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East–West dichotomy and political conflict in Ukraine – Was Huntington right?

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Abstract

In his work the Clash of Civilizations S.P. Huntington classified Ukraine as a "cleft country." In our view, the current discord in Ukraine is rooted in the political divisions that have frequently characterised the post-communist countries. In Ukraine, owing to a history of divergent socio-economic development in the various regions, these divisions are strongly regional. The dichotomic socio-economic framework reflects not only ethnic and religious differences but also such factors as urbanisation, economic development, and even natural elements. The resulting political divide in Ukraine may be traced to the dichotomy of its national identity. The dividing line is between east and west, urban and rural, and Russian-speaking and Ukrainian-speaking Ukraine. Politically, it is between "Maidan-Ukraine" and "Anti-Maidan-Ukraine". The divide runs along the Uman'–Kharkiv line between the forest zone and the steppe. In the 18th century the steppe – which had once been a corridor for the nomadic peoples – became a frontier territory for the Ukrainians and then for Tsarist Russia. The Russian ties of cities in the region were further strengthened by industrialisation in the 19th and 20th centuries and by Russification in the Soviet era. The Soviet-made famine (*Holodomor*) and the events of World War II (the actions of the UPA) heightened Ukraine's political dichotomy. Since independence Ukraine's political elite has failed to address the problem in an adequate manner. The recent escalation of the conflict is due to a lack of political cohesion in the young state and the gravitational effect of the major powers rather than primarily to some kind of civilizational difference. By accentuating Ukraine's economic and financial difficulties, the global crisis has made the country even more vulnerable.

Keywords: Ukraine, dichotomy, Uman'–Kharkiv line, etnicity, society, conflict, Huntington

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Introduction

In his much-cited work, the Clash of Civilizations Huntington classified Ukraine as a "cleft country" (Huntington, S.P. 1993a). Some may regard the events of the spring of 2014 as the fulfilment of his "prediction". The main line of argument in Huntington's work concerns the fault lines between the major civilizations, which, in Huntington's view, are determined primarily by religion and culture. Adding to this idea, we note the following in connection with Ukraine: although, at the time of the last census in 2001, only 66.3% of Ukraine's inhabitants self-identified as Ukrainian native speakers and 77.8% as ethnic Ukrainians (Bochkovs'ka, A. *et al.* 2008), it is also true that 97.2% of the population spoke one of the East Slavic languages (www.ukrcensus.gov.ua) and three-quarters were Eastern Orthodox or Greek Catholic Christians (Bychenko, A. and Dudar, N. 2002). In other words, these people are part of the same (Slavic-Orthodox) major civilization. Ukraine's 3.2 million Greek Catholics constitute the largest religious minority (Bychenko, A. and Dudar, N. 2002); they are concentrated in Galicia and in Transcarpathia (Zakarpattia). Meanwhile, the country's 8 million ethnic Russians do not form a majority apart from Crimea and several raions (districts). The main fault line, therefore, is not religious affiliation or ethnicity, but arises from an interaction of factors that we seek to identify in this study by exploring the historical, social and political processes and the spatial and geographical contexts of the present conflict.

The current discord in Ukraine is rooted in the political divisions that have frequently characterised the post-communist countries and have been accentuated by the global economic crisis. Owing to divergent socio-economic development in the various regions of Ukraine, these divisions have deep historical roots and are strongly regional. This regional aspect is not seen in the other post-communist countries. This socio-economic divergence is basically historical in origin, but alongside ethnic and religious aspects we can also identify such influencing factors as urbanisation, economic development, and even natural elements.

In the more than two decades since independence, the political elite of the young independent state has failed, in general, to mitigate the regional differences and strengthen the unity of the country. Indeed, Ukraine's unity has been due almost exclusively to the interests of the major powers (The Budapest Memorandum on Security Assurances, 1994) rather than to domestic socio-political cohesion. The absence of socio-economic reforms, policies promoting the Ukrainian language and centralised government rather than regionalisation, and tensions arising in the wake of the global economic crisis have strengthened separatism. In this process the actions of the major foreign powers have been a contributory factor. Ukraine has thus been incapable of responding effectively to the centrifugal forces created by the major powers (NATO/EU vs. Russia). At regular intervals and even amid the

discord of 2014, a majority in Ukrainian society – in both the eastern and western parts of the country – have expressed the demand for an independent and united Ukraine. At present, however, Ukrainian identity means something very different to people in the West Ukrainian L'viv (Galicia) and to their fellow citizens in the East Ukrainian Donets'k (Donbas) (Hryzak, J. 2002; Haran, A. 2002).

The aim of this study is to present the Ukrainian dichotomy and then to explore, from a historical perspective, the processes that have led to the current impasse and their effect on the dichotomy, which relates to identity and to such societal factors as ethnicity, language, culture and urbanisation. We seek also to investigate the political dimensions of the dichotomy as reflected in the election results and in the current politico-military conflict. In the course of our analysis, we made reference to historical sources as well as to census and election statistics. Further, when examining the spatial aspects of the present conflict, we performed a media analysis, based on which we compiled a regional database and thematic map of events in Ukraine between November 2013 and May 2014. When collecting the spatial-specific information, we explored not only the classical printed and electronic Ukrainian, Russian and international sources, but also the so-called social media, including place-related news stories shared on Facebook or on Twitter (e.g. #euromaidan) and Tumblr. These latter sources not only play an increasingly important role in mass media, but also, through their reporting, they themselves often become shapers of events, as we saw at the time of the so-called Arab Spring (DeLong-Bas, N.J. 2013).

Following the publication of our atlas *Ukraine in Maps* (Kocsis, K. *et al.* 2008), it is not our purpose in this article to offer a comprehensive account of the historical development of Ukraine, the ethnogenesis of the Ukrainian people, or the social, ethnic and economic processes underway in the country and its spatial divisions. Rather, we focus on the causes of the regional dichotomy and, within these confines, take into account only those factors that influence this dichotomy.

Ukraine as a state and the Ukrainians as a nation

Ukraine's regional diversity (the East–West dichotomy) has three interrelated causes:

(1) On the present territory of Ukraine, there was, in essence, no unified and independent country in the longer term until the mid-20th century. The Ukrainian-Russian boundary began to emerge in the early 1920s under the auspices of the Soviet Union, and the country's present territory was formed by 1954. Further, Ukraine won independence only in 1991 (Wilson, A. 2002; Yekelchyk, S. 2007).

(2) Owing to the territorial fragmentation, the term Ukraine had a rather broad meaning until the early 20th century. Ukraine was first mentioned in 1187, in the so-called "Chronicle of Ipaty", but the territory to which the au-

thor was referring is still disputed even today (Pivtorak, H.P. 2004). According to some commentators, the very name of the country – u-kraina – means borderland, periphery or frontier region. Other authors, however, have claimed that u-kraina means "in/inside the country, domestic land" (Sklyarenko, V. 1991; Pivtorak, H.P. 2004).

(3) Reflecting the fragmentation and the lack of conceptual clarity surrounding the term Ukraine, identity also exhibits dichotomic features (Khmelko, V. and Wilson, A. 1998). According to a survey conducted in L'viv and in Donets'k in 2000, 78% of the population of L'viv self-identified primarily as Ukrainians. Meanwhile, in Donets'k, 45% of respondents self-identified as Soviet citizens, with only 23% self-identifying as Russians and 26% as Ukrainians (Hryzak, J. 2002).

In the eastern half of the country – and especially among the ethnic Russian population – the terms "Ukraine" and "Ukrainian" are connected in people's minds with Russia's periphery. In contrast, the inhabitants of western Ukraine generally possess the strongest Ukrainian national identity (Haran, A. 2002). In that area, Ukraine means a nation and a country that is distinct from Russia in terms of both identity and language. The origins of this independent national consciousness can be traced all the way back to the Kievan Rus. Meanwhile, the Russians are regarded as a people that developed subsequently, having diverged from the European path of development under Tatar rule. This sharp differentiation from the Russians is also a result of the different path of historical development taken by Ukrainians after the disintegration of the still united East Slavic state, the Kievan Rus. It was this ethnogenesis that gave rise to the independent Ukrainian nation (Magocsi, P.R. 1996).

Historical and geographical roots of regional diversity in Ukraine

Steppe and the forest zone, as the dichotomic arena of societal development

The natural landscape of Eastern Europe, including that of Ukraine, exhibits a fundamental duality. The forest steppe and forest region lies to the northwest of the Uman'–Kharkiv line, while to the south-east of this line we find the steppe zone (Karácsonyi, D. 2006) (*Figure 1*).

The forest zone is the ancient homeland of the early Slavs who were tillers of the land (Isaev, D.V. red. 2012a). It was here that the East Slavic Empire of Kiev (Kyiv) arose, to be followed by Muscovy to the north-east. In contrast, the steppe zone to the south was the home of the nomads, sometimes forming part of a great empire stretching from Central Asia to the Carpathian Basin – the Hunnic Empire and the Golden Horde – and sometime becoming

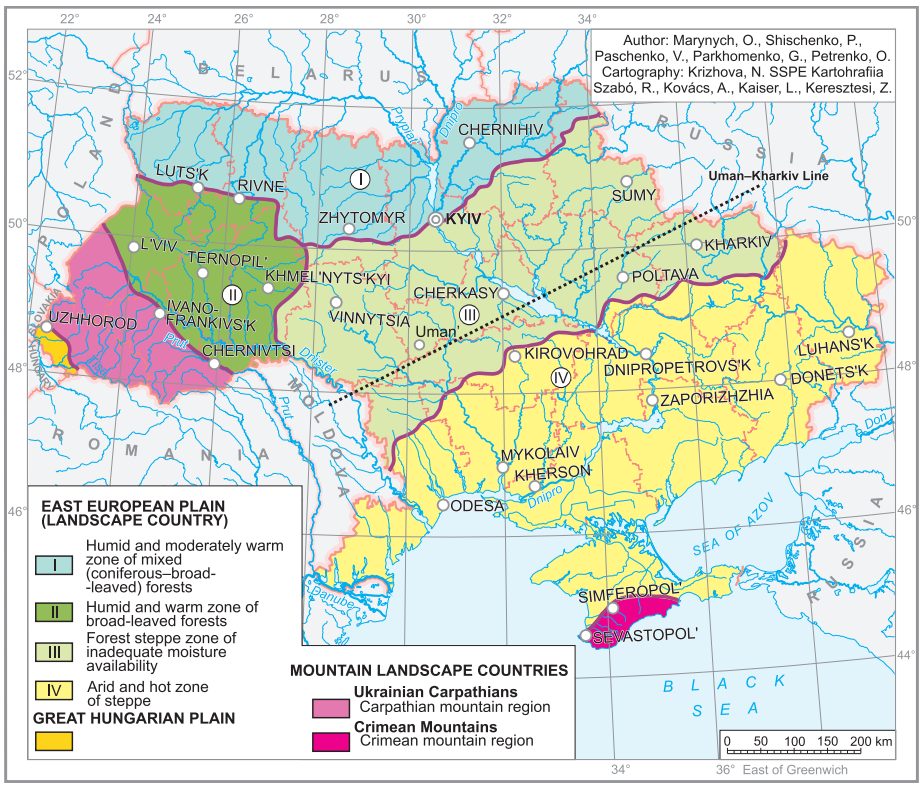

Fig. 1. Physical-geographical divisions of Ukraine

a "highway" for nomadic peoples. The great nomadic empires managed to extend their power to the Slavs living in the forest zone for shorter or longer intervals, but they could not retain control of the forests in the long term.

Until the 18th century, the Slavs were similarly unable to control the steppe, as they were preoccupied with their domestic battles – with the break up of the Kievan Rus and with Tatar domination – and then with the rivalry between Poland (Poland-Lithuania) and Russia. It was at this time that the differentiation of the Eastern Slavs began, whereby Ukrainian and Belarusian in the Polish-Lithuanian territories became separated from the Russian language and culture which dominated the areas ruled by Muscovy (the Russian Empire) from its growing base in Moscow (which was a Tatar vassal for some time). This cultural separation was accentuated by the Union of Brest (1596), at which the Orthodox Christians living under Polish rule recognised the authority of the Pope in Rome. During the Lithuanian and later Polish-Lithuanian supremacy (from the 14th century) the Ukrainians were enriched by progressive western European ideas (Smolyi, V. 2008).

By the 16th century, the central area of present-day Ukraine had become a marginal zone in the struggle between the power triangle of Muscovy, the Polish Rzeczpospolita (Commonwealth), and the Ottoman Empire with their Crimean Tatar vassals. The historical evolution of Ukrainians is fundamentally punctuated around this time (Smolyi, V. 2008). On the margins of the steppe, in the "Wild Plains", there arose a free, semi-military peasant group. Having escaped serfdom, this group – the Cossacks – became a prerequisite and a means for the conquest of the steppe. With the west-east migration of this group, the Ukrainian ethnic territory reached the margins of the steppe in the east between the mid-16th and mid-17th centuries (Loza, Y. 2005a, 2005b) (*Figure 2*).

The balance of power between Muscovy, Poland and the Ottoman Empire gradually broke down in the course of the 17th century. At that time, the Russian Empire, which had become increasingly powerful, started to push the Poles out of Eastern Europe. In this long process the most important development in relation to Ukraine was the decision of the Cossack state of Bohdan Khmelnytskyi to break away from the Poles and form an alliance with the Russian Tsar (1654, Pereiaslav Agreement) (*Figure 3*).

Although some historians – e.g. Hrushevskyi, M. (1904), the time-honoured Ukrainian historian – trace the emergence of the Ukrainians as far back as Halych, and even to the Kievan Rus, the Cossacks were the first ethnic community that came to reflect the characteristic features of the Ukrainians as an ethnically independent society. They were the only force who would spar with neighbouring states in the name of the Ukrainians, fighting for their right to an existence and economic and spiritual development. In the political field, the Cossacks established a new era of Ukrainian nation-building (Smolyi, V. 2008).

The Treaty of Andruszów / Andrusovo (1667), which settled the fate of the Cossack territories for a good hundred years until the partition of Poland (1772, 1793, 1795), conserved the east-west division of Ukraine along the Dnieper. The right-bank of the Dnieper (Pravoberezhzhia-Ukraine) remained under Polish rule, while the left-bank (Livoberezhzhia-Ukraine), the Hetmanschyna (Hetmanate), came under Russian control. Following the final partition of Poland (1795), Ukraine became the Russian Empire's western borderland. In 1772, the central parts of present-day Ukraine and then, in 1793, the entire country apart from Galicia, Bukovina and Transcarpathia, which had become part of the Habsburg Empire, were integrated into the Russian Empire (*Figure 4*).

Despite being integrated into the Austrian and Russian empires, the Ukrainians managed to significantly develop their culture. The result of this was a phenomenon of cultural and national revival in the middle of the 19th century that further stimulated the development of a national movement at the turn of the 19th and 20th centuries (Smolyi, V. 2008).

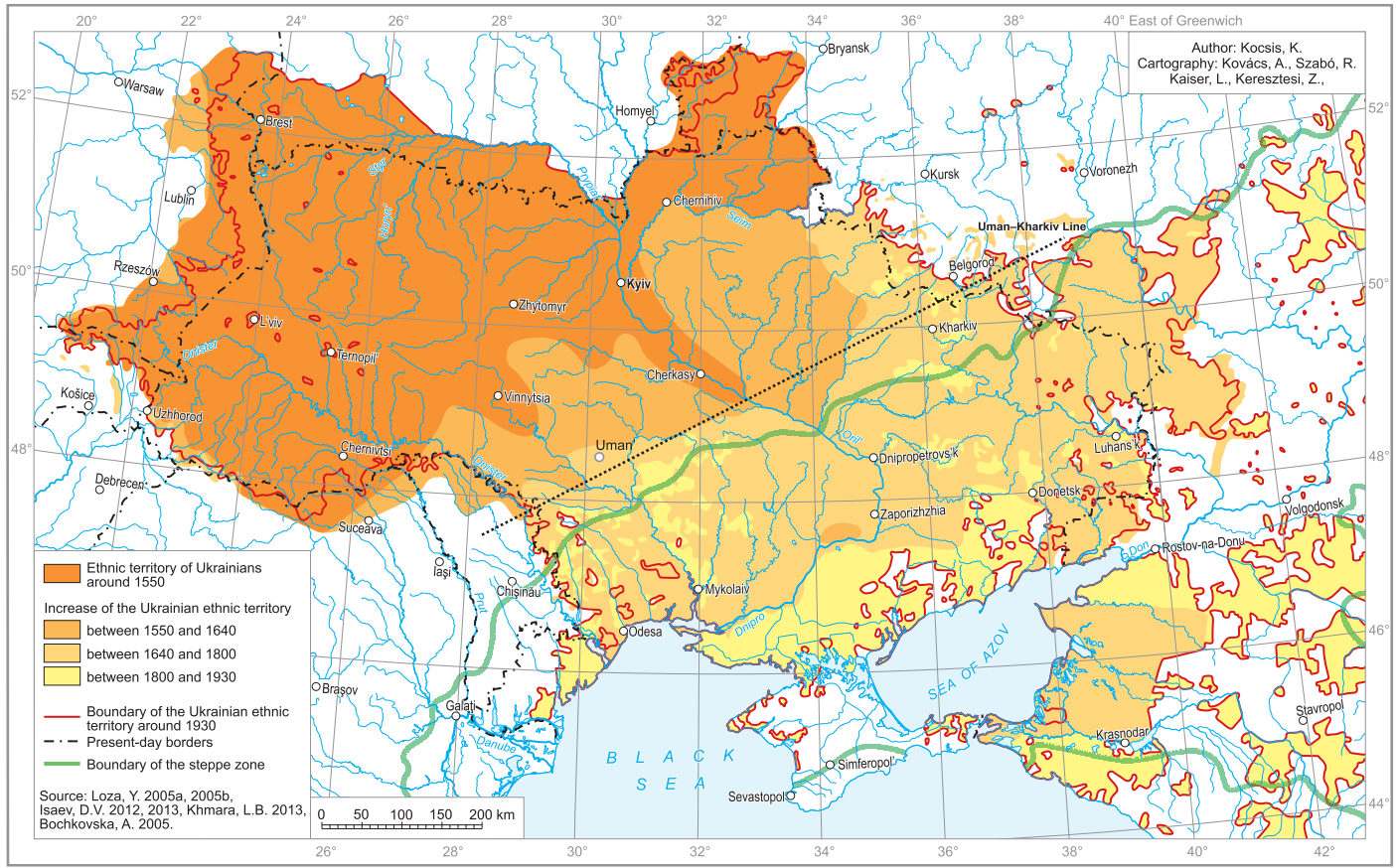

Fig. 2. Change in the Ukrainian ethnic territory, 16th–20th century

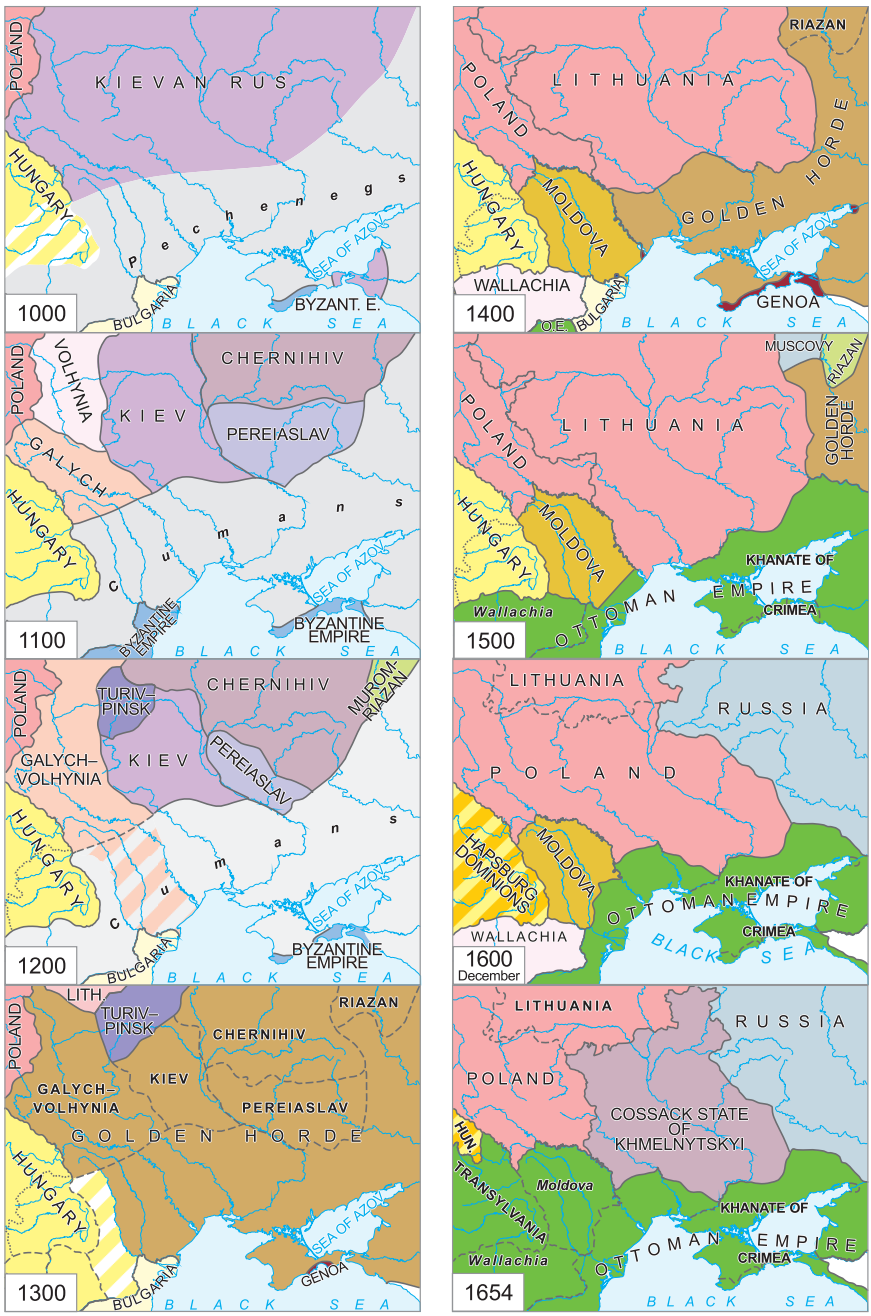

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Fig. 3. States on the present territory of Ukraine, 1000–1654

