania (16 Transylvanian counties of Romania), Vojvodina (SRB), Pannonian Croatia (Continental Croatia), Prekmurje (SLO) an Burgenland (A).								

1 POPULATION NUMBER AND POPULATION DENSITY IN THE CARPATHIAN BASIN (1910–2019)

2 POPULATION NUMBER AND POPULATION DENSITY ON THE PRESENT TERRITORY OF HUNGARY (1910–2021)

Year	Population			Population increase, decrease					
	Number	Density (people/sq km)	Time period	During the given time period		Annually			
				Total	In %				
1910	7,612,114	81.8	1900-1910	757,699	11.1	1.1			
1920	7,986,875	85.9	1910-1920	374,761	4.9	0.5			
1930	8,685,109	93.4	1920-1930	698,234	8.7	0.9			
1941	9,316,074	100.1	1930-1941	630,965	7.3	0.7			
1949	9,204,799	98.9	1941-1949	-111,275	-1.2	-0.1			
1960	9,961,044	107.1	1949-1960	756,245	8.2	0.7			
1970	10,322,099	111.0	1960-1970	361,055	3.6	0.4			
1980	10,709,463	115.1	1970-1980	387,364	3.8	0.4			
1990	10,374,823	111.5	1980-1990	-334,640	-3.1	-0.3			
2001	10,198,315	109.6	1990-2001	-176,508	-1.7	-0.2			
2011	9,937,628	106.8	2001-2011	-260,687	-2.6	-0.3			
2021	9,730,000	104.6	2011-2021	-207,628	-2.1	-0.2			
Remarks: The data refer to the present territory of Hungary. 1910–1970: present population, 1980–2021: resident population									

POPULATION CHANGE IN THE CARPATHO–PANNONIAN AREA (1950–1990) annual population growth rate (‰) Over 15.0 5.0-15.0 0.0- 4.9 -4.9--0.1 -15.0--5.0

the total population of cities increased from 34.2% to 75.6% between 1941 and 1992, while the proportion of ethnic Hungarians declined from 47.5% to 20.3%. In Transylvania, the urbanisation efforts utilised not

only the Romanian population of Transylvanian villages but also 800-900 thousand Romanian settlers from beyond the Carpathians (from Moldova and Wallachia).

tion became more concentrated between 1949 and 1990. In accordance with the National Concept for Settlement Network Development adopted in 1971, the vast majority of municipal and infrastructure develop*ment resources and public investment* in housing *were* concentrated on cities and industrial settlements. As a result, nearly 80% of municipalities, almost all of those

that had non-urban status, registered population declines 5. In the decades of communism, the most rapid population growth (20–34% per year!) was observed in Sztálinváros (i.e. Stalin City, which is today known as Dunaújváros), a newly created huge iron metallurgi*cal centre*, between 1951 to 1961 in the chemical centre called Leninváros (i.e. Lenin City – now *Tiszaújváros*) between 1970 and 1991, and in Százhalombatta and As elsewhere in the region, in *Hungary* the popula- Kazincbarcika. Dynamic population growth was also recorded in other industrial centres, county centres and in the majority of municipalities in the agglomeration of Budapest. The population of the prioritised resorts (e.g. Hévíz, Balatonfüred, Siófok, Harkány, Gárdony, Fonyód, Berekfürdő) and of Záhony, a transport centre at the Soviet gateway to Hungary, increased to a similar extent.