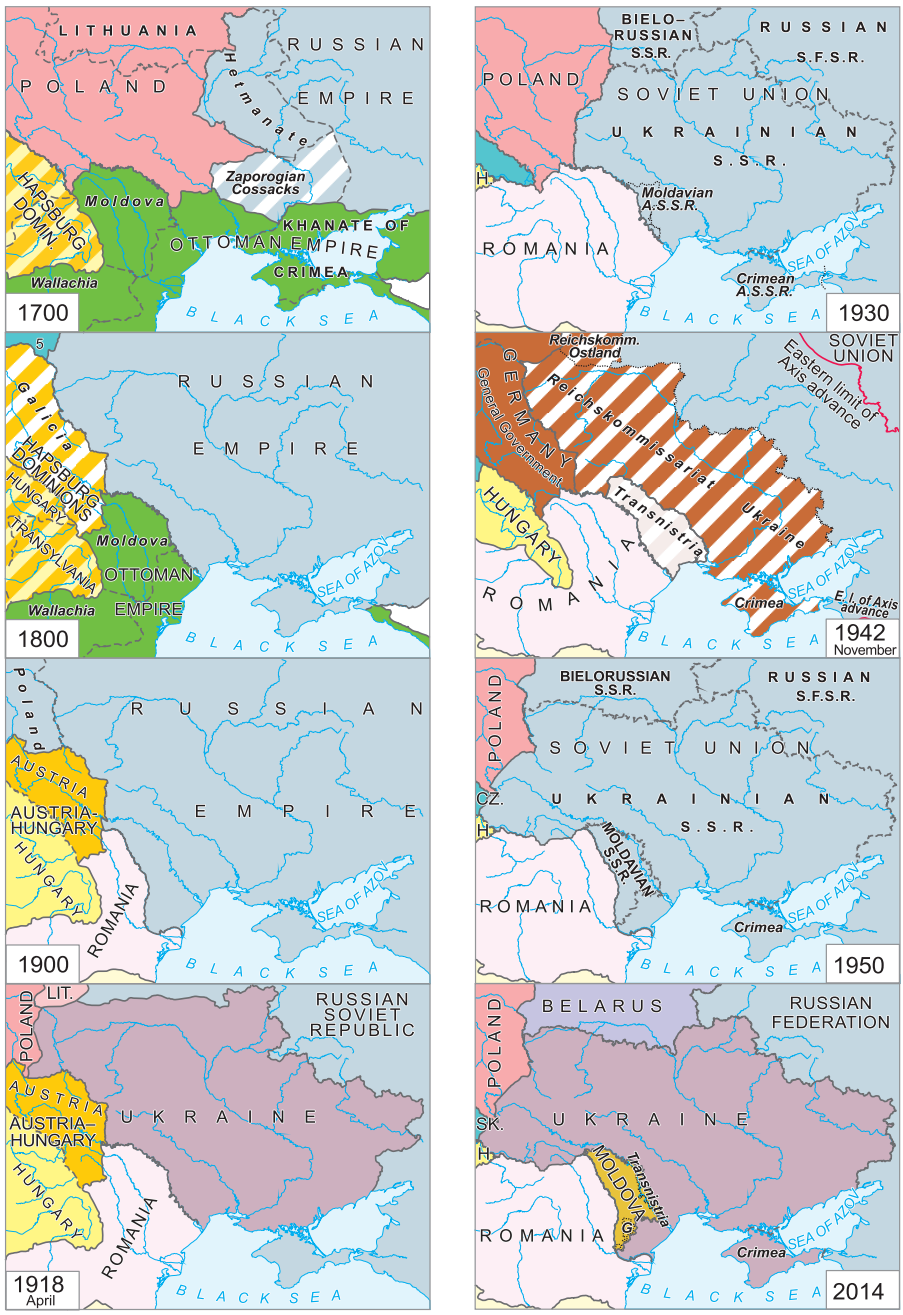

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Fig. 4. States on the present territory of Ukraine, 1700–2014

During the reign of Catherine the Great, the Russian Empire "defeated" the steppe by the end of the 18th century, put an end to the last autonomy of the Cossacks (1775: devastation of Zaporozhian Sich) and advanced as far as the Black Sea (1783: occupation of Crimea), thereby achieving a strategic aim of its expansion. In the newly unified region, the way was open to the colonisation of a sparsely populated part of the steppe that had lain outside the control of the central (former Polish, later Russian) authority (*Figure 2*). The region was organised into a governorate known as New Russia (Novorossiya) (Magocsi, P.R. 1996). The Tsarist authorities invited hundred of thousands of settlers to the newly conquered territory. Migration was not spontaneous, as it had been to a lesser or greater extent at the time of the Cossacks (Subtelny, O. 2000). Until the beginning of the 19th century, successive waves of migrants – Germans, Serbs, Czechs, Bulgarians and Greeks – arrived in the region, but the Ukrainians and Russians were clearly the largest groups of settlers.

The coastal region became an integral part of the Russian Empire much sooner than did the steppe, which turned into an internal periphery. The late 18th century saw the foundation of Sevastopol, Odesa, Kherson and Mykolaiv on the Black Sea coast and of Mariupol on the Sea of Azov. These towns became bases for the expanding Russian navy and their role in commerce also grew. It was then that the fertile Chernozem soils of the Ukrainian steppe were ploughed to produce grain for export (Magocsi, P.R. 1996), resulting in a booming trade in grain. This led to the rapid development of Odesa as the principal grain port in the steppe zone.

Due to colonisation and the founding of new cities, the southern regions of present-day Ukraine increasingly became, in the course of the 19th century, a frontier region for Russians. The increase of population of the four governorates in the steppe zone (formerly "New Russia") surged after the conclusion of the Crimean War (1856) and the Russian emancipation of serfs (1861). There was a wave of migration from the inner central regions of the Russian Empire to the peripheral areas, including the governorates of New Russia (Magocsi, P.R. 1996). Kyiv and the major cities already had a Russian majority during the census of 1897 (Chornyi, S. 2001). The population of the Black Sea Coastal Lowland (including Odesa and the other major seaports) increased nine-fold between 1810 and 1910, while the inner steppe zone (Kharkiv and Katerinoslav governorates) saw a five-fold population increase (Karácsonyi, D. 2008).

The process of industrialisation, which began on the territory of present-day Ukraine at the end of the 19th century, added to the regional polarisation, as the territorial distribution of mineral resources in the country is unequal. The coal and salt of Donets Basin (Donbas) in the East, the iron ore of Kryvyi Rih and Kerch and the manganese ore of Nikopol were the raw materials on which

a significant industrial base could be built. By the end of the 19th century, the increase of population of the coastal governorates began to decline, while the industrialising inner steppe regions moved ahead in terms of the rate of population increase (Karácsonyi, D. 2008). In the eastern half of the steppe region, heavy industry underwent rapid growth. Since industrialisation had begun earlier in the Ural Mountains (Russia, 17th century), Russians from that region were overrepresented among arrivals in Ukraine's industrial regions and they made up the skilled workforce (Subtelny, O. 2000). Consequently, the share of the Russian population increased further in the early 20th century.

The shaping of Ukraine within the Soviet frame

After a short-lived period of independence (Ukrainian People's Republic, 1917–1920 and Western Ukrainian People's Republic in Galicia, 1918), most of Ukraine's present territory became a part of the Soviet Union (1922) under the terms of the Treaty of Riga (1921). Galicia and Volhynia were a part of Poland until 1939, while North Bukovina (today Chernivtsi oblast) belonged to Romania until 1940, while Transcarpathia was a part of Czechoslovakia in the period 1919–1939 and then again a part of Hungary until 1944.

Ukraine began to emerge in its current form in the Soviet Union of the 1920s. In 1922, the country officially became a "founding" member of the Soviet Union and its precise borders with Russia and Belarus were set out. Concurrently, as a result of the relatively liberal Soviet ethnic and linguistic policy characteristic of the 1920s ("Korenisatsia"), Ukrainian culture and literacy began to undergo a Renaissance, and the authorities attempted to eradicate illiteracy in the entire population.

In the Ukrainian countryside the NEP (New Economic Policy proposed by Lenin, 1921–1928) offered a brief interval for social advancement, but the rural middle class that prospered as a result of this policy (and generally the total peasantry) was destroyed physically by Stalinist terror during the *Holodomor* (man-made famine, Hunger-extermination) (1932–33). About 3–8 million people died due to an artificially engineered famine, particularly affecting the Ukrainian peasantry (Kulchitskyi, S. 2008; Franco, J.E. and Cieszynska, B. 2013). The greatest population losses occurred in the central zone of the country, the Dnieper area, where Ukrainian peasant society, which had considerable political potential and was determined to resist enforced collectivisation, was almost completely liquidated (Kulchitskyi, S. 2008; Vallin, J. *et al.* 2009).

Whereas rural society was threatened by political and physical destruction, from 1928, with the commencement of the First Five-Year Plan, industry recovered ("second industrial revolution"). In consequence, there was unprecedented urban population growth in the 1930s in the eastern steppe areas. The

major industrial centres – constituting social support bases for the Soviet Union – took on their present form during this period. The four centres in the process of industrialisation were Kharkiv, Zaporizhzhia, Kryvyi Rih and Donets'k (Stalino). Between 1926 and 1939, the population of Kharkiv doubled to 840,000. This was due not only to industrialisation, but also to the fact that until 1934 the city was the capital of Soviet-Ukraine. On the eve of World War I, rural inhabitants had accounted for around four-fifths of Ukraine's population. Between 1913 and 1939, the number of urban dwellers doubled, as millions of peasant farmers, fearing collectivisation and the man-made famine (*Holodomor*), fled to the growing Soviet industrial cities where they soon lost their rural roots.

The country experienced massive immigration of Russians in the frame of Soviet industrialisation. The Ukrainian-Russian ethnic changes were controlled by the migration flows and assimilation processes arising as a product of the ethnic policy in the Soviet Union. "Ukrainisation" in the early Soviet period (1921–32) had led to an increase in the ratio of Ukrainians from 72% to 74.8%. The following period was characterised by the persecution of Ukrainians and "Russification" (Bochkovs'ka, A. *et al*. 2008). The Russian minority's share of the population increased from just 8.1% in 1926 to 22% in 1989. Most of the increase was due to inward migration, and a smaller part to the Russification of Ukrainians and to the ethnic homogenisation that occurred in the 20th century (World War II, Holocaust, deportations), whose principal victims were Jews, Poles, Tatars and Germans (*Figure 5*).

From the 1950s until the 1980s, Russification exerted a lesser or greater effect on ethnic relations (Eberhardt, P. 1994). The urban population ratio reached 50% in the mid-1960s. The 1960 and 1970s witnessed an annual increase of half a million in the population of the block of flats-cities ("Khrushchyovka-cities"), which lacked all forms of social cohesion. The urban population grew until the 1989 census, when it peaked at around 34.8 million. By the 1980s, apart from in western Ukraine, the most advanced cities tended to be Russian-speaking, while the more backward countryside continued to be Ukrainian-speaking. Such rural areas experienced a fall in population, caused by emigration and – from the 1970s onwards – by the low natural increase rate of an aging society.

The struggle among interest groups in the independent Ukraine

After Ukraine left the Soviet Union, the centralised structures began to fall apart. In the early 1990s, the various regions sought to decouple themselves from the central government in Kyiv along the dividing lines in public administration. During this period, some were already arguing that the newly independent Ukraine needed to become a federal state like Germany (Haran, A. 2002). Centralising traditions, however, rendered this impossible. The secessionist aspira-

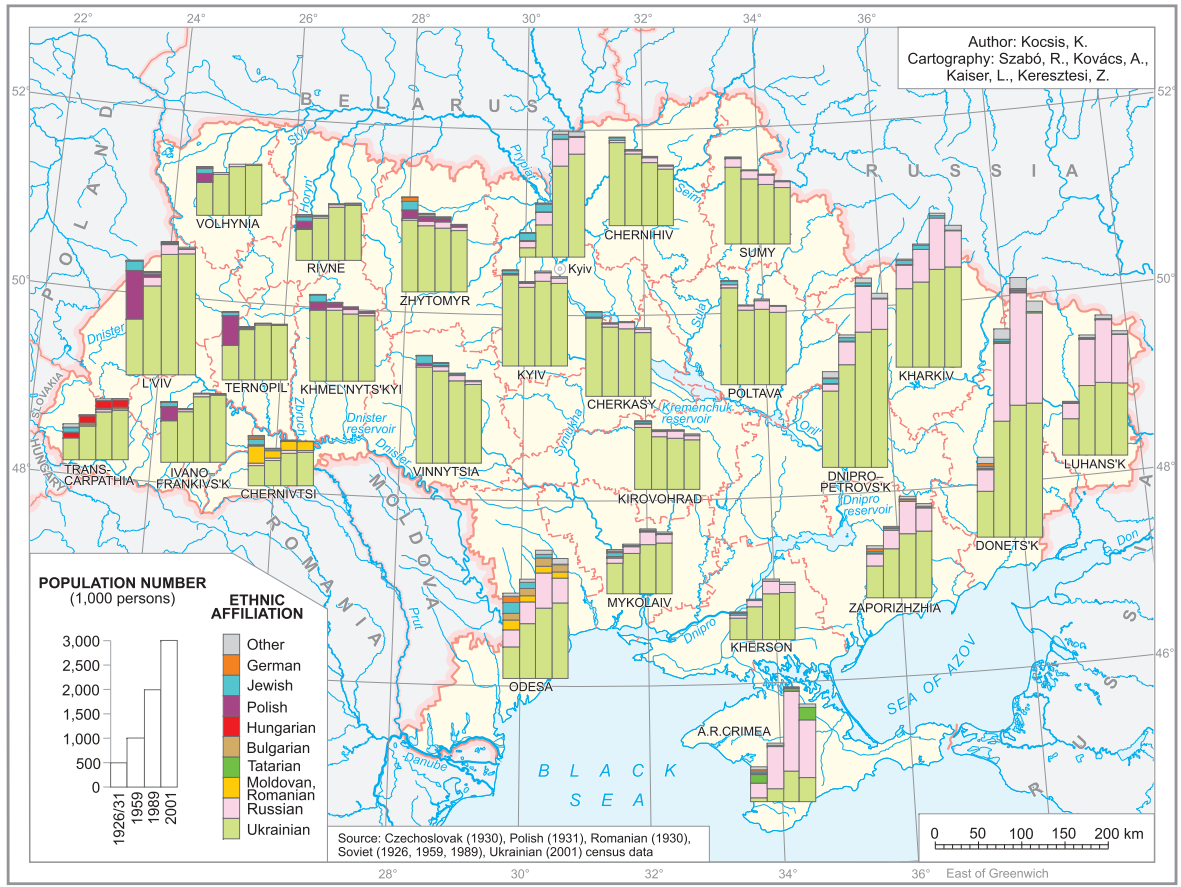

Fig. 5. Change in the ethnic composition of the population on the present territory of Ukraine, 1926–2001

tions of Crimea culminated in a political conflict with Russia. In the end, the peninsula received broad autonomy, becoming the only autonomous republic within Ukraine. Similar ambitions were a factor in the east (in the oblasts (regions) of Donets'k and Luhans'k), in southern Ukraine and also in Transcarpathia (Haran, A. 2002). In 1991, the "Democratic Union of New Russia" set out its goal of reviving the former New Russia (Novorossiya) and achieving independence from Ukraine (Haran, A. 2002). Donets'k, Odesa, L'viv and Simferopol became regional power centres alongside the central government.

In post-independence Ukraine, regional "clans" controlled by the so-called oligarchs became a peculiar element in the country's regional structure. The clans were in fact business interest groups (Haran, A. 2002; Åslund, A. 2005) that had established their economic and political influence in the course of the privatisation process. Their impact was felt on the politics of the various regions, and they dominated the economy. Such groups were "in charge" in the Donets Basin as well as in Dnipropetrovs'k and in Kyiv (Åslund, A. 2005). The east-west division of Ukraine has become particularly acute since the country's Orange Revolution (2004) (*Table 1*).

East–West dichotomy today – an ethnic, lingusitic, religious, cultural, economic or political dichotomy?

Ethnic Ukrainians versus Ethnic Russians?

The titular nation of the country, the Ukrainians (37.5 million) constituted 77.8%, the Russians (8.3 million) 17.3% of the total population in 2001. Only in the Autonomous Republic of Crimea did their ratio remain below 50% (24.3%) (*Figure 6*). Aside from the Russians, Ukraine's other minorities add variety to the ethnic mix, but they do not influence the country's regional divisions (Molochko, V.V. 2003).

The Russian-Ukrainian ethnic boundary cannot be precisely drawn, as there is no clear separation between the two groups (Khmelko, V. and Wilson, A. 1998; Wilson, A. 1998). The Russian share of the population decreases steadily from the south-east to the north-west. Indeed, ethnic Russians live mainly in the industrialised eastern regions of the country (Haran, A. 2002). Their ratio is especially high in Crimea, the only region of the country where Russians form an absolute majority (58.3%). Urban dwellers account for 86.8% of the Russian minority population. Russians are present in every Ukrainian city, but their share within the urban population ranges from 5–8% in Western Ukraine to 25–40% in Eastern Ukraine. More than half of the urban dwellers in Donets Basin and in Crimea are Russians. In rural areas, the Russian presence is limited almost completely to the steppe region, where the share of Russian population in certain raions (districts) makes up 20–30%.

Table 1. Frameworks, characteristic processes and dimensions of regional dichotomy of Ukraine in various historical periods

Period	Framework	Characteristic process	Dimension
Until the 15th century	Nature - society	Spontaneous processes reflecting the opportunities presented by the natural environment: nomadic pasture farming on the steppe, agriculture in the forest zone	Slavs in the forest – Nomads on the steppe
16th century	Religious policy, geopolitics	Union of Brest (1596) – Greek Catholicism Emergence of Ukrainian identity in the peripheral regions	Polish (West) – Russian (East)
17–18th centuries	Geopolitics	The first state formation of the Ukrainian people living in the conflict zone between the power triangle of Poland, Russia and the Ottoman Empire, then the Russian conquest of the East European and steppe areas, the aim of which was to secure access to warm water ports and achieve the defeat/partition of Poland, attempts to impose bondage on the free peasant farmers of the steppe	Old, Slavic areas – new steppe areas
Mid-18th to mid-19th century	Geopolitics, urban and economic policy	Establishment of port cities on the coast as military bases or trade gateways, the main period of Slavic colonisation of the steppes – foundation of Cossack (Russian/Ukrainian) stanitsas, Generalissimo Suvorov (Pridnistroviya)	Old, Slavic areas – conquest of the new steppe areas
Mid-19th century to 1917	Economic and industrial policy	Integration of the region into the capitalist economy, spread of commodity-based agriculture (wheat), traditions of a free peasantry go back much further in Ukraine than in Russia (1861, 1906), prospective mining in inner steppe areas, coal of Donets Basin – arrival of Russian industrialists from Russia's older industrial regions, rise of Ukrainian identity in Austria-Hungary (Galicia) and in Russia – or limitation of this in Russia (Ukrainian=Little Russian)	Old, Slavic areas – new steppe areas West–East

Table 1. continued

Period	Framework	Characteristic process	Dimension
1917–1928	Economic, cultural and language policy	Poland (Polonization) and Czechoslovakia vs. Soviet Union (Korenisatsia – Ukrainization, strengthening the Ukrainian culture), establishment of Soviet borders of Ukraine	West–East
1928–1939	Economic (industrial) and ethnic policy	Poland (Polonization) – Soviet Union (Russification, 1931-32 Holodomor, Hunger-extermination vs. First and Second Five-Years Plans, industrialization in the East – continuous Russian immigration	West (agrarian) – Middle (disintegrating agrarian) – Southeast (becoming industrialized)
1939–1945	Military policy	UPA (Ukrainian Insurgent Army) vs. Soviet Power (military opposition)	West–East
1945–1991	Cultural, language and urban policy	Integration of regions into the Soviet Ukraine, Russification of changing intensity, industrialization and intensive urbanization 1954 – annexation of Crimea from Russia to Ukraine	Rural West – Industrialized, urbanized East Ukrainian village – Russian city
1991–2004	Cultural, language and economic policy	Ukrainization of varying intensity, slow transition, crisis of eastern industrial areas, transformation crisis, independence aspirations, the struggle between interest groups	Regional ambitions clash with central authority
2004–2014	Cultural, language and economic policy	Growing dominance of the east-west split, permanent political crisis, global economic crisis	West–East

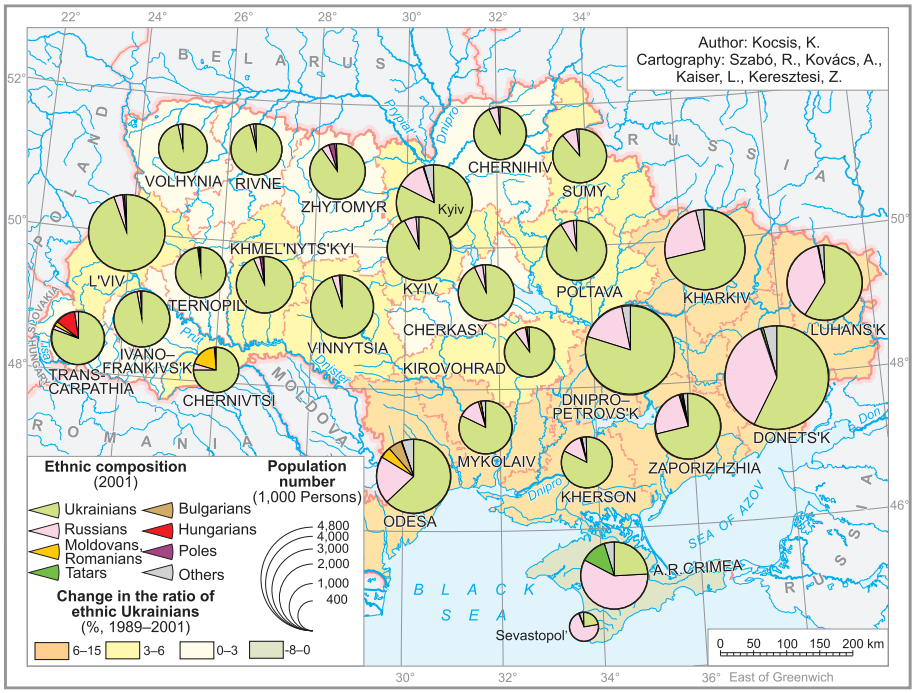

Fig. 6. Ethnic composition of the population in Ukraine, 2001

Despite the large population number, the share of Russian minority is not of such magnitude to explain the east-west dichotomy that characterises Ukraine. A further nuance, however, is that in view of their cultural proximity the Ukrainian and Russian ethnic groups have historically intermixed with one another. The Russian minority's share within Ukraine's population fell from 22% to 17% between 1989 and 2001, owing in part to assimilation and in part to people repatriating to Russia. As a result of the measures taken by the state (e.g. declaring Ukrainian to be the only official state language), masses of Russians, people of mixed (Russian–Ukrainian) origin and Russian-speaking Ukrainians in the eastern and southern parts of the country (excluding Crimea) began to assume a Ukrainian identity (Bochkovs'ka, A. *et al.* 2008).

Native Ukrainians versus Native Russians?

The relation of the native language to ethnic affiliation is an important indicator of ethnic–national development. The percentage of Russian speakers in Ukraine is significantly higher than the Russian ethnic ratio. The percent-

age difference stems from the fact that 14.8% of ethnic Ukrainians (22% of urban dwellers and 3% of rural inhabitants) identified Russian as their native language (mother tongue) in the 2001 census. In the eastern regions and in Crimea, the percentage was much higher: 50–60% of ethnic Ukrainians in the Donets'k and Luhans'k oblasts and in Crimea identified Russian as their mother tongue (*Figure 7*).

Although Ukrainian is the official state language in Ukraine (Constitution… 1996, Law… 1989), the share of Ukrainian native speakers increased by only 2.8% between 1989 and 2001 (whereas the Ukrainian ethnic ratio increased by 5.1% in the same time interval).[5]

Russian was indicated as the mother tongue by 29.6% (14.3 million) of the population. Only 67.5% of the country's inhabitants declared Ukrainian

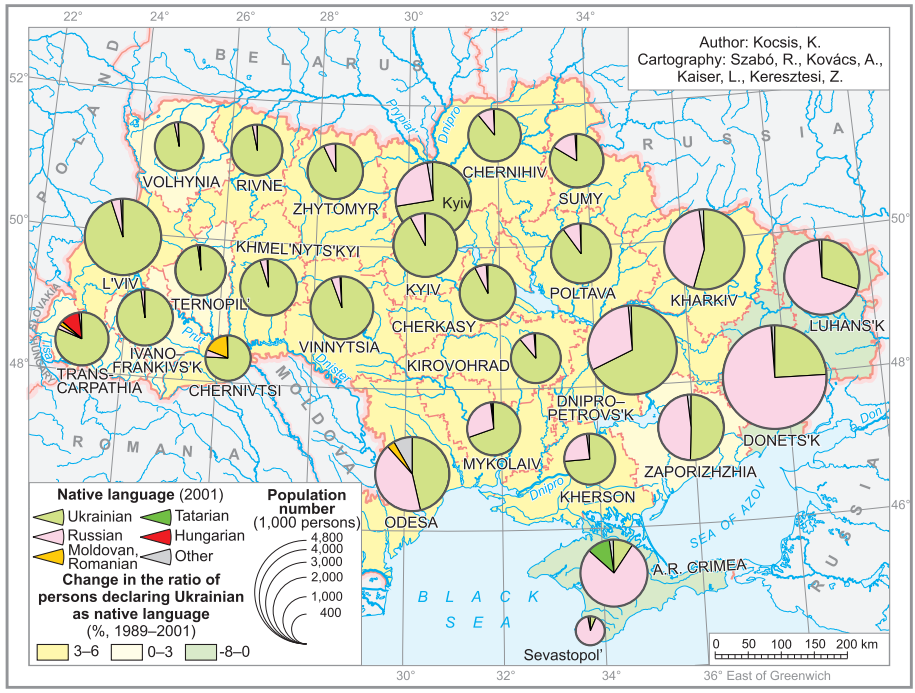

Fig. 7. Native language of the population in Ukraine, 2001

[5] The status of Ukrainian as the national state language was confirmed by the Language Law of 2012, a piece of legislation that was much criticised by Ukrainian nationalists. The pretext for the scandal was the "regional language status" granted by the Language Law to the languages of the national minorities, as well as some associated rights. An exaggerated concern for the future of the Ukrainian language led some people to interpret the measures as statutory backing for Russification efforts.

as their native language in 2001. Native Russian speakers account for half of the population to the East of the Uman'–Kharkiv line and as much as three-quarters of the population of the Donets Basin, the coastal region of the Sea of Azov, and Crimea. The dominance of Russians in the eastern oblasts (regions) is concentrated almost exclusively in the major cities, which differ significantly in demographic terms from the surrounding, dominantly Ukrainian speaking, sparsely populated, rural areas. In the eastern regions, therefore, we find Russian-speaking cities surrounded by Ukrainian-speaking rural areas, whereas in the western half of the country Russian is spoken as a native language mostly by the Russian minority in the major cities (*Figure 8*).

Ukrainian is used less frequently in the southern and eastern regions among Ukrainian native speakers. Following 1991, large amounts of the Russian-speaking population of mixed ethnic origin declared Ukrainian as a mother tongue, even though remaining practically Russophone (Bochkovs'ka, A. *et al.* 2008). In the regions dominated by Russophones (Crimea, Donets'k and Luhans'k oblasts) a continuing decrease in the ratio of Ukrainian native speakers could be observed.

The linguistic picture is rendered more complex by the use of various mixtures of Russian and Ukrainian – the Surzhyk sociolects – in everyday life (Bernsand, N. 2001; Bilaniuk, L. 1997). Surzhyk has low prestige; its speakers tend to be poorly educated with insecure identities (Bilaniuk, L. 2004; Csernicskó, I. 2011a, 2011b, 2013; Fodor, Gy. and Csernicskó, I. 2013). It is the primary language of 10–15% of Ukraine's population (Khmelko, V.Y. 2004), with the highest ratio of speakers in the central-eastern part of the country.

Kyiv versus Moscow Patriarchate?

Depending on geographical location, historical development, and the socio-demographic structure of the population, there are striking differences in the religiosity between the western and eastern regions of the country (similar to the ethnic features and political attitudes of the local population). The share of those who identified themselves as believers is 86.6% in the West, whilst this figure is only 50.5% in the East (Bychenko, A. and Dudar, N. 2002).

The higher degree of religiosity (and lower degree of secularisation) in the western territories incorporated into Soviet-Ukraine between 1939 and 1945 can be attributed to the shorter period of aggressive and atheistic Soviet authority over these territories (ca. 45 years vs. 70 years in the East), and it also reflects the massive presence of the centralised and particularly active Catholic churches in the West. This religious-geographic difference (together with the ethnic, cultural and political factors) is one of the major determinants of the future of Ukraine (*Figure 9*).

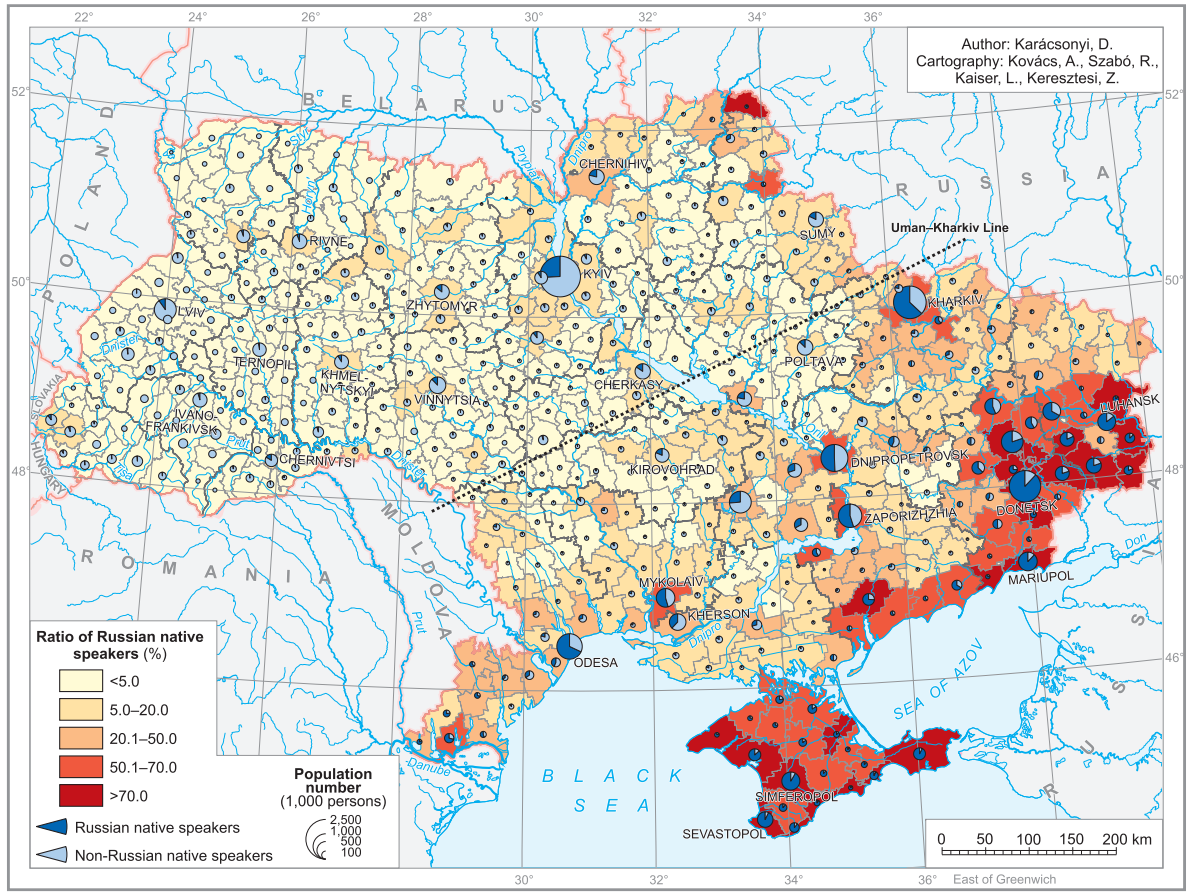

Fig. 8. Russian native speakers in the districts of Ukraine, 2001

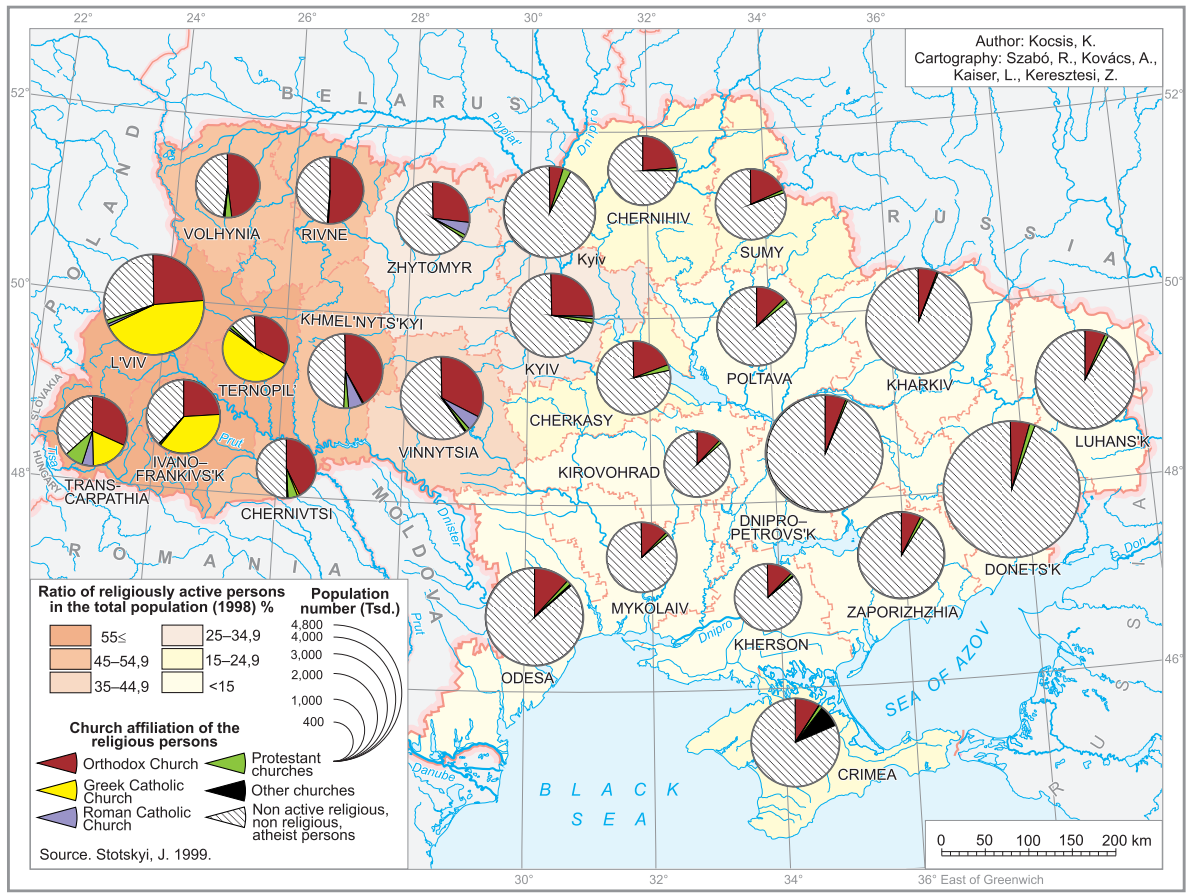

Fig. 9. Religious activity and denominations in Ukraine, 1998

The overwhelming majority (68.8%) of Ukrainians are Orthodox Christians. In 2002, out of the Orthodox population polled, 53.2% declared itself "simply Orthodox", 23.8% as affiliated with the Kyiv Patriarchate of the Ukrainian Orthodox Church, 14.8% with the Moscow Patriarchate of the Ukrainian Orthodox Church and 2.4% with the Ukrainian Autocephalous Orthodox Church (Bychenko, A. and Dudar, N. 2002). Before 1990 all Ukrainian Orthodox communities were united in the Ukrainian Exarchate of the Russian Orthodox Church. Its legal successor, the Moscow Patriarchate, which remained linked with the Russian Orthodox Church, has the allegiance of two-thirds of the Orthodox communities and controls the overwhelming majority of the Orthodox religious infrastructure. The "heartland" of the pro-Russian Moscow Patriarchate is the eastern and southern, mostly Russophone part of the country.

The most important hinterlands of the Ukrainophone Kyiv Patriarchate are the western (first of all, Volhynian) territories with their dominant ethnic Ukrainian character. The majority of the adherents to the relatively weak Ukrainian Autocephalous Orthodox Church live in the areas mentioned above (mainly in Galicia). The Greek Catholic churches were also closely related to the Ukrainian national and independence movements. Following their rehabilitation they remained as regional churches with their main hinterlands in Galicia and Transcarpathia.

Urban versus Rural Ukraine?

The line Uman'–Kharkiv is not only a divide between steppe and forest, eastern and western Ukraine, but also between urban and rural Ukraine (Karácsonyi, D. 2009). The rural population distribution is uneven: 65% of rural inhabitants live in the western part of the country, where the share of rural population is 44%. An even more nuanced picture emerges if we exclude Kyiv's 2.8 million inhabitants. In this case, urban dwellers account for only a half of Western Ukraine's population. In contrast, urban dwellers account for 78% of the population in the eastern part of the country. In regions comprising the major industrial centres, for instance, in the Donets Basin, the inhabitants live almost exclusively in urban areas (*Figure 10*).