Since 1990

Over the past three decades, the world population growth rate has been significantly lower than it was in the second half of the 20th century. Even so, the growth rate still exceeded 46%, resulting in a population of 7.8 billion in 2020. In Europe, a smaller population increase was observed in this period (an average growth rate of only 3.6%), resulting in a current population of 708 million, or 9.1% of the world population. The increase in Europe's population was due in large part to the immigration of people from Africa and Asia. Since 1990 the population of the Carpathian Basin has decreased by 7% (and that of Hungary by 5.8%), reflecting accelerating natural decrease rates and migration loss. Currently, only 0.36% of the planet's population lives in the Carpathian Basin, with 0.13% residing in Hungary. Hungary with a population of 9.73 million (estimated population on 1 January 2021) is the 16th most populated state in Europe and the 94th in the world. The average change in Europe's population between 1990 and 2020 (3.6%) conceals a wide range of values. In the former communist countries, due to particularly high natural decrease rates and migration losses, the population has decreased overall by 6.8% since 1990. In contrast, it has increased by 12% in the rest of the continent, with the biggest increases being recorded in Western Europe (e.g. 28-37% in Norway, Switzerland, Ireland). Such increases reflect migration gains. There have also been significant differences in population change in the countries and major regions of the Carpathian Basin. During the last three decades, a population growth of 3.3% and 0.4% was recorded in Slovakia and Zakarpattia respectively due to the still significant natural increase. The influx of Serbian refugees (from Croatia and Bosnia) in 1995 in the aftermath of the Yugoslav Wars meant that the population of Vojvodina decreased only by a rate (7.3%) similar to the regional average. Mass emigration

accelerating natural decrease, led to a 14% population reduction in both Transylvania and Croatia during this period. Since 1990, population growth due to natural increase and/or migration gains has been observed in fewer and fewer regions of the Carpathian Basin. These areas include the western margin of Slovakia and the northwestern edge of Transdanubia in Hungary (with both these regions being adjacent to the dynamically developing agglomeration of Vienna), the northern and eastern territories in Slovakia, the southeastern half of Zakarpattia, the former Saxon areas in Transylvania, the vicinity of the major cities, the Belgrade – Novi Sad agglomeration in Serbia, and Zagreb and its region in Croatia 6. Over the past two decades, natural increase has been the driving force of population increase mainly in the northern and northeastern parts of the Carpathians where fertility rates are still relatively high, in metropolitan agglomerations and in areas with significant Roma populations 7. In Romania, settlements formerly populated mainly by Germans, from which the German population emigrated in the final decades of the 20th century, became inhabited by Gypsies and Romanians with higher fertility rates. In such areas, population growth reflected both natural increase and significant migration gains. A positive migration balance also increased the population in the agglomerations of several major cities ⁸. Recent demographic processes have led to further population decreases in peripheral regions with tiny and small villages. Thus, population decline has been observed in the Apuseni Mountains, the main victim of the extraction effect of Romanian communist urbanisation in Transylvania, and in the villages of Slavonia and Krajina (in Croatia), which were greatly affected by the war between 1991 and 1995. Indeed, those villages that had been inhabited mainly by Serbs before the war had become largely depopulated by 1995.

fuelled by economic and political factors, as well as

Although the population of Hungary decreased annually by 0.2% during the decade following the fall of communism, almost 41% of municipalities were still able to increase their population 9. Only in a few places was this the result of natural increase (e.g. mainly in Szabolcs, in villages with Roma majority populations in the northeastern part of Hungary). Rather, population growth reflected gains from internal migration, which at the time was mainly the result of the suburbanisation process. In the course of this development, some of the population of major cities with young age structures moved outside the cities in increasing numbers from the late 1980s – looking for more favourable living conditions and suburban living environments - into the surrounding settlements. During this decade, a region with dynamic population growth developed around Budapest, in the area bordered by Vác, Szolnok, Kecskemét, Lake Balaton, and Tatabánya. On the other hand, Budapest lost nearly 290 thousand inhabitants in the 1990s due to the outflow of population, with the population in the central districts (e.g. I, V, VI, VII) decreasing by 2-3% per year. The suburbanisation process was also spectacular, albeit to a lesser extent, in the vicinity of the major county centres. In the last two decades, only a fifth of Hungarian municipalities have seen an increase in population 8. There were only a few settlements (mostly with Roma majority populations) where natural increase was the principal factor behind population growth. The rate of suburbanisation in the vicinity of large cities, resulting in significant migration surpluses and an increase in population, has subsided. High rates of positive population changes were recorded only in the agglomeration of Budapest, in the vicinity of some cities (e.g. Győr, Pécs, Szeged, Debrecen), and in towns along the western border (e.g. Sopron, Mosonmagyaróvár) and in their surroundings, located close to high-income Austrian jobs. A similarly

significant increase in population was recorded in certain municipalities along the shores of Lake Balaton offering attractive living conditions and also on the Hungarian side of the Ukrainian – Hungarian border due to the increasing immigration of Hungarians from Zakarpattia.