In the East, the development of the settlement network has only impacted the higher levels of the settlement hierarchy, in particular those cities founded in the 18th and 19th centuries by Russian settlers on the sparsely populated steppe. In contrast, in western Ukraine – mainly in Galicia – the settlement hierarchy is much more balanced, because in this area the dense network of small towns and villages was formed over the course of centuries as part of an integral development (Dnistrianska, N.I. and Dnistrianskyi, M.S. 2013).

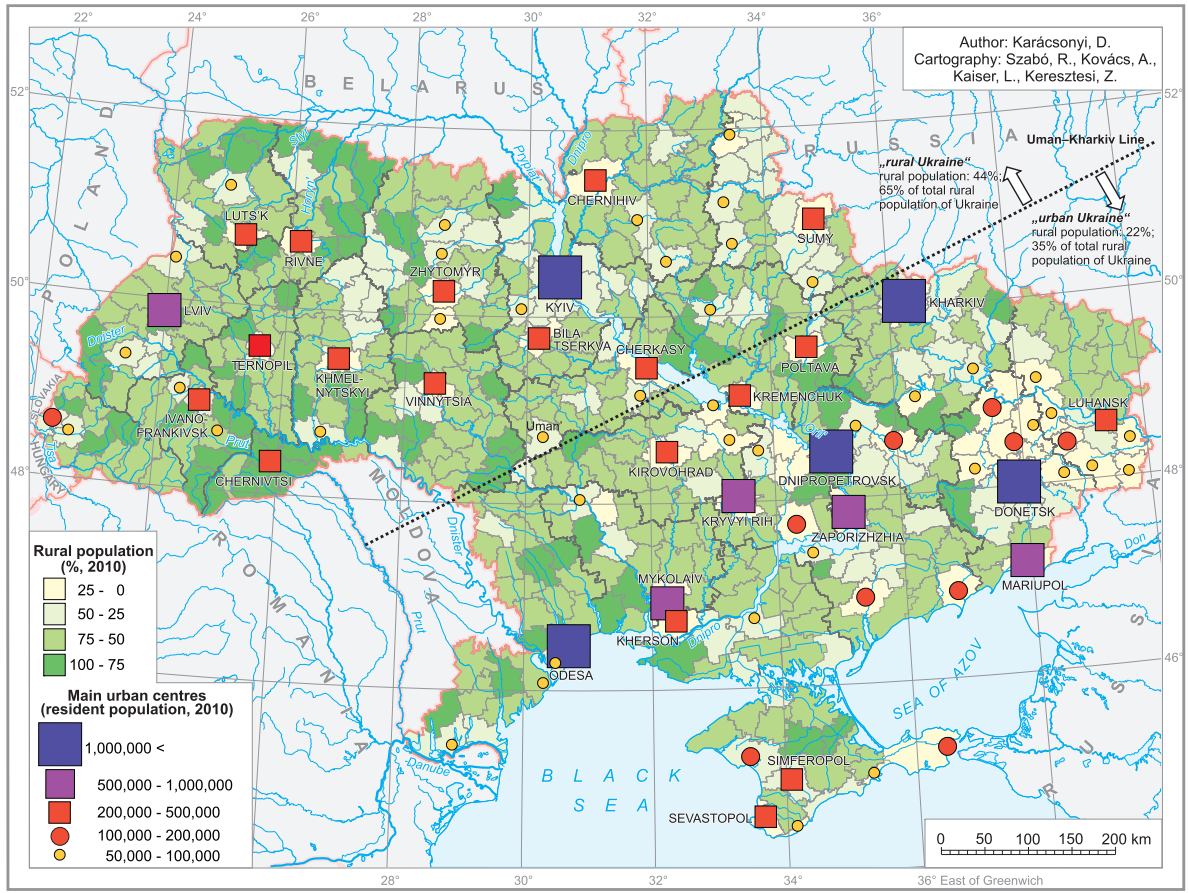

Fig. 10. Main urban centres and the rural population in the districts of Ukraine, 2001

Industrial East versus Agrarian West?

The western part of Ukraine is a region dominated by agriculture and forestry, whereas the eastern part is well known for its industrial specialisation and is characterised by mining and heavy industries. Western Ukraine was not greatly affected by industrialisation, because there was a lack of mineral resources that would have been needed to achieve significant industrialisation. Moreover, the industrialisation of the region and the development of its infrastructure was neglected for strategic reasons – the proximity of the western border. Here, traditional Ukrainian rural society could survive until the most recent times (Skryzhevska, Y. and Karácsonyi, D. 2012). During the economic crisis of the 1990s, the eastern part of Ukraine experienced the most dramatic decline in population and quality of life compared to other regions. The transformation was survived more easily by the industrial area near the Dnieper and the environs of Donets'k City. The industry of the cities upon the Dnieper is high-tech (missile and aerospace technology – Mrinska, O. 2004). There are multiple links with the Russian defence industry within the framework of technological cooperation among production plants. Donets'k has become the economic-financial and political-administrative centre of the region. Most Russian investment has come to this city. Ukraine's most developed regions lie in the eastern part of the country, and this is linked with urbanisation. It is the reverse of what we see in other parts of Eastern Europe, where the level of economic development generally decreases from West to East.

Yanukovich versus Maidan?

Ukraine's population is regionally divided not only in terms of ethnic ties, religious affiliation, the urbanisation rate, and economic development. The regional factor is also a strong determinant of political activity and party affiliation (Kubicek, P. 2000). In the 1990s, Ukraine moved inexorably towards the political division that has been a feature ever since the presidential elections of 2004. In fact, this division could be observed as early as the 1994 presidential elections (Kravchuk and Kuchma) (Tihomirov, D.I. 2013). In the elections of December 2004, the western part of the country supported Yushchenko, the presidential candidate seeking an alliance with the West. In Galicia more than 90% of voters gave their support to the "Orange Revolution", while in the west-central region the corresponding figure was 70%. Meanwhile, in southern and eastern Ukraine – excluding Crimea and Donets Basin – 60% of voters supported the pro-Russian candidate Yanukovich. In Crimea and in the oblasts (regions) of Donets'k and Luhans'k, the pro-Russian side received 90% of the votes (Åslund, A. 2005).

Indications of Ukraine's social, political, and geographic divisions were also apparent in the results of the 2010 presidential elections and of the 2012 parliamentary elections. The spatial distribution of votes cast for the two candidates in the second round of the 2010 presidential elections (Yulia Tymoshenko – 45.5% and Viktor Yanukovich – 49.0%) shows a clear decrease in support for Tymoshenko from northwest to southeast, and a clear increase for Yanukovich (*Figure 11* and *12*).

The percentage of votes cast for Yanukovich correlates – at the level of the regions (oblasts) – more closely with the share of Russian native speakers (according to the 2001 census) than with the percentage of persons of Russian ethnic affiliation (the correlation coefficient of the former is 0.896, while that of the latter is 0.812). An even closer correlation ($r = 0.927$) could be observed, however, between support for Yanukovich at the regional (oblast) level and the share of urban dwellers with Russian native language. This latter trend underlines the significant role of cities – among other factors – in shaping political opinion.

At the level of the raions (districts), the correlation between native language and the election results was less striking: for instance, the correlation coefficient between Yanukovich voters and the Russian native speakers was just 0.715. A far stronger correlation was observed for cities of oblast (regional) significance ($r = 0.871$) than for predominately rural raions (districts) ($r = 0.655$). In the raions of Transcarpathia, Chernivtsi oblast (North Bukovina) and Odesa oblast (South Bessarabia), inhabited also by non-Russian minorities (Hungarians, Romanians, and Bulgarians etc), a higher proportion of votes were cast for Yanukovich, the candidate with a more permissive stance on the language issue.

Evidently, the close correlation merely indicates that native language was a factor influencing the election results; it does not show that people voted on narrow ethnic lines. In the knowledge of the census data on native language, we can see that Yanukovich needed the votes of many non-Russian-speaking Ukrainians in order to win the election. This was especially so in the mostly Ukrainian-speaking rural raions of the south-east administered by Russian-speaking oblast centres. In the southeastern (steppe) areas of Ukraine, there are historical traditions of Russian social dominance. In the Tsarist era, the majority of local nobility was Russian native speaker, as were the Orthodox priests in these areas. In the Soviet era, the same Russian dominance characterised the Bolshevik and Communist Party elites.

The country's northwest–southeast division could also be observed at the time of the 2012 parliamentary elections in the regional distribution of votes cast for parties committed to the Ukrainian national ideal and for parties with a Russian or ex-Soviet orientation (Tihomirov, D.I. 2013). The geopolitical division highlighted by the election results has been a constant underlying factor in Ukraine's domestic political crisis of 2013–14.

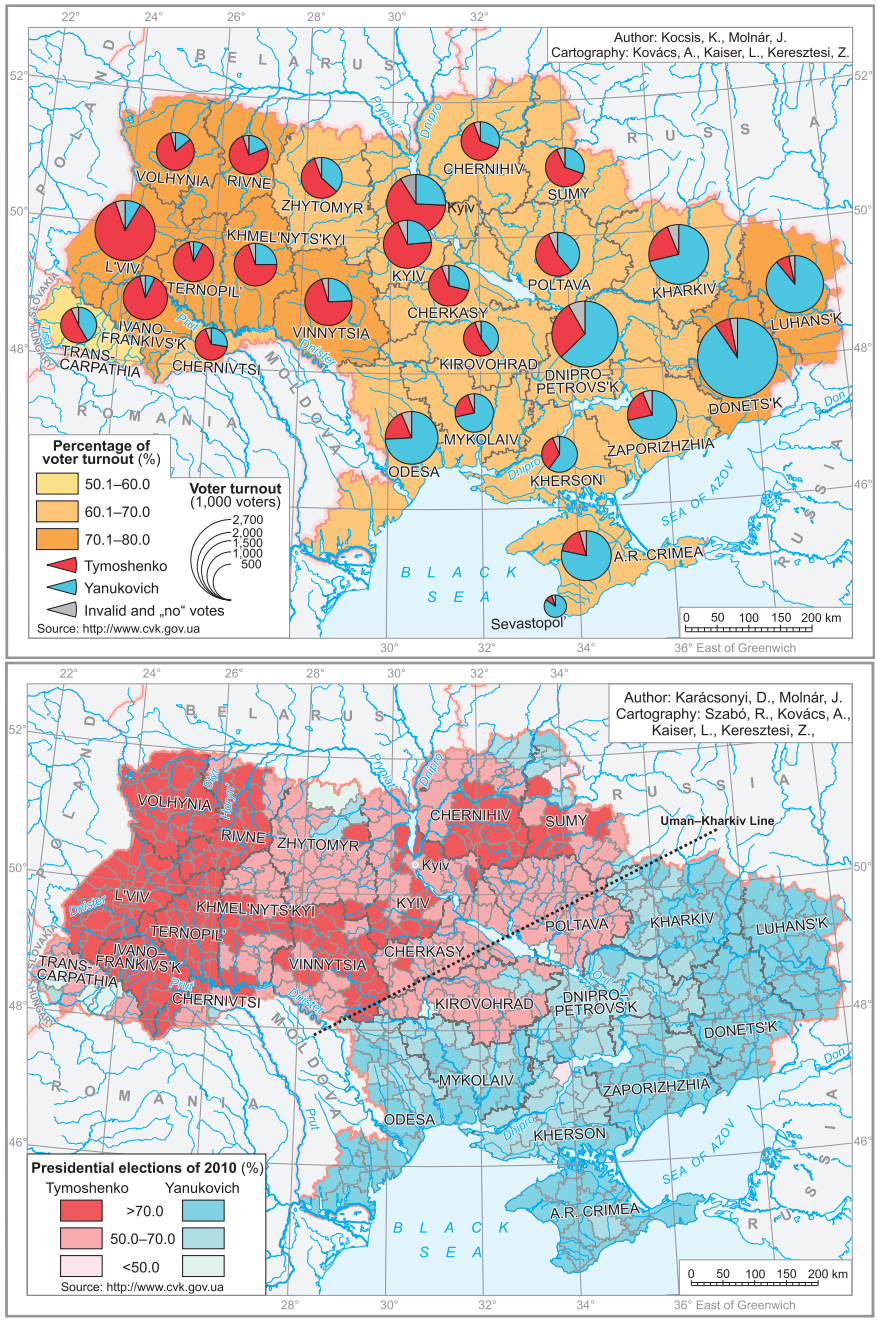

Fig. 11–12. Results of the second round of the presidential elections of 2010 in the regions and districts of Ukraine

Geography and space in the current conflict

The East–West division, which has been evident in all Ukraine's parliamentary and presidential elections since 2004, led to armed conflict in 2014. In November 2013, protests began in Kyiv (*Euromaidan*) in response to the Ukrainian leadership's decision – taken under Russian political and economic pressure – to withdraw from an association agreement with the EU just one week before its planned signature.

For some time the conflict was concentrated in a narrow area, the Maidan (Maidan Nezalezhnosti – Independence Square), a central square in the Ukrainian capital. Maidan became, after the Orange Revolution of 2004, a symbolic place of Ukrainian protest culture; the demonstrators prepared for a long and peaceful struggle for their goals. From the end of November 2013, the authorities tried on successive occasions to end the initially peaceful protest with its limited demands. These actions led ultimately to overt armed violence. In late February 2014, President Yanukovich left the country, and on 21 February an interim political coalition took control of Ukraine.

A survey[6] conducted by the Fund "Democratic Initiatives of Ilka Kucheriv" together with the Kyiv International Institute of Sociology gauged the social composition of the Maidan protestors. The proportion of people not affiliated to any political party was 92%, while 61% of the protestors had been spurred to action by violence on the part of the authorities. The findings showed a strikingly high proportion of non-Kyiv residents (88%) among the protestors in the capital city. The regional distribution of arrivals from other regions reveals both the country's division in terms of political activity (West Ukraine 55% and Central Ukraine 24%) and the fact that all parts of the country were represented at the epicentre of the conflict (East Ukraine 21%). The linguistic data support this impression: 59% of the demonstrators at Maidan were Ukrainian-speaking, while 24% were bilingual.

In January the conflict began to spread to western Ukraine (Lviv) and central parts of the country (*Automaidan*). In a symbolic break from the Soviet past, dozens of Lenin statues were toppled (the so-called *Leninopad*) in the second half of February. The toppling of statues took place mainly in central parts of the country, because in West Ukraine the statues had been removed back in the early 1990s, while in East Ukraine local counter-demonstrations (e.g. in Kharkiv) now prevented their removal – apart from some smaller towns (*Figure 13*).

After Yanukovich's flight, the direction of the conflict changed (*Figure 14*). In late February, the "epicentre" of the conflict switched to the dominantly Russian-inhabited Autonomous Republic of Crimea and City of Sevastopol, a part of Ukraine

[6] http://euro-revolution.org/news/novini-gromadskogo-sektoru/the-maidan:-what-has-changed-from-december-to-february

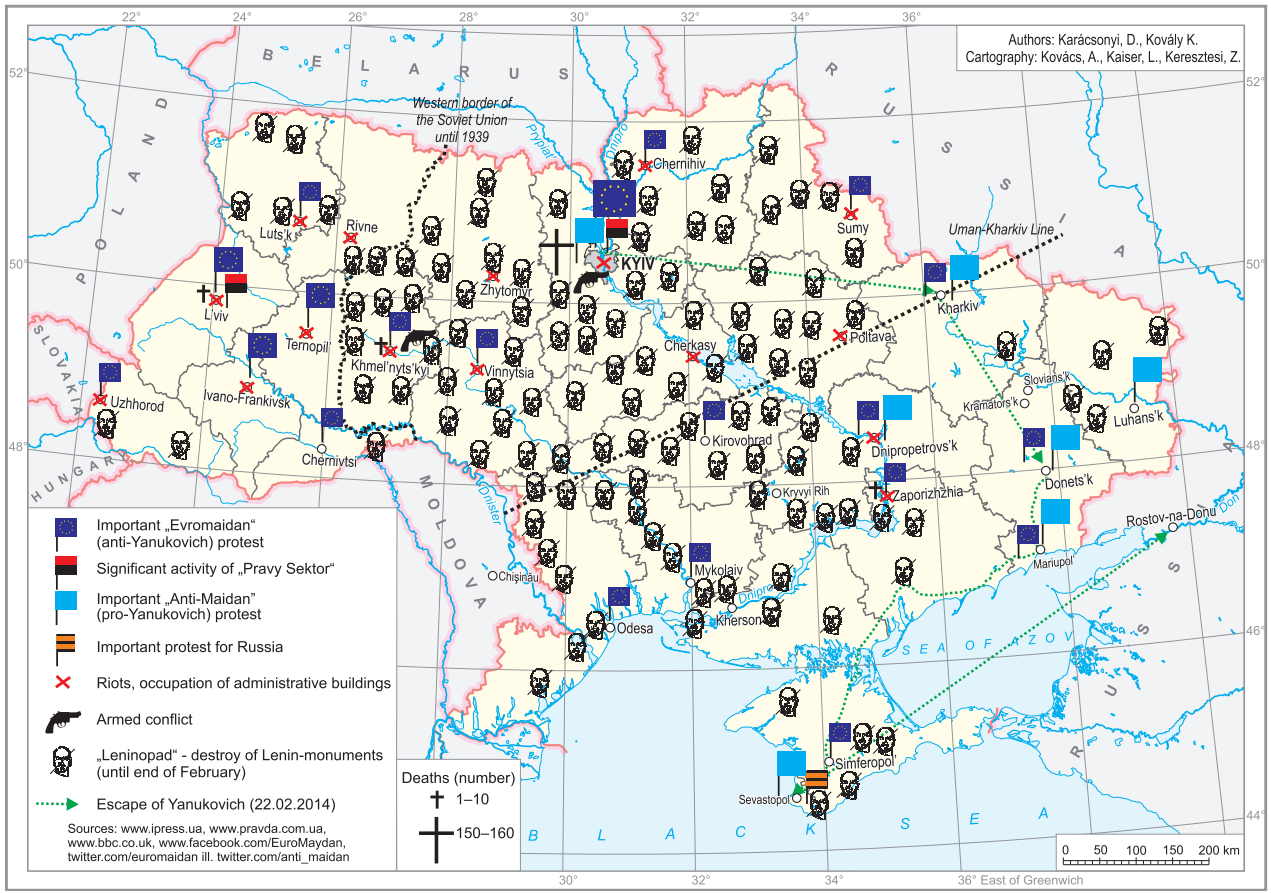

Fig. 13. Geography of the conflict in Ukraine, 21.11.2013–21.02.2014

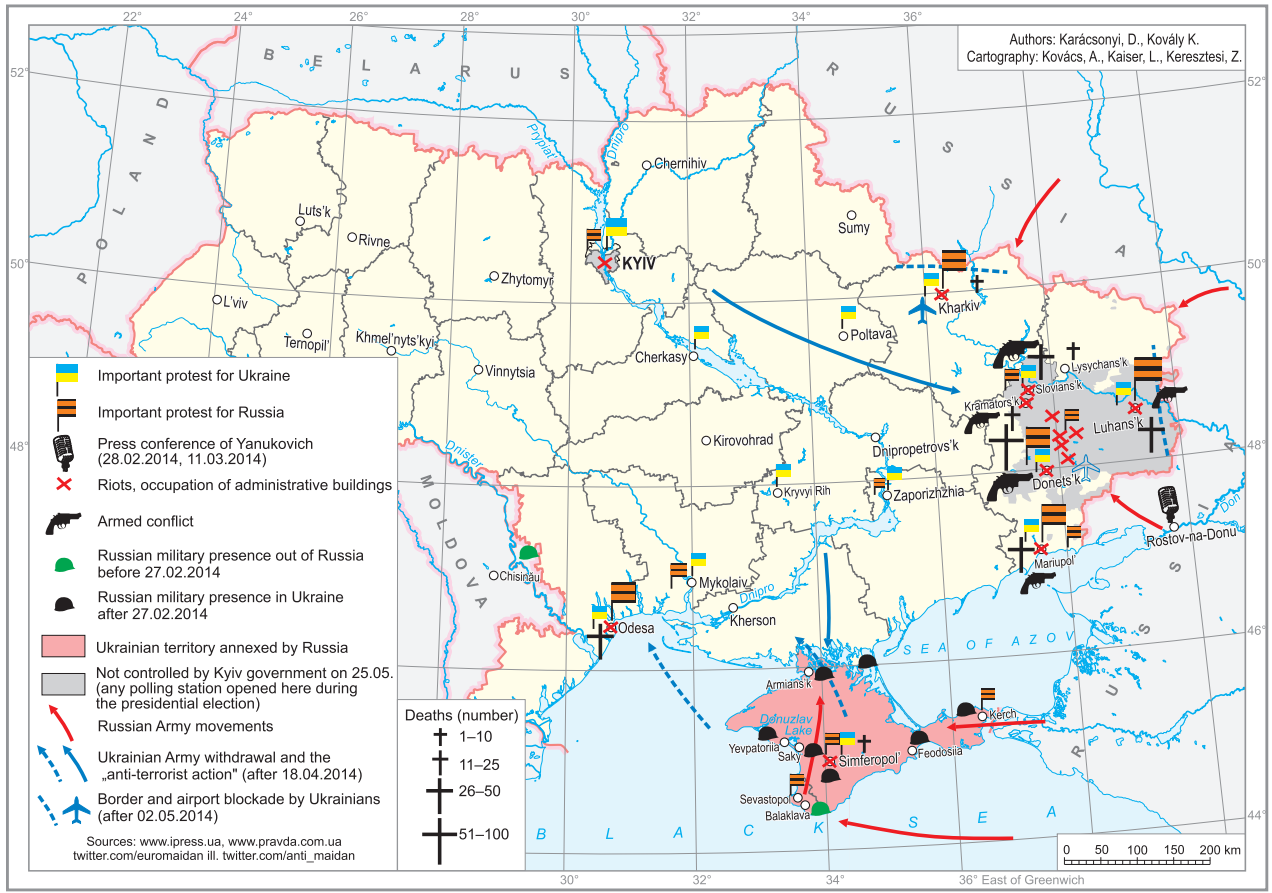

Fig. 14. Geography of the conflict in Ukraine, 22.02.2014–25.05.2014

only since 1954. Concurrently, a counter protest group launched intense protests in the south-eastern half of the country (*Anti-Maidan*). In March, events in Crimea transformed a domestic conflict into an international one.

Following a Russian-supervised referendum on 16 March and Russia's subsequent annexation of Crimea, the confrontation turned into armed conflict in April and continued in the south-eastern part of Ukraine, in the Donets Basin. Odesa was also the scene of deadly clashes. In April, based on the Crimean model, people's republics were declared in Donets'k, Luhans'k, Kharkiv and Odesa. On 11 May, the two former regions (oblasts) held "independence referendums", which were followed by what the Kyiv authorities termed "anti-terrorist" actions. These self-proclaimed state formations have not been recognised by any other states, including Russia. Questions surround the extent and popular acceptance of their power.

The traditional west–east "gradient" is evident once again in the voter turnout figures for the Ukrainian presidential election, held on 25 May 2014, and in the percentage of voters supporting Petro Poroshenko, the candidate who won the election (*Fig. 15, 16 and 17*). The low turnout in the southeast reflects primarily the decision of former Yanukovich supporters to stay away.

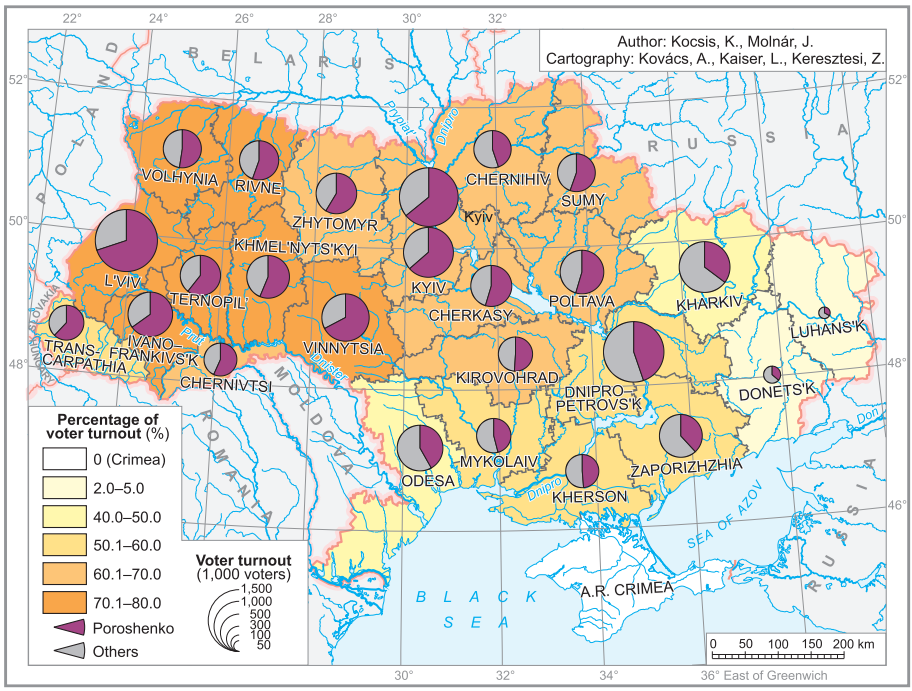

Fig. 15. Results of the presidential elections of 2014 in the regions of Ukraine

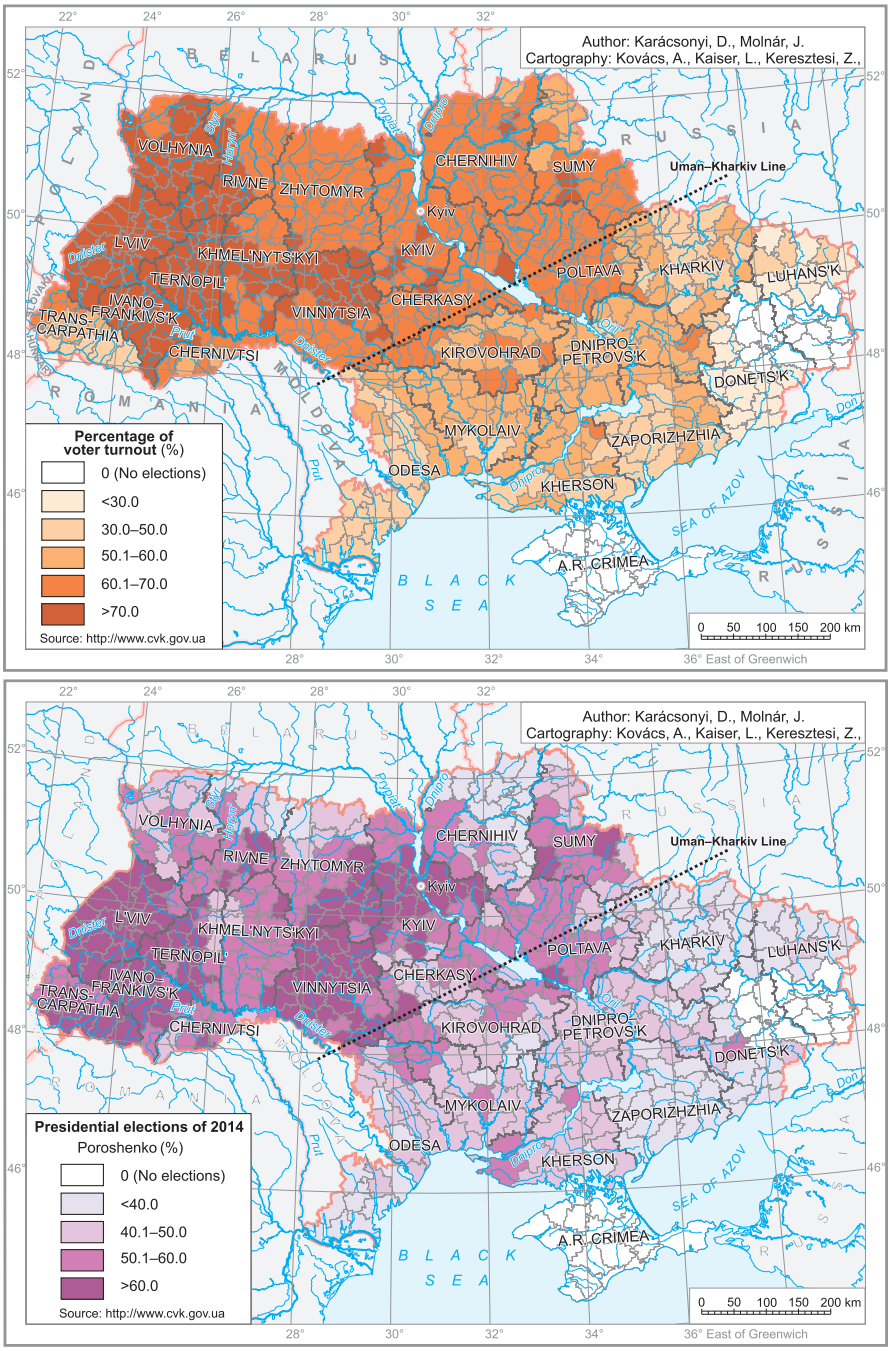

Fig. 16–17. Results of the presidential elections of 2014 in the districts of Ukraine

The effect is magnified in the Donets Basin, where separatists prevented, in some places, the proper functioning of the various election committees and the vote took place in a general atmosphere of intimidation. The armed conflict in Ukraine has deepened to an unprecedented extent the discord between the eastern and western halves of the country, but the fact that Poroshenko won in all of Ukraine's regions – albeit by a different margin of votes – indicates a possible reduction in the divide. Perhaps this development may be viewed as the emergence of an east–west consensus on the desirability of a peaceful solution.

Conclusions

Ukraine's east-west divide does not stem from a conflict between ethnic Russians and ethnic Ukrainians or between Orthodox and Western Christianity. Rather, the country's divisions exhibit a multilevel regional structure formed in the course of a long historical development and reflecting the nation-forming attitudes of Ukrainians. It is important to distinguish between the separatist ambitions of the Russian minority (e.g. Sevastopol, the towns of Donets Basin) and the dichotomy of Ukrainian identity, coupled with the associated conflict. Eastern Ukrainians believe that they differ both from western Ukrainians and from Russians: they view the West with suspicion and look to the Russians as partners. Even so, they do not want to accede to Russia at any cost. Indeed, it is questionable whether there is any desire for such a move. The escalation of the conflict is due to the lack of domestic political cohesion (reflecting Ukraine's youth) and to the gravitational effect of the major powers rather than primarily to some kind of civilizational difference.

Several authors have sought to criticise Huntington's theory of the clash of civilizations (Huntington, S.P. 1993a) based on a quantitative analysis of events in the recent past (Russet, B.M. *et al.* 2000; Henderson, E.A. and Tucker, R. 2001). Huntington had argued that the complexity of the post-Cold War world order could best be described in terms of the fault lines between civilizations (Huntington, S.P. 1993b), but the critics showed mathematically that the number of inter-civilizational conflicts had actually decreased since the Cold War (Gurr, T.R. 1994).

We now see that most of the conflicts in Europe in the early 1990s (the conflicts in Yugoslavia, Karabakh, Abkhazia) were rooted in ethnic tensions that had remained unresolved in the Cold War. These conflicts did not presage some kind of global struggle between civilizations. Seen from this angle, the conflict over Crimea was the belated conflagration of a trouble spot. We may apply Henderson's argument (Henderson, E.A. 1997) – which is diametrically opposed Huntington's – to Ukraine: ethnic and linguistic similarities (!) also increase the potential for strife between countries. In his opinion (Henderson,

E.A. 1998), the form of government (democracy vs. dictatorship) and the distance between or proximity of states are far stronger explanatory factors in international conflicts than religious or ethnic differences. Both findings are borne out by the Ukrainian-Russian conflict.

Ukraine will not split of its own accord, but the extent to which it becomes a battleground for the major powers in the short term will depend on whether the current conflict deepens and whether the long-term damage can be reversed. It is crucial for Ukraine to strengthen domestic political cohesion and to create an effective and functional state. In place of forced centralisation, the means for this may be a policy of regionalisation that respects regional differences. A historical opportunity for such a policy could arise after the presidential election in May.

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Ethnic diversity and polarization in Vojvodina[1]

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Abstract

From a methodological perspective, this paper aims to demonstrate that ethnic diversity can be an objectively measurable notion, thus multi-ethnicity may have its own 'units of measurement'. However, while the Hungarian geographic literature has concentrated by now on only the fragmentation (i.e. 'Ethnic Diversity Index'), another type of diversity should be also defined: the phenomenon called polarization when two or maximum three ethnic groups with nearly equal population number are present. Using the so-called 'ethnic polarization index' our paper emphasizes that the increase or decrease of diversity cannot be described as a two-dimensional process. Thus in our case study of Vojvodina not only the homogenizing and diversifying territories are outlined, where the minorities are shrinking, and conversely where the minorities increase their rate at the expense of the majority. Since both homogenization and diversification can result in polarization, it does also matter, which way the balance will shift regarding polarization. Taking into consideration the broad scale of potential impacts of ethnic polarization on social, economic and political spheres (e.g. on the risk of conflicts), we find it important to underline that human geography and sociological research in the future should focus on the polarizing territories as well which have been defined in our study.

Keywords: ethnic diversity, polarization, Vojvodina, Serbia

Introduction

The issues related to the coexistence of groups with different ethnic, religious and cultural background have long been in the forefront of human geography. In Hungary, due to its peculiar history, ethnic studies have been given special

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attention not only in geography but also in many other sciences. A renaissance of ethno-cultural studies took a fresh start in the last decades of the 20th century, when many saw the motives for future conflicts in the cultural fault lines instead of the ideological opposition of a bipolar world (Huntington, S.P. 1996).

A number of international conflicts have recently occurred with different intensity and at various levels in which the ethnic, religious or 'civilizatory' factors cannot be neglected (Yugoslav conflict, Rwandan conflict, Middle East set of conflicts, Caucasus etc.).

The ethnically diverse or polarized societies can become an integral part of social tensions in the so-called 'Western, developed' world too, particularly through the ever-increasing migration, which largely diversified the once single-faced societies in the past decades.

Our work aims to find out what results can be achieved by using statistical and mathematical methods to explore a traditionally multi-ethnic and multicultural region, and its ethnic transformation. Is generalization possible by using mathematized studies, can these devices help the researcher or the decision-maker and if so, where are the limits of these methods? As the actual field of study, we have chosen a region, Vojvodina in Serbia, which claims to have one of the most heterogeneous ethnic structures in Southeast Europe and where significant ethnic changes took place in the past decades.

Measurement and practical use of ethnic diversity

In its original sense, diversity means the species diversity of living organisms at the various levels of biological systems (Hawksworth, D.L. 1995, 6–7). In other words, 'the mathematical quantitative representation of biological diversity,' whose extent can be determined by methods based on statistical distributions (geometrical, logarithmic etc.) or probability calculation (Majer, J. 1993, 177–203; Magurran, A.E. 2004, 100–130). The first attempt by the social sciences to exactly measure ethnic and linguistic diversity was the so-called 'ethno-linguistic fractionalization index,' also known as the Herfindahl index (Taylor, C. and Hudson, M.C. 1972), originally applied by ecologists to measure the biological species diversity.

The method which has become known in Hungary as the 'ethnic diversity index' (Bajmócy, P. 2004, 2009; Reményi, P. 2009; Németh, Á. and Šolks, G. 2012; Németh, Á. 2013) indicates the chances that two randomly meeting inhabitants of a given area have different ethnic origins. The values could vary between 0 and 1: while 0.00 suggested a homogeneous ethnic composition, 1.00 showed a perfectly heterogeneous composition when each inhabitant of the settlement belonged to a different ethnic group.

$$EDI = \frac{L*(L-1)/2 - \sum_{i=1}^{n} e_i*(e_i-1)/2}{L*(L-1)/2}$$

where L = population of settlement/area, e_1, e_2, … e_n = number of persons belonging to the ethnic groups, *EDI* = Ethnic Diversity Index (Bajmócy, P. 2009).

The widespread use of the method started in the 1990s, when the research into the social effects of ethnic and religious heterogeneity, in connection with the rapidly diversifying population of Western European and North American states, was increasingly brought into the spotlight (e.g. Mauro, P. 1995; Easterly, W. and Levine, R. 1997; Reilly, B. 2000/2001; Collier, P. 2001; Alesina, A. *et al.* 2003; Fearon, J. 2003; Montalvo, J. G. and Reynal-Querol, M. 2005). The potential effects on political structures, economic development, social cohesion, educational systems, the risk of conflict development etc. have since been fiercely debated in the literature.

But whatever conclusion is drawn by the case studies and models, a special type of ethnic diversity almost always emerges in one way or another: the case of polarization. In recent decades, more and more researchers recognized that not only (or not primarily) fragmentation can directly or indirectly influence the various spheres of society but also a high degree of polarization when two or maximum three ethnic groups with nearly identical population are present. Without taking sides in this extremely complex and rather sensitive issue, we would like to highlight only a few aspects below to prove that ethnic geography in the future should focus on research into not only fragmentation but also polarization.[3]

Ethnic diversity is generally described in the literature as a phenomenon with dual nature: it can be a potential resource but also a risk factor for the states at the same time. An open and plural society experiences diversity as a basically positive, inspiring phenomenon. The mixture of ethnicities and cultures, and the practical realization of multiculturalism are considered by some researchers as morally necessary and particularly useful from a pragmatic point of view (Kymlicka, W. 1998, 2007). As well as this approach minimizes the risk of conflicts, it can positively influence the performance of economy and the labour market (e.g. Florida, R. 2002; Florida, R. and Tinagli, I. 2004).

In addition, theorists supporting multiculturalism often argue – typically relying on examples from metropolises – for the elimination of segregation and the creation of residential areas with mixed ethnicities. They assume that this form of coexistence protects, on the one hand, the minority groups

[3] The first use of 'polarization index' in Hungarian geographic literature as well as the method applied in this paper (parallel analysis of diversity and polarization indices) is described in greater detail in the PhD thesis of Németh, Á. 2014.

and the district itself from being stigmatized, and on the other hand, it can contribute to the catching up of disadvantaged groups by strengthening the network of relationships (Gijsberts, M. *et al.* 2012, p. 528). If ethnic diversity also means the mixture and the parallel existence of languages, the inhabitants will automatically and involuntarily become multilingual. Although societies in Central and Eastern Europe still often find it necessarily bad, it is in fact an incredible competitive advantage in the global labour market against those who grew up in a homogeneous, multilingual environment. Accordingly, these regions can/could be viewed as areas capable of offering a valuable, potentially qualified, multilingual labour force. Also, the mixed ethnic composition is mostly coupled with a colourful and vivid cultural life, which can occasionally constitute a tourist attraction, being another serious competitive advantage in this dynamically developing sector of economy.

However, some of the economists studying the effects of ethnic diversity believe that ethnic *fragmentation* undoubtedly involves certain extra costs. In the case of less developed states with smaller financial capacities, it can be an aspect of key importance. Also, heterogeneity often negatively influences economic growth in an indirect way (e.g. Mauro, P. 1995; Easterly, W. and Levine, R. 1997; La Porta, R. *et al.* 1999; Tavares, J. and Wacziarg, R. 2001; Alesina, A. *et al.* 2003). One of the reasons can be that it is usually harder for ethnically fragmented communities to find a cooperative solution to the emerging problems, and they are more likely to waste available resources on fighting for various particular interests (Alesina, A. *et al.* 1997; Habyarimana, J. *et al.* 2007). In a *polarized* society it can invite a form of behaviour which is known as the 'theory of rent-seeking' in the economic literature, and which is considered a particularly damaging social phenomenon.[4]

On the other hand, the social and economic problems may involve more severe *political* consequences by that people sometimes interpret what are social problems of a different origin as ethnic problems. In other words, the tensions frequently break out along ethnic fault lines, even in cases where previously ethnic issues were apparently less remarkable (Fearon, J. and Laitin, D. 2000). Therefore in certain cases, ethnic *fragmentation* can lead to political instability.