A similar spatial pattern can be observed by examining when each municipality reached its peak population during the last 150 years 10. Population decline in the tiny and small villages of Transdanubia began before World War I. Later, in the 1920s and 1930s, the agricultural villages of western Transdanubia and the Alföld (Great Hungarian Plain) with stagnant development, joined other regions with no population growth. In the communist decades, reflecting the economic and settlement policy of the era, the majority of other villages in the Alföld reached their maximum population before the 1970s, while cities in that region did so between 1980 and 1990. The population level in settlements undergoing significant suburban development and in some towns in West Transdanubia close to Austria (e.g. Győr, Sopron, Mosonmagyaróvár) has reached unprecedented peaks in recent years.

Spatial distribution and density of population

Population density and the spatial distribution of the population are influenced by physical and human geographical factors. In the case of the Carpathian Basin, the principal factors are topography, altitude, climatic and hydrographic conditions, soil cover with an especially high impact on agricultural production, and natural resources (e.g. mineral raw materials, energy resources). The number of people living in a given area (population density) is determined by demographic



(vital statistics, live births, deaths, migrations, population structure), economic and political factors. With the passage of time, the historically variable sectoral structure of the local economy favours different natural factors in terms of their attractiveness to the population. In agricultural societies focussed on crop and livestock production, the masses were attracted by such factors as access to water, fertile soil and a relief suitable for cultivation. Access to mineral raw materials and energy sources was similarly significant in the heyday of industry. Nowadays, in view of the preeminence of the service sector, the spatial concentration of the population increasingly reflects favourable geographical location and transport links.

Between 1910 and 1990

The world population density (without Antarctica) was 13 people per square km in 1910. At the time the same indicator was several times higher in *Europe*, the *Carpathian Basin* and today's *Hungary* (45.8, 64.3 and 81.8 people/sq. km respectively). Since then, the world average has increased significantly – mainly due to dynamic population growth in Asia and Africa – thereby drawing closer to the European and Hungarian averages. In 2020, the number of inhabitants per square km is 57.8 for the world, 69.6 in Europe, 88.6 in the Carpathian Basin and 105 in Hungary.

The value and spatial differences of population density in the Carpathian Basin did not increase significantly in the first half of the 20th century. The most densely populated areas in 1950 11 were similar to those observed in 1910 17. Population density was higher than average in Budapest and its agglomeration, in the vicinity of major cities, in the central and southern part of the fertile Alföld playing an important role in agricultural production, and – for historical reasons – in the western regions. In contrast, population density in the mountainous areas, especially

the Carpathians, was rather low (below 40 people/sq. km). The spatial distribution of the population and the regional patterns of population density underwent significant changes in the decades between 1950 and 1990. Such changes reflected communist regional development policies and the internal migration processes that unfolded as a result. Meanwhile, in the major cities, industrial centres and extensive industrial areas with increasing populations, population density increased greatly 12. This was particularly true for Bratislava, Košice, the industrial areas of the Váh Valley in northwestern Slovakia, the agglomeration of Budapest, county centres, the industrial areas of the Transdanubian Range and Sajó Valley in Hungary, Uzhhorod and Mukachevo in Zakarpattia, the major cities in Transvlvania, the agglomeration of Belgrade and Novi Sad in Serbia, and Zagreb in Croatia. The losers of the period of greater population concentration were generally villages, especially in regions with tiny and small villages and in peripheral areas along the state borders. In such areas, population density decreased sharply during this period, falling below the already low level (40 people/sq. km) that had been typical in the mountainous areas. This phenomenon was particularly striking in the Transdanubian Hills, in Slavonia and the Dinarides in Croatia, in most of Banat, in villages in the mountains and hills of Transylvania and the Partium.