There are researchers who go even further and claim that diversity in certain conditions can increase the risk of eruption of ethnic conflicts or even civil wars. In Richard Hartshorne's classic theory the ethnically, religiously,

[4] If the benefit is not generated naturally but created artificially, e.g. by government measure, competition will arise for the benefit, and the resources which the companies use to grab the benefit – e.g. in the form of lobbying – will be wasted from the society's point of view – Lőrincz, L. 2007. In return, this 'competition' is usually more likely to sharpen in polarized communities than in homogeneous or fragmented ones (Montalvo, J. G. and Reynal-Querol, M. 2005, 293–294).

and mother tongue-wise heterogeneous population (without mathematizing diversity) is one of the most significant centrifugal forces that can influence a state (Hartshorne, R. 1950; Pap, N. 1999). In return, by a negative feedback, this can have further damaging effects on the economy, since e.g. the uncertainty in domestic politics can significantly decrease the size of foreign capital investment (Montalvo, J.G. and Reynal-Querol, M. 2005, p. 308). A number of researchers, however, think that this issue is not determined by the extent of ethnic fragmentation but rather *polarization*. Horowitz, D. (1985), e.g. points out that civil wars unfold relatively rarely in homogeneous and heavily fragmented (i.e., highly diverse) societies. The biggest tensions usually break out where there is one or maximum two influential minorities next to the dominant majority, i.e., where polarization is perceivable.

A similar conclusion was drawn by Collier, P. (2001, p. 130) and Bates, R. (1999, p. 31) who think diversity does not increase (to the contrary, it decreases) the risk of conflict generation, and it does not negatively influence the performance of economy. Montalvo, J. G. and Reynal-Querol, M. (2005) directly apply the ethnic polarization index to emphasize that on a global scale there shows a definitive correlation between the extent of social polarization and the development of ethnic conflicts.

The potential effects of diversity on *social cohesion* are possibly even more intensely contested than the previous ones. Leigh, A. (2006) and Putnam, R.D. (2007) claim that in ethnically *fragmented* urban districts, mutual trust and solidarity is lower, and the tendency to assist and cooperate is usually weaker. Other researchers, however, reject this hypothesis and argue that in the European context there is no evidence that ethnic diversity in itself undermines social cohesion (e.g. Tolsma, J. *et al.* 2009; Hooghe, M. *et al.* 2009, 528–529). Therefore there is no consensus, and it is not surprising either that several theories of the problems have recently been published (summarized in: Gijsberts, M. *et al.* 2012).

The so-called '*homogeneity theory*' claims, e.g., that people mostly seek contact with people who are culturally similar to them, thus interaction in ethnically and religiously mixed communities is usually less and more superficial. This is related to '*social control theory*' which claims that if the social norms accepted as common values are missing from the community, mutual distrust can easily prevail.

With the accumulation of other adverse conditions, social control may stop, leading to the overall deterioration of public safety. This is in sharp contrast to 'contact hypothesis' which emphasizes the positive effects of heterogeneity. Its motive is the tolerance developed by mutual understanding, which can ideally result in the strengthening of solidarity and mutual trust. All this will inspire the individual who can become open, culturally richer, and thus socially more successful.

The fourth, so-called '*competition theory*', though without actually naming it, in fact examines a potentially negative effect of *polarization*. The theory claims that the rise of suspicious, hostile attitude between ethnic groups can merely be triggered by the significant increase of the number of members belonging to the 'other group' (e.g. Quillian, L. 1995). 'The closer they are' and the more there are of 'them,' the more probable that people's sense of threat intensifies, they see the situation as competition, and they will retreat under the 'protective shield' of their own group. This hypothesis states that the rise of ethnic polarization, whether intended or not, generates an imaginary or real competitive situation between the ethnic groups which can imply the splitting of micro communities and the weakening of social cohesion.

Like us, no one claims that ethnic fragmentation or polarization in itself could determine any social pattern of effect. However, most researchers agree that in analyzing complex social, economic and political processes, the phenomenon of ethnic fragmentation and polarization cannot be neglected as important but never exclusive factors.

The ambitious research projects of the recent past have therefore pointed out that ethnic polarization should not be seen merely as a form of diversity but a particular quality that is equivalent to homogeneity and the perfect heterogeneity. This theoretical basis forms the starting point of our work. In our assumption the change in diversity is a process that cannot be described as a two-dimensional motion. Both homogenization and diversification can, depending on the initial status, result in polarization; and conversely, if the extent of polarization decreases, the ethnic structure may shift toward both homogenisation and fractionalisation. A simplified model of the relation between diversity and polarization (with the same number of ethnic groups) is shown in *Figure 1.*

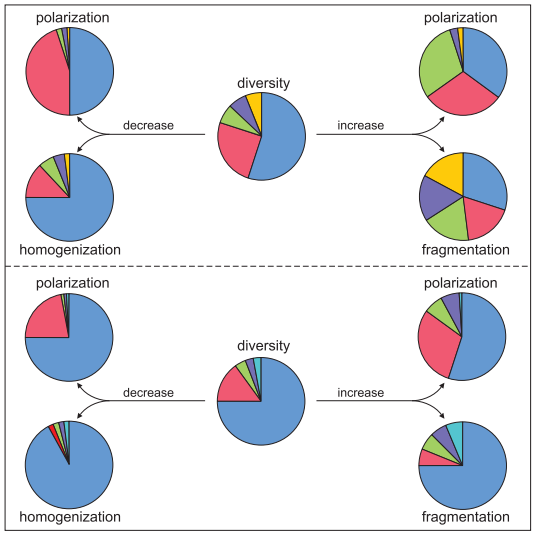

Fig. 1. A simplified model of the change of diversity and polarization based on a hypothetical society (Németh, Á. 2014, p. 28)

Considering the broad scale of potential social impacts of ethnic polarization, it is not surprising that by the late 1990s the need emerged internationally to exactly define and measure polarization. The simplest way is classification based on the percentage rates of majority and mi-

norities (Reilly, B. 2000/2001). Fearon represented each country by a rectangular coordinate system, indicating the rate of majority on the x-axis, and the rate of the largest ethnic minority on the y-axis (Fearon, J.D. 2003, 206–208). The closer these points were to the vertex (0.5, 0.5), the more bipolar the society was.

A more sophisticated definition of the extent of polarization uses a different logic: the 'ethnic polarization index' (*EPI*) can be determined by the normalized distance of a particular distribution of ethnic groups from a bimodal distribution. The deviation of each group from the maximum polarization share of 0.5 is weighted by the group's own share (Montalvo, J. G. and Reynal-Querol, M. 2005; Alesina, A. and La Ferrara, E. 2004)[5]. In Montalvo and Reynal-Querol's index the received values can also vary between 0 and 1 but the index reaches its maximum if the given society is divided between two equally populated groups (at that point the diversity index is 0.50); thus the state of perfect polarization has emerged. After this point, however, the two curves will behave differently: with the increase of fragmentation, the extent of polarization gradually decreases. If each person of a settlement with 100 inhabitants claims to be of a different ethnicity, the state of perfect fragmentation and, concurrently, the state of perfect diversity have been reached, while the extent of polarization will converge to zero.

It also means that theoretically every *EPI* value can be associated with two states. The ethnic polarization index will be, e.g., 0.40 if the rate of ethnicities stands at 88.8%–11.2%, but also when the society is fragmented into nine equally populated ethnic groups. The *EPI* can be calculated with the following formula:

$$Q = 1 - \sum_{i=1}^{N} ([0.5 - \pi_i]/0.5)^2 * \pi_{i,}$$

where, π_i = share of group i in the whole population, Q = Q-index or Ethnic Polarization Index (*EPI*).

The relation of these two parameters of ethnic diversity is shown in the figures below. The letters on the x-axis in *Figure 2* show a hypothetical state where a = 1 ethnic group with 100 persons; b = 2 ethnic groups with 50 persons; c = 3 ethnic groups with 33 persons; … j = 10 ethnic groups with 10 persons; k = each member of the population belongs to a different ethnic group. If the *EDI* and *EPI* values calculated for each area unit are represented by a rectangular coordinate system (*Figure 3*), the result will be the following: the polarization index is highly correlated with fractionalization at low levels of *EDI*, uncorrelated at intermediate levels, and negatively correlated at high levels (Alesina, A. and La Ferrara, E. 2004, p. 28).

[5] A special case of the polarization index (Esteban, J.M. and Ray, D. 1994) controls the distances between the groups, in other words it uses continuous measures of distances (Desmet, K. *et al.* 2009, 1294–1299).

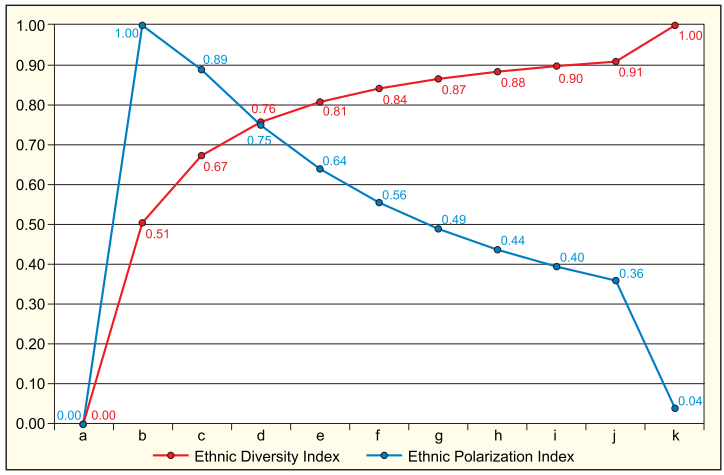

Fig. 2. EDI and EPI values related to each other in the case of a community with 100 inhabitants (Németh, Á. 2014, p. 26)

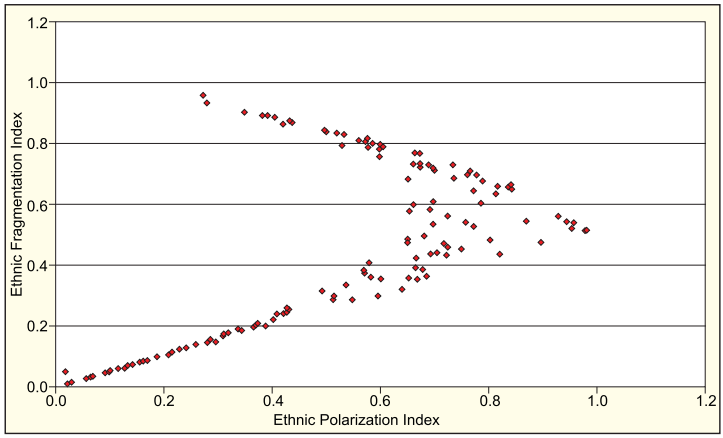

Fig. 3. EPI related to EDI (in other words 'fragmentation index') exemplified by the states of the world (Montalvo, J.G. and Reynal-Querol, M. 2005, p. 307)

Based on the points arranged in a typical V-shape on the graph, we are able to create types; however, only units with medium or high diversity index are worthwhile for such an analysis. The reason for it is that at low values (around $EDI < 0.40$) the correlation coefficient is extremely high, the points are arranged in a linear order, it makes no sense to create groups. Nevertheless, this method helps identify the two different forms of diversity, which can be further analyzed by an automated dimension-reducing procedure (e.g. cluster analysis). The analysis can

also be made dynamic by displaying the change between two points of time. In that case, four categories can be created based on *ΔEDI* and *ΔEPI* which reflect the modification of ethnic structure according to the directions shown in *Figure 1*.

The method has the same flaws and imperfections as every other mathematical method similar to it. The contrast between the postmodern, soft definitions of ethnicity (pl. Barth, F. 1969; Jenkins, R. 1997; Brubaker, R. 2001) and the analysis of naturally rigid statistical data can possibly be termed the most fundamental set of problems of the research. While the diversity and polarization indices can classify each individual under a single category, ethnic identity in modern societies must not be considered a static fact but rather a dynamic category which can be changed by emotional and rational aspects. This makes addressing individuals with dual or multiple identities problematic.

The different interpretation of the basic notion itself (ethnicity) in space and time may be misleading too. Mainly, it extremely complicates comparability as the notion of 'ethnic group' appears differently e.g. in the US and Ugandan statistics, not to mention countries where such data are not even collected. One must not forget about the fault factor arising from the uncertainty of data collection, which typically characterized the older statistical publications. Therefore some researchers argue that these indicators often reveal as much of the individual phenomena as they also hide. We, however, believe that the statistical data and the quantitative methods based on them, despite all their faults and imperfections, should continue to form an important part of ethnic research, since the interpretation of processes in a geographical space and the non-microregional studies are only conceivable in this framework.

Ethnic transformation in Vojvodina

Based on the ideas proposed above, the following is the study of a typical Central European multicultural space and its significant ethnic changes in the past two decades, presented to illustrate the theoretical considerations above.

For centuries, Vojvodina has been one of the ethnically most diverse macro regions of the Carpathian Basin (Kocsis, K. 2006; Gulyás, L. 2005) (*Figure 4*). Three dominant ethnicities (Serbian, Hungarian and German) and many smaller but significant groups lived here at the dawn of the 20th century. During the 20th century, however, a large-scale ethnic homogenization took place continuously, but particularly in two big waves (following the 2nd World War and after 1991) (Kocsis, K. *et al.* 2006; Léphaft, Á. 2011a; M. Császár, Zs. and Mérei, A. 2012). In our ethnic studies we use the official results of the last three censuses (1991, 2002 and 2011), partly on settlement level and partly on municipality level, which will be used to calculate the diversity and polarization indices as well as their changes with the above devices, to be assessed later on the basis of our field experiences.

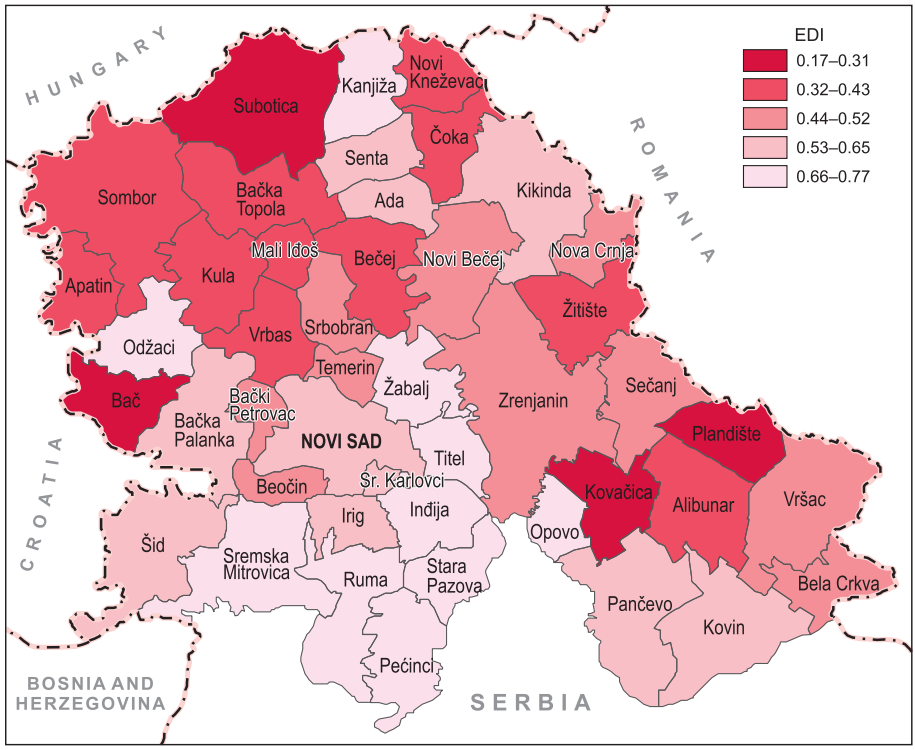

Fig. 4. Ethnic composition of Vojvodina according to the 2011 census, based on preliminary data of the Statistical Office of the Republic of Serbia. Cartographic methodology is partially based on the 2002 map of the province (Kocsis, K. and Kicošev, S. 2004)

Ethnic homogenization in Vojvodina

As already mentioned, the ethnic homogenization of Vojvodina took place continuously in the 20th century. However, its intensity has varied in time (*Figure 5*) as well as in space.

Between 1991 and 2011, Srem and Western Bačka became the most homogeneous territories. Degrees of ethnic homogenization on the level of municipalities are significant, the change in the ethnic diversity index can reach -0.22, which can be described as a huge change, since this scale of ethnic transformations could generally be seen only in the former Yugoslavian municipalities involved in armed conflicts. This outstanding value is primarily observable in the settlements along the Belgrade–Novi Sad axis. In the case of Western Bačka, the level of homogenization is lower, the change of the index is between -0.00 – -0.16. The primary cause of the above processes is the

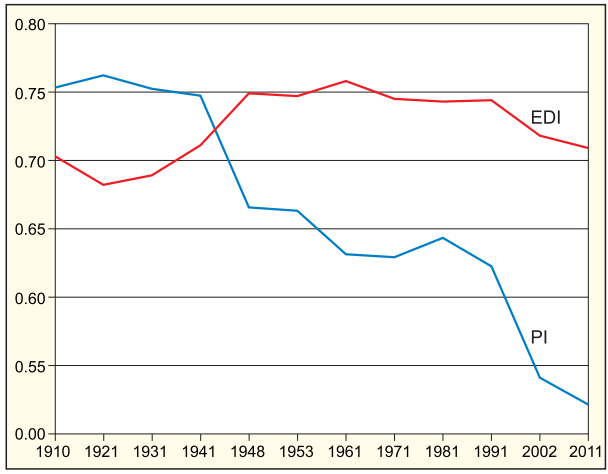

Fig. 5. The relative change of diversity and polarization indices between 1910 and 2011 in Vojvodina

Serbian immigration and the departure and decreasing ratio of Hungarians, Croats, as well as other small ethnic groups. The drastic decrease of the rate of 'Yugoslavs' also fuels the change (*Figure 6*).

The immigration of Serbs originates from two processes: it is caused, on the one hand, by the Serbs flown to Serbia during the wars accompanying the breakup of Yugoslavia, and on the other hand, by the attraction of one of the most important axes of the country between Belgrade and Novi Sad, as well as the agglomeration of these two cities. The latter is much more like a natural economic migration fitting within the classic urbanization theory, and it explains why we were able to measure outstanding homogenization values in the mentioned region.

To some extent, the above logic can be used, although with opposing values, to explain why the south of Banat, though ethnically diverse, has barely changed. The urbanized municipalities such as Vršac (0.80) and Pančevo (0.14), which exceed the regional average of South Banat in terms of their development level, the latter being a functional part of the Belgrade agglomeration, experience larger homogenization in which both refugees and spontaneous migrants play a part. In the case of others, in spite of the basically diverse structures, which therefore allow ethnic homogenization, the level of ethnic homogenization is low. One of the possible reasons is the region's relative backwardness and poverty, i.e., compared to the Belgrade–Novi Sad axis it is a less attractive target area for migration, therefore substantially less immigrants arrive here, and even the Serbs are leaving the region in large numbers because of economic or development issues.

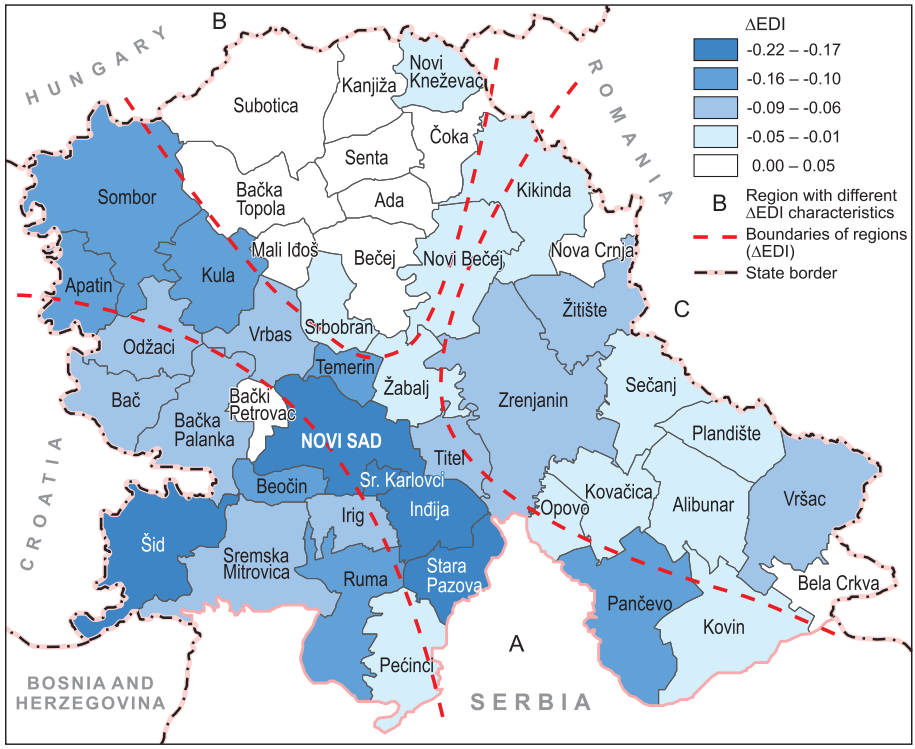

Fig. 6. The ethnic homogenization of Vojvodina's municipalities between 1991 and 2011 based on the ethnic diversity indices calculated from the results of official censuses. A, B and C = detailed explanation is in the text

The middle part of Banat, the Žitište–Zrenjanin–Titel strip shows an above-average rate of homogenization compared to the southern part of Banat mentioned above (the change of the ethnic diversity index in all three municipalities is 0.7, rounded). The homogenization of Zrenjanin, the third most populated city of Vojvodina, is of central importance. The western part of the strip (Titel) still belongs to the Novi Sad agglomeration and all three municipalities take a significant number of refugees.

On the edge of the Hungarian block, where the Hungarian ethnicity has become a minority, slow homogenization can be observed (-0.005 – -0.03), and the block with Hungarian majority has been diversifying at an almost similar rate – i.e., a slight Serbian immigration and a larger scale of Hungarian emigration/assimilation are under way. As a result of the above processes, 3 regions with different characteristics can be defined in terms of ethnic diversity in Vojvodina (see *Figure 6*):

A) A rather homogeneous (on Vojvodina's scale) and further homogenizing southern strip was formed, as the result of the Serbs' permanent northbound migration. It is a Serb-dominated zone South of the Odžaci–Žabalj–Kovin bend. Here the Serbs today form minimum three-fourths of the municipality's population almost everywhere with a couple of minor exceptions (Bački Petrovac, Beočin, and Kovačica). The region – as the rate of ethnic minority groups is low – is not characterized by ethnicity-driven conflicts.

B) On the North a transition zone has been formed, the area of the narrowly defined ethnic boundary, where on the level of municipalities, generally no ethnic group claims a majority of over two-thirds. The ratio of the majority ethnicity varies between two-thirds and 50% (again with one or two exceptions, e.g. in Kikinda the ratio of Serbs reaches three-fourths of the total population). This zone is the Bela Crkva–Sombor strip, whose northern side is Hungarian–Serbian (Subotica, Mali Iđos, Bačka Topola, Bečej), the middle strip today is already Serbian–Hungarian (Srbobran, Temerin, Novi Bečej, Nova Crnja). The southern part has been until today mosaic-like, mixed Serbian–Hungarian–Romanian (Žitiste, Plandiste, Sečanj, Alibunar), and the western part is Serbian–Croatian–Hungarian, in which other locally significant ethnic groups appear too (Rusyns, Montenegrins, Slovaks).

This whole ethnic status is already the consequence of a Serbian influx occurring in several waves, the Hungarian–Serbian inter-ethnic conflicts of the recent past are mostly associated with this zone. This is the strip where significant ethnic transformations took place in the past decades in a way that the ratio of minority-bound Hungarians is still considerable (around 30%), but there is a new and growing Serb majority. This is also the region where the members of both groups display 'border-mentality' (Ilić, V. and Kevežđi, M. 2012), the region ethnically being a real frontier, where both communities experienced great changes in their position: from majority to minority and to minority from majority within one generation (see the case of Temerin – Nagy, I. and Tátrai, P. 2013).

These changes then create frustration in many among the communities. The presence of competing extremist groups from both sides (Serbians and Hungarians) also points to the transition zone (Léphaft, Á. 2011b) that best fits the previously mentioned 'competition theory'. It must be emphasized that quantitative methods (as census data generally) are not able to distinguish domicile and recent migratory subgroups, however in the latter case the potential of conflict is presumably higher.

C) A shrinking area chipping at the edge with Hungarian majority along the river Tisza. Here assimilation, emigration and the slow but steady Serbian immigration brings about a not too high but constant ethnic diversification. On the edge where the Hungarian bloc connects the transition zone described above a new confrontation is forming, a new frontier zone is being

born. Taking into consideration the potential effects of ethnic polarization on social cohesion, the Hungarian–Serbian tension could heighten across this zone, while the conflicts on the former frontier area could gradually stop.

Comparing the 2011 values of ethnic diversity (*Figure 7*) and polarization indices with those of 1991, it can be concluded that the Serbian ethnic group, due to the significant immigration and the shrinking of non-Serbian communities, set out to homogenize the southern band of Vojvodina and the former ethnic boundary which lay there in 1991, shift it to the North, narrow the Hungarian majority areas from the south and connect the formerly insular Serbian ethnic enclaves (Odžaci, Žabalj, Titel, Zrenjanin).

However, by splitting the 20 years under examination, it can be observed in many places (e.g. Kikinda, Srbobran, Novi Bečej, Nova Crnja) that the ethnic homogenization of the war period (between the censuses in 1991 and 2001) is significant because of the Serbs' immigration, but in the period between 2001 and 2011 a counter-process is under way although on a smaller

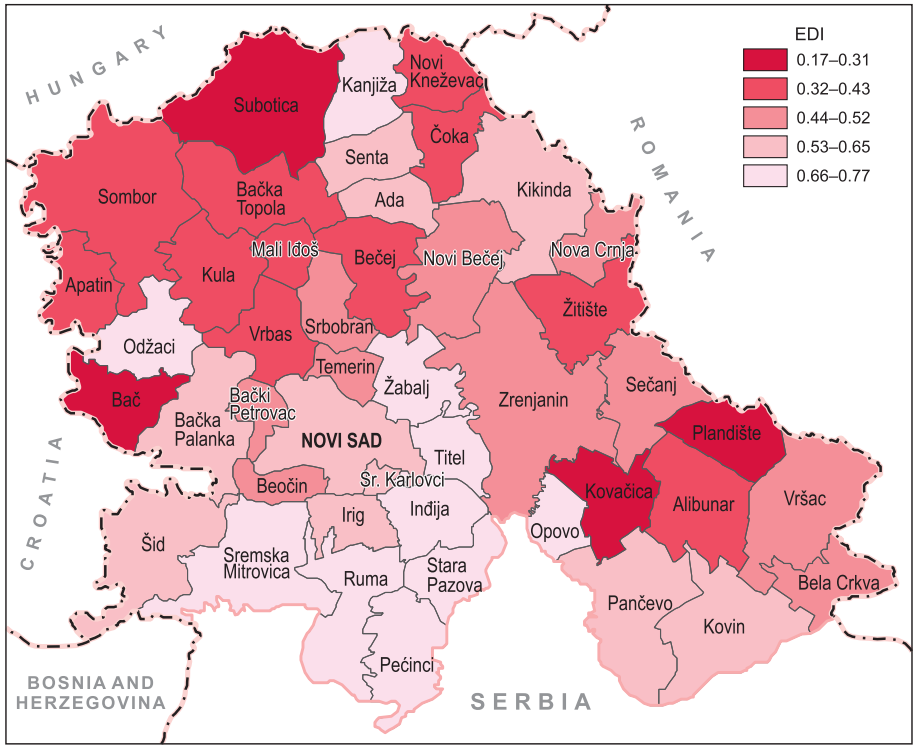

Fig. 7. The ethnic diversity indices of Vojvodina's municipalities in 2011 based on the official census results

scale. Some regions have re-diversified, mainly as the result of the rapidly decreasing Serbian population due to low birth rates and economy based emigration from the region (either to urban centers within Serbia or to abroad).

Ethnic polarization in Vojvodina

Both homogenization and diversification can result in polarization, depending on the initial status. And conversely: if polarization decreases, the ethnic structure can shift toward both homogenization and fragmentation. This is clearly visible by studying the ethnic transformation of Vojvodina in the 20th century. Between 1910 and 1921, the diversity index rose while the polarization index dropped, i.e., the ethnic structure of the region became more and more fragmented.

Between 1921 and 1948 (intensively between 1941 and 1948) the diversity index decreases and the polarization index rises, i.e., the structure becomes increasingly bipolar with the shrinking of small ethnicities and mainly the German population, and the further increase of the most numerous Serbian ethnicity. In the following period, the processes generally point toward homogenization, i.e., both indices, though not steadily, start to decrease, which clearly indicates the development of homogeneous ethnic structures.

At the same time, the different pace of change in the two indices also means that next to the Hungarian minority, the rate and significance of other groups are decreasing. Thus homogenization is much faster-paced than polarization, but the former one is caused only to a smaller extent by the decrease of Hungarians, and to a greater extent by the decreasing population of other non-Serbian ethnicities.

Classification of Vojvodina's settlements based on ethnic diversity and polarization

Using cluster analysis (K-means cluster) in our research, we were able to separate seven types based on the 2010 ethnic diversity and polarization indices (*Figure 8*). It clearly shows that nearly half of the settlements have a diversity greater than 0.50, i.e. the mathematical midpoint of the diversity scale. Additionally, the majority has a polarization index bigger than medium. That is, despite the continuous ethnic homogenization during the 20th century, the local ethnic diversity of the region is still significant.

Based on the result of cluster analysis projected onto the map, four different types of space can be separated that are important to us (*Figure 9):*

a) The settlements of the Belgrade–Novi Sad axis and Srem can be characterized, with very few exceptions, by low polarization and diversity indices, since practically this is the only unbroken area of population growth

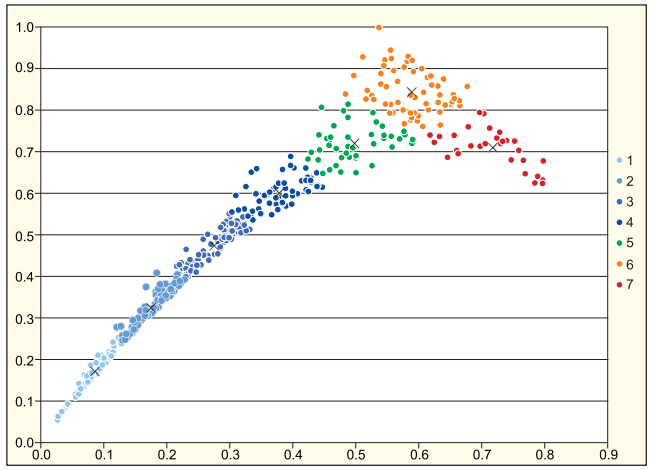

Fig. 8. Grouping of Vojvodina's settlements by cluster analysis based on ethnic diversity and polarization. 1–4 = linearly increasing diversity and polarization (positive correlation); 5 = more diverse and polarized than the average (no correlation); 6 = diverse, more polarized (no correlation); 7 = diverse, more fragmented (negative correlation)

of the last two decades which almost exclusively brought about the decline of the rate of minorities and the rise in the population and rate of Serbian majority. This includes both the immigration of Serbs and the departure of non-Serbs (mainly Croats).

b) Western-Bačka. It is well observable in the region that both the polarization and diversity indices show a higher value than in Srem, and there are more values standing out of the basically low averages concerning both indicators. Compared to the above process in Srem here the increase of the rates of the (Serbian) majority are lower, which are nourished by, along with the Serbian immigration, the parallel losses of rapidly aging minorities. The settlements of the region having no ethnically dominant group can be described to be rather polarized than diverse.

c) In the north-eastern part of Vojvodina ethnic blocs (Hungarian along the Tisza, Serbian around Kikinda) are characterized by low index values, the ethnic composition of settlements is not so much homogeneous as dominated by one ethnicity. On the edge of blocks (predominantly on the external boundaries of the Hungarian bloc) in the mixed ethnicity zones we can see high, sometimes extremely high, polarization and diversity values. This narrowly defined Hungarian–Serbian ethnic contact zone has become today the primary field of ethnic competition, which according to field experiences and patterns of media reports (Léphaft, Á. 2011b) coincides with the areas of inter-ethnic frictions.

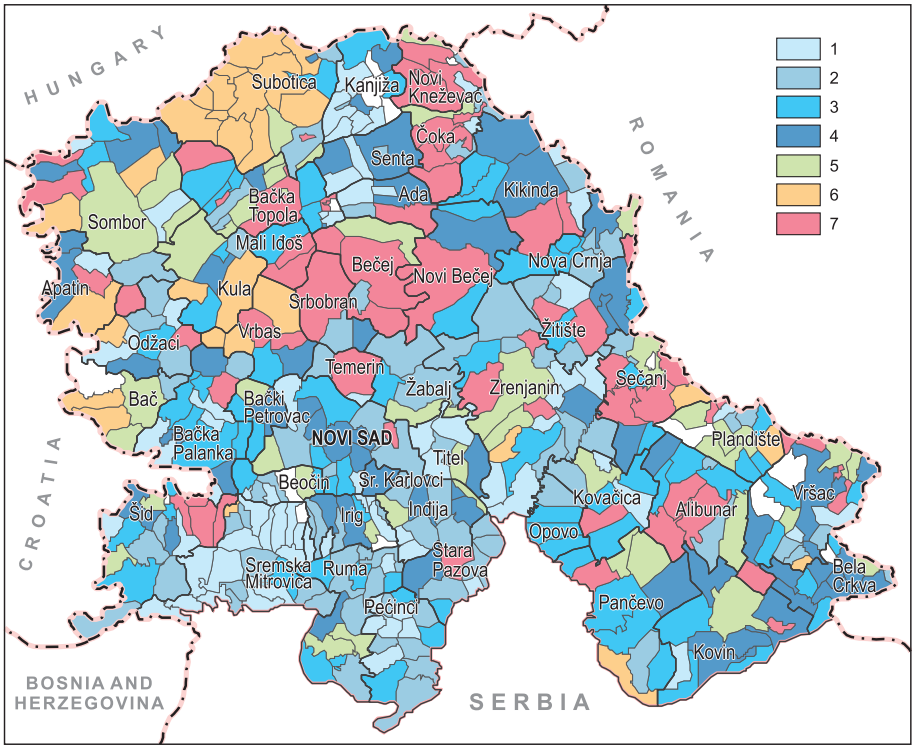

Fig. 9. The spatial distribution of the grouping of Vojvodina's settlements based on ethnic diversity and polarization using cluster analysis. (The 7 categories and the colour scheme are the same as in *Fig. 8)*

d) Befitting the history of Banat, the south-eastern part of Vojvodina still displays an extremely mosaic-like image, a number of ethnic groups live here in sporadic islands, ethnic enclaves, as well as many multiethnic settlements have survived too. As a result, the indicators we studied also show a diverse, vivid picture. The parts close to Belgrade have already become Serbian-majority, so both of their indicators in question are low. However, the border and inner peripheries (Deliblato sand plains, Begej-Tisza wetlands) have still retained their diverse and polarized population.

Types of ethnic transformation on the basis of diversity and polarization

If we study the ethnic changes and not the current situation the settlements of Vojvodina can be divided into four basic groups, according to how much the change in ethnic diversity and polarity affects them (*Figures 1* and *10*).

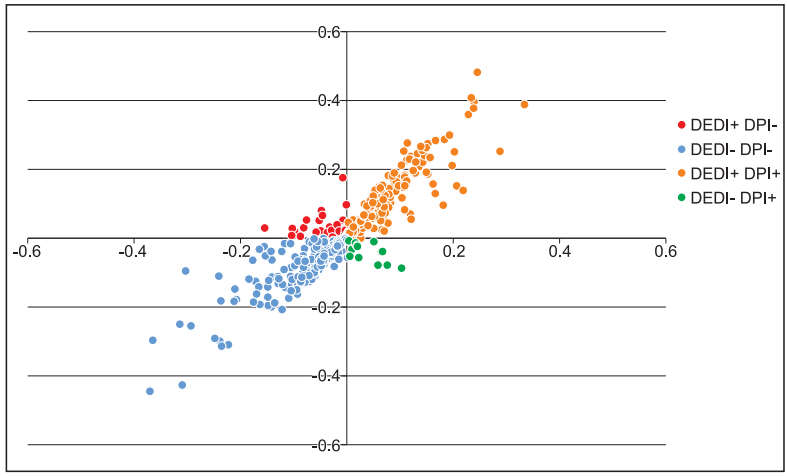

Fig. 10. Classification of Vojvodina's settlements based on the ethnic diversification and polarization. Diversification value is shown on the x-axis, polarization on y-axis. ΔEDI– and ΔEPI+ = decreasing ethnic diversity but increasing polarization; ΔEDI– and ΔEPI– = decreasing diversity and decreasing polarization (homogenization); ΔEDI+ and ΔEPI+ = increasing diversity and increasing polarization; ΔEDI+ and ΔEPI– = increasing diversity but decreasing polarization (fragmentation)

The upper left quarter contains settlements whose ethnic diversity is decreasing, i.e. being homogenized, but meanwhile the ethnic polarization index increases. Typically, it occurs in cases when a previously diverse, multiethnic society is becoming bipolar. In practice, this affects 15 settlements in Vojvodina, being the third most common type *(Figure 11)*.

Generally, while the rate of Serbian majority increases and the minorities "become homogenized": the relative weight of small ethnicities decreases, and that of the largest minority (generally Hungarians) increases. It can generally be stated that next to Serbs and Hungarians at least one other minority is present in significant number (Bač – Croats, Slovaks; Kovačica – Romanians, Slovaks; Kula – Montenegrins, Rusyns) and this situation is 'becoming simpler' due to ethnic changes.

Concerning the settlements in the lower left quarter, both diversity and polarization decrease, therefore it is the simplest and most common case of ethnic changes. It can mainly be observed when the dominance of the majority is gaining strength, and/or the weight of the dominant minority decreases. In Vojvodina, it affects territories where the development and strengthening of Serbian majority have progressed. A heavy immigration has been under way, the minority communities have disappeared, and the places have become a part of the Serbian bloc. Affected are Srem, which experienced the most intensive ethnic transformation of the past decades, and the settlements of the Belgrade–Novi

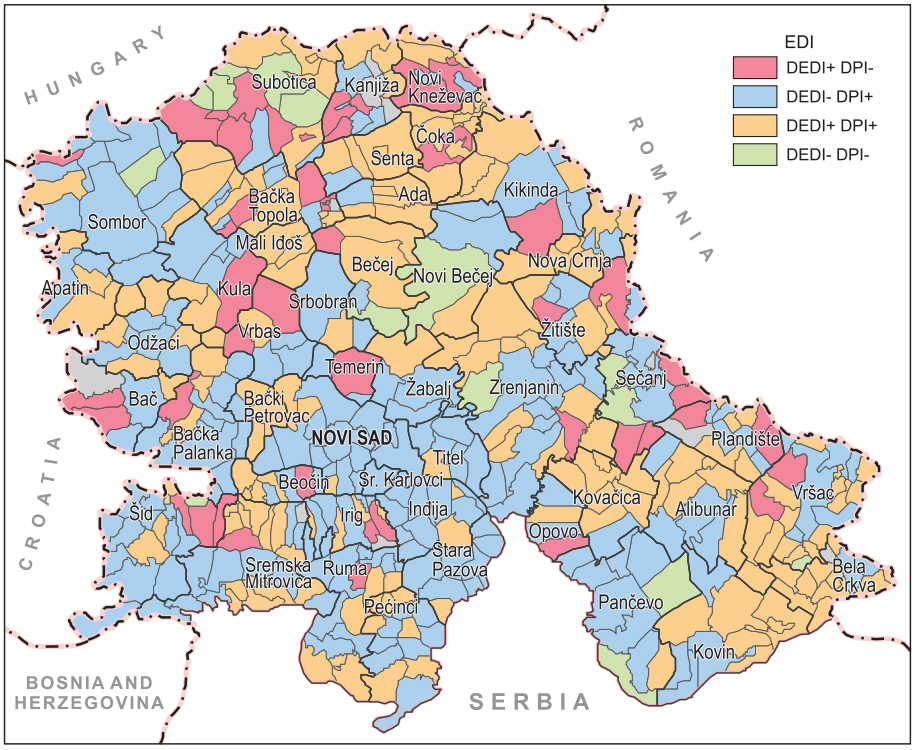

Fig. 11. The regional distribution of four groups formed on the basis of ethnic diversification and polarization values of Vojvodina's settlements. (For legend see *Fig. 10*)

Sad axis. Although to a lesser extent of polarization, similar processes take place in Western Bačka, which is the extension of the previously described axis.