Since 1990

Over the past three decades, owing to a population decrease, the population density in the *Carpathian Basin* and in *Hungary* has also fallen significantly: from 95.3 (1990) to 88.6 people/sq. km (2020) in the Carpathian Basin, and from 111.5 (1990) to 105 people/sq. km (2020) in Hungary. The decrease was above average mainly in areas of economic crisis, in most of the formerly flourishing communist industrial areas, in

peripheral rural areas with ageing populations, and in regions affected by wartime emigration. Such areas can be found in the Croatian parts of the Dinarides, in western Slavonia, in the Transdanubian Hills, in the southeastern areas of the Alföld, in Banat, in the Apuseni Mountains, in the Carpathians, and in the industrial areas of North Hungary 13. In contrast, where the population increased significantly due to migration gains and/or natural increase, population density also increased at a similar rate. This was observed in the agglomerations and vicinities of major cities.

Currently, there are an average of 88.6 people per square km in the Carpathian Basin and 104.6 in Hungary. The latter value is similar to that observed in Austria and Turkey, ranking Hungary 78th in the world as an independent country. Regarding the countries and regions of the Carpathian Basin, the population density of Slovakia (111.3) exceeds that of Hungary, while that of Zakarpattia (98.5) is slightly below that of Hungary. Population density in the southern areas is between 80 and 90 people/sq. km (Vojvodina: 86.8, Pannonian Croatia: 85.5, Prekmurje: 81.6). In Burgenland, formerly a Hungarian and now an Austrian border region, the figure is only 74 people/sq. km, whilst Transylvania, much of which lies near the Carpathians, has an average population density of just 64.4 people/ sq. km. The significant spatial concentration of the population in the Carpathian Basin is also reflected in the fact that in almost 77% of the region's 17,000 settlements population density is well below average, that is, less than 80 people/sq. km (and, indeed, less than 40 people/sq. km in half of the settlements). A strikingly low population density (less than 40 people/sq. km) is typical in 63% of settlements in Transylvania. In the region as a whole, the number of inhabitants per square km is high (over 160) in 8.8% of settlements. The proportion of such settlements is particularly large in Zakarpattia and Slovakia (21.4% and 12.5% respectively).















The current spatial differences in population density are determined largely by the natural environment, historical developments, the former communist regional development policy, geographical location, and transport geographical conditions. The lowest population density can still be observed in scattered settlements

and in mountainous and hilly areas with tiny and small villages 14 1. A population density that is well above the average can be observed in the northern and northeastern areas inhabited by populations with relatively high fertility, in the agglomerations of capitals and major cities, in county centres, in urban-



1 A mountain farmstead in the sparsely populated Carpathians

ised areas in general, in areas at lower elevations (lowlands, intramontane basins), and in transport corridors along major river valleys. In Slovakia, a higher than average population density can be found in the western areas, primarily in and around Bratislava, in the valley of Váh and in Nitra. Meanwhile, in the eastern areas, population density is high in the central parts of Spiš, Šariš, Abov (Abaúj) and Zemplín (Zemplén), particularly in the valleys of the Poprad, Hornád and Torysa rivers. In Zakarpattia, relatively high fertility rates have led to population concentrations in and around Uzhhorod and Mukachevo (Munkács) and also in the Upper Tisza Valley and in the Vynohradiv (Nagyszőlős) and Irshava districts. In Transylvania, Partium and the Banat the population density is high mainly at the edge of the Alföld, in county centres, along a section of the River Mureş (Maros) between Deva and Reghin (Szászrégen), in the valleys



2 More than ten thousand people live in one square kilometre in the inner districts of Budapest

of the Târnava (Küküllő) rivers, and in the valleys of Someşul Mare (Nagy-Szamos) and Someşul Mic (Kis-Szamos). In Vojvodina the population density is more than 120 inhabitants/sq. km in southern Bačka (Bácska), in the agglomeration of Belgrade and in the major cities. In Pannonian Croatia, the same can be said of the agglomeration of Zagreb, the northern areas with traditionally high population density (e.g. Međimurje, Varaždin counties, Zagorje region) and the major towns. Relatively high population density rates can be found in the Prekmurje region of Slovenia (especially in the vicinity of Murska Sobota) and in the north of the Austrian Burgenland, which together with Sopron are closely linked the agglomeration of Vienna. In Hungary, industrialisation under communism and the subsequent wave of suburbanisation resulted in high population density values in the agglomeration of Budapest 2, in major cities and in certain industrial areas.



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