The settlements of the upper right quarter are simultaneously diversifying and polarizing. This is the second most common type with 189 settlements. Society becomes varied; transformation is rather pointing toward polarization, i.e. one other or maximum two groups are formed and gain strength next to the dominant ethnic group. Concerning Vojvodina, these are districts where the majority is not Serbian (either Hungarian or Slovak) but there is significant Serbian immigration because of which they are still not the majority, so the ratio of local majority decreases and that of local minority increases. Most of the Hungarian bloc at the Tisza belongs here as well as the primary territories of Slovaks or Romanians. In this category a special role is attributed to settlements which are losing their Serbian majority population, and at the same time the ratio of minorities (specifically the Roma population in many cases) is on the increase.

The ethnic structure of settlements belonging to the lower right quarter is diversifying while polarization is decreasing. These cases suggest the fragmentation of society: the percentage rate of ethnicities becomes relatively balanced, or at least it moves into that direction. Actually, those settlements belong here which are multiethnic and it is not the population of the largest ethnicities that grows. These include, e.g. Ivanovo and Svetozar Miletić, where the number of Serbs rises, who in 1991 formed only the third largest community behind the Hungarian and Bulgarian groups in the former and the Hungarian and Croatian groups in the latter, whose population count has conversely decreased. There are several cases when the number of Serbs has increased parallel to the shrinking of a dominant minority (Novi Bečej, Dolovo), but a number of other smaller groups have appeared in place of Yugoslavs.

Conclusions

In our paper we presented the applicability of diversity and polarization indices in the study of ethnic transformations. These methods can, regardless of ethnic groups and observing the current uncertainties of input data, help to form an objective and comparative picture of the most important ethnic changes of an area. Our paper emphasizes that the increase or decrease of diversity cannot be described as a two-dimensional process, since both homogenization and diversification can result in polarization. As previous research pointed out, distinguishing between the two subtypes of ethnic diversification (fragmentation and polarization), due to the broad scale of their potential social impacts, is a particularly important task. Methodologically, it can be considered the most important innovation of the research, since both the Hungarian and the wider Central and Southeast European literature of ethnic geography has concentrated on only one type as yet.

Therefore the use of the method made it possible to trace, while the previous results and the demographic trends of the given period made it possible to prognosticate, where and how Vojvodina's most important ethnic processes occur. Obviously, the different scales show the trends with different details: interethnic conflicts are best studied on the settlement level, while analysing the migration accompanying a regional conflict requires a larger scale. Therefore we analysed two levels of public administration: municipalities and settlements.[6]

Nevertheless, in our case study of Vojvodina the homogenizing spaces are well outlined, where the majority population continuously prevails and

[6] Next to the ratios themselves, it has to be taken into consideration that the Serb ethnicity had suffered a loss of significant masses by 2011, and for ideological reasons, the content of the category 'other' of the census has also changed. Due to the parallel losses and transforming identities, the observable changes are often relatively small in terms of statistics.

minorities are shrinking; and the diversifying territories too where one or more minorities increase their rate at the expense of the majority population. On a more general level, it is typically some kind of manifestation of the Serbs' prevalence, who also forms the majority on a regional level, since what is diversification in a settlement with non-Serbian majority is often the direct result of the shrinking Hungarian, Slovak, and Romanian etc. communities. It does matter, however, which way the balance will shift regarding polarization. Therefore within the two basic types, we separated the settlements whose composition shifted toward fragmentation or even polarization during the last twenty years.

Groups of settlements with high polarization indices overlap with spots of Hungarian–Serbian conflicts which in recent years have been publicized (and deemed ethnically based) by the press, and which were previously collected by Léphaft, Á. (2011b). This is reason why we find it important that further field studies and other qualitative methods in the future should purposely focus on polarizing spaces, where the deepening of ethnic tensions can be anticipated the most.

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Changing Ethnic Patterns of the Carpatho–Pannonian Area from the Late 15th until the Early 21st Century

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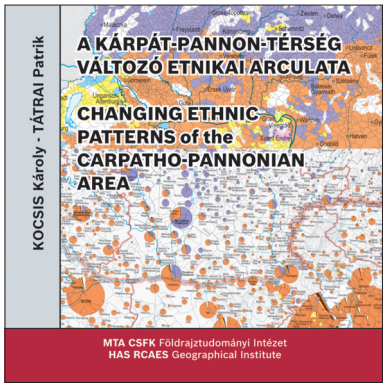

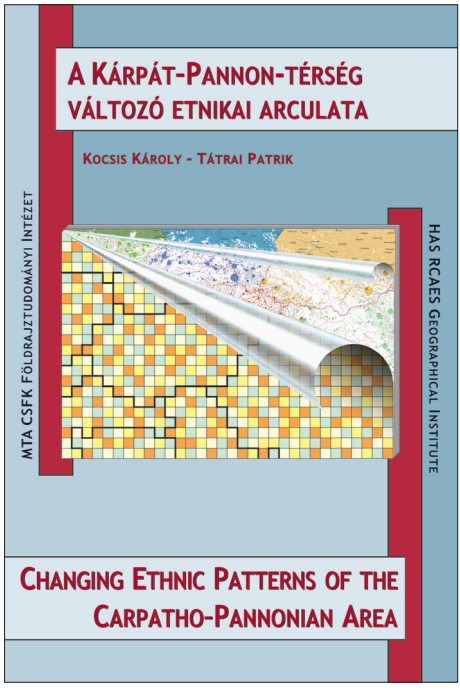

This is a collection of maps that visually introduces the changing ethnic patterns of the ethnically, religiously, culturally unique and diverse Carpathian Basin and its neighbourhood, the Carpatho-Pannonian area.

The Hungarian and English volume consist of three structural units. On the main map, pie charts depict the ethnic structure of the settlements in proportion to the population based on census data et the millennium. In the supplementary maps, changes of the ethnic structure can be seen at nine dates (in 1495, 1784, 1880, 1910, 1930, 1941, 1960, 1990 and 2001). The third unit of the work is the accompanying text, which outlines the ethnic trends of the past five hundred years in the studied area.

The antecedent of this publication is the „series of ethnic maps" published by the Geographical Research Institute of the Hungarian Academy of Sciences from the middle of the 1990's, which displayed each of the regions of the Carpathian Basin (in order of publication: Transylvania, Slovakia, Transcarpathia, Pannonian Croatia, Vojvodina, Transmura Region, Burgenland, Hungary). This work represents, on the one hand, the updated and revised version of these areas, and, on the other hand, regions beyond the Carpathian Basin not included on previous maps. Thus, the reader can browse ethnic data of some thirty thousand settlements in different maps.

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Ukraine's window to the West: The role of international railway connection in Transcarpathia (Zakarpattia)

Ivan G. SAVCHUK[1]

Abstract

In this paper the role of railway network of Transcarpathia (Zakarpattia) in the international transport connections of Ukraine is investigated. The geopolitical importance and favourable transit location of this region within Ukraine along the international boundaries with Hungary, Romania and Slovakia, is well-known. The paper first focuses on the role of natural, political and transport factors in the development of railway network in the region from a historical perspective. Then the importance of railway network in Transcarpathia for the development of international freight traffic in the USSR is highlighted. The role of geopolitical interests in the past and present is demonstrated. The analytical part of the paper focuses on the latest changes in international freight traffic in the region in the period of 2008–2011, and major obstacles in its development are also discussed. The peculiarities of international freight traffic passing through border freight stations of the given region and the contiguous countries are assessed.

Keywords: Ukraine, Transcarpathia, transport geography, railway network, geopolitics, international freight traffic

Introduction

Even though railway networks plays a strategic role in the international communication of post-Soviet states this aspect has not been adequately investigated for Ukraine since its independence in 1991. Ukraine is one of the leading countries in Europe regarding the development of transport infrastructure and the volume of commercial passenger and freight traffic. It ranks 4th within Europe regarding the length of publicly operated railway lines, 6th in term of the number of locomotives and 2nd with regards the number of railway carriages. The significance of Ukraine in the European railway transport is well reflected

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by the fact that 6 out of the 13 railway corridors of the Organization for Co-operation between Railways (OSJD), and 3 out of the 10 European railway corridors (III, V and IX) pass through the territory of Ukraine (Kocsis, K. *et al.* 2008; Soglasovannaya… 2002, 41–43; Natsionalnyy… 2007, p. 39). Two of them pass through Transcarpathia (Zakarpattia Oblast) reflecting their importance for international relations.

Transcarpathia as 'window to the West' plays a very important role in the international traffic of Ukraine. The region has a number of distinct geographical features, which, in our opinion, have direct impact on its relevance and opportunities in the international railway transport. These are

– the relative geographical (and traffic) isolation of Transcarpathia from the rest of the country, determined by the range of Carpathians (natural factor);

– the geopolitical location of Transcarpathia in the extreme west of Ukraine neighbouring four independent states (i.e. more than any other region of the country) (political factor),

– the transit position of the local railway network, leading to its specific spatial configuration (transport factor).

In this study we will consider the role of each of these factors in the development of the international freight traffic in Transcarpathia. Basis of this research is provided by our earlier methodological works (Savchuk, I.G. 2010a,b,c, 2011, 2012a,b). In addition, we collected and analysed data obtained from the Statistics of the International Union of Railways, the State Statistics Service of Ukraine and *Ukrzaliznytsya* (Alenichev, S.P. 2004; Budivnytsvo… 2012). Secondary sources were also considered (Kirpa, G.M. 2004; Ohlyad… 2001 etc.). With the use of statistical approaches the main tendencies in railway communications in Transcarpathia were determined.

The role of different factors in the development of railway network in Transcarpathia (Zakarpattia)

Natural factors

The ranges of Carpathians played an important role in the development of transport network, including railway lines, of present-day Transcarpathia. As *Table 1* demonstrates only three out of the ten existing passes are used for railway communication today. The Transcarpathian railway lines were constructed by the Austro–Hungarian Monarchy through Beskydskyi (Budapest–Chop–Lviv, 1886), Voronenkivskyi (Ivano-Frankivs'k–Deliatin–Berlebash, 1895) and Uzhotskyi (Budapest–Uzhhorod–Lviv, 1872) passes. Their construction was also prompted by military strategic considerations.

The relevance of military strategic considerations for laying down the railways through the Carpathian Mountains is well reflected by the comparison of two adjacent sections of the former administrative border between Cisleithanien and Transleithanien (at present the administrative border between Transcarpathia as well as Ivano-Frankivs'k, Ľviv and Chernivtsi regions of Ukraine in the Ukrainian Carpathians and the Polish–Slovak state border in the Western Carpathians). These two sections of Carpathians have very similar geographical characteristics. However, while the 280 km long Ukrainian Carpathians is crossed by three railway lines, the 541 km long Western Carpathians is crossed by only one minor railway line between Prešov (Slovakia) and Nowy Sącz (Poland). In the Austro-Hungarian epoch the only binary railway in the Carpathians was located here – the First Hungarian-Galician railway (from 1896 to 1920). Przemyśl was connected with Budapest through the tunnel under Lupkov pass after 1874. However, the tunnel was destroyed in 1944, and until 1999 it was not used in the regular train services between Slovakia and Poland.

The Beskydskyi Pass is the most intensively used pass today, through which the main Ukrainian binary electrified railway of international significance Moscow–Kyiv–Ľviv–Uzhhorod/Chop passes. It is continued in the Hungarian and Slovak railway network. The high ranges of Carpathians make high speed communication impossible (*Photo 1*).

Photo 1. Railway line near Uzhok station (Velykobereznianskyi Raion)

Table 1. The use of Carpathian passes for transport needs on the administrative border of Transcarpathia (Zakarpattia) Oblast

Pass	Range of the Carpathians	Height above sea level, m	Section	
			Public road	Railway
Beskydskyi	Vododilnyi	974.5	–	Mukachevo–Stryi
Voronenkivskyi	Pryvodorozdilnyi Gorgany	879.3	–	Rakhiv–Vorokhta
Vyshkovskyi	Vododilnyi	931.6	Mizhhiria–Dolyna	–
Latyrskyi	Vododilnyi	841.0	Mukachevo–Stryi	–
Middle Veretskyi	Verkhovyna	839.0	Mukachevo–Stryi	–
Uzhotskyi	Vododilnyi	852.0	Sambir–Uzhhorod	Sambir–Uzhhorod
Yablunetskyi	Pryvodorozdilnyi Gorgany	931.0	Rakhiv–Deliatyn	–

Source: Compiled by the author

It should also be noted that in the mountainous part of Transcarpathia most sections of the railway lines run through the valleys of the main rivers including the Borzhava, Latorytsia, Uzh and Tisza (*Figure 1*). This is primarily due to engineering and geomorphologic conditions. The railway lines run very often parallel to main roads at several sites (*Table 1*).

The main natural challenges of the railway traffic in the lower part of Transcarpathia is the threat of floods at several railway network sections and erosion due to catastrophic floods, and destruction of bridges. For example, during the spring floods of 1998 and 2001 3.1 and 9.15 km of railways were damaged and 2.4 and 1.4 km were destroyed (Ohlyad… 2001). In 2008 the traffic was temporarily closed on the section of Teresva–Solotvyno due to substantial destruction of the roadbed by heavy rains. Considering the effects of natural factors in the railway network of Transcarpathia, certain isolation from the main railway network in Ukraine can be pointed out, which has a direct impact on international traffic.

Fig. 1. The existing railway network of Transcarpathia

Table 2. Transcarpathia's rocade railway lines

Railway line in Ukraine	Neighbouring country	Freight stations belonging to a neighbouring country	Length* km
Sianky–Uzhhorod–Chop	Slovakia	Pavlovo, Chop	131
Chop–Batiovo–Berehove–Vynohradiv–Zakarpatskyi	Hungary	Batiovo, Chop, Solovka	81
Dyakovo–Korolevo–Solotvyno II	Romania	Dyakovo, Teresva	77

Source: Composed and calculated by the author
* The shortest distance tariff by rail is indicated

Political factors

Among all the regions of Ukraine the geopolitical position of Transcarpathia is quite unique. It is bordered by four independent states which, undoubtedly, is a significant precondition for the development of external connections, especially in the service sector. The region is the only one in Ukraine that has borders with Hungary and Slovakia. Both countries Hungary before 1918, and Czechoslovakia in the interwar period controlled this part of Ukraine and used Transcarpathia for its own political and economic goals, i.e., for the implementation of their foreign political and economic strategies of confrontation with other states.

Except for the border with Slovakia the present-day border of Transcarpathia was established in accordance with §53 of Saint-Germain Peace Treaty (1919) and §48 of the Treaty of Trianon (1920), according to which this region became part of the Czechoslovak Republic. Part of the railway line Košice–Chop–Khust–Rakhiv goes through its territory – it unites Trascarpathia into the single whole through the Chop–Batiovo–Vynohradiv-Zakarpatskyi (*Table 2*) line and connects it with Slovakia and Romania.

The problem of the Velykyi Bychkiv–Dilove section at the Korolevo–Berlebash railway derives from the geopolitical legacy of the Versailles Peace Treaty. The section is cut by the modern state border between Romania and Ukraine into two separate parts. Thus, the Ivano-Frankivs'k–Deliatyn–Berlebash (1895) railway is isolated from the railway network of Transcarpathia.

The adjoining part of Teresva/Câmpulung la Tisa–Dilove/Valea Vișeului belongs to Romania. At the time this railway was constructed it was located completely in Transleithanien and connected the towns of Satu Mare and Baia Mare.

It starts from the city of Sighetu Marmației and runs further into the territory of Romania, which is crucial for the railway connection of the town with the rest of the Romanian railway network. Due to

military geographic reasons a section of the Velykhyi Bychkiv–Dilove railway was incorporated into Romania, not Czechoslovakia[2].

According to the *Agreement between the Union of Soviet Socialist Republics and the Czechoslovak Republic on the Transcarpathian Ukraine* (06.29.1945) this region was attached to the Ukrainian SSR with its boundaries established before 29.09.1938, and the line of the state border between Czechoslovakia and the Soviet Union was acknowledged according to the administrative border between Slovakia and Subcarpathian Rus as of 08.10.1938, with the concession of the town of Chop and the county (about 250 km^2) to the USSR. After the adjustment of the state border between the two states the village of Lekarovce was passed to the Slovak Republic (04.02.1946).

As a result of the territorial expansion of the USSR Transcarpathia received direct state border connection with all the countries of Central Europe at once. From Transcarpathia the Soviet leadership could directly control the neighbouring countries, and their trade with the USSR. The Transcarpathian passes and the Chop railway junction which became part of the Soviet Union thus gained high geopolitical importance.

As a consequence of border changes the once peripheral but integral railway network became heavily fragmented and their operation became strongly dependant on the transit traffic among neighbouring countries.

The most significant transformation in the development of Transcarpathia's railway network took place after its inclusion in the Soviet Union. One of the first acts of the Soviet government was to change the width of the rail network from the standard track gauge (1,435 mm) to the broad Russian one (1,520 mm). These changes were implemented in all the territories annexed to the Soviet Union within the framework of Sovietisation measures. Particular attention was paid to control (and prevent) the connection between local people and residents of the neighbouring countries often with the same ethnic background. According to this goal, only a few crossing points were established and especially the number of checkpoints for international railway passengers was limited. Chop became one of five such checkpoints for international passenger trains crossing the entire western border of the Soviet Union.

Transport factors

The transport geographical location of Transcarpathia within Ukraine is very specific. It is mainly the outcome of the political geography of the region and

[2] Similar concessions were made in favor of Romania also on its border with Hungary, where the territory inhabited predominantly by Hungarians along which the railway line Oradea–Satu Mare was ceded to Romania, because of military strategic and economic considerations.

the above-mentioned geopolitical events. The most important cargo and passengers line in the state's railway communication system of Ukraine has been the Bryansk–Kyiv–Chop direction since the times of the former Soviet Union, originating from Moscow and connecting to the Central European railway network (Geographiya… 1969, p. 32). This line has always had a great international significance therefore it was electrified in the Soviet era (Afanasyev, N.P. and Sergushev, Yu.V. 1973, p. 142; Geographiya… 1969, p. 36). At the beginning of the 1980[s] another main international COMECON railway line (Kryvyi Rih–Fastiv–Ľviv–Batiovo/Záhony–Budapest) also passed through the territory of the region (Biryukov, V. 1979). As we can see, the two railway lines from Moscow and Kryvyi Rih converged in the western regions of Ukraine, where the railway stations of the region played an important role in the foreign trade transportation operations of the former USSR in the direction of the European parts of COMECON.

Analysing the configuration of the Transcarpathian railway network we should bear in mind that it consists of two unequal parts: broad gauge railroads and standard gauge ones. The former had been built on the basis of military strategic interests, and the latter were the results of private initiatives, generated mainly by the timber export from the Carpathians. This has led to the genesis of a highly unique railway network in Transcarpathia, most of which had been built by the Austro Hungarian Monarchy basically to ensure rapid movement of troops from the Empire to Eastern Galicia. The existing standard gauge lines in Transcarpathia were only a supplement of the transversal railway line of Chop–Khust–Rakhiv. They were built later and they had only local importance. Since World War II the length of railway lines in the region has significantly decreased. Especially standard gauge railway lines ceased to operate (many of them during the years of Ukraine's independence), largely due to natural disasters.

After World War II the increasing international traffic between the Soviet Union and the communist countries of East Central Europe required electrification of existing lines and construction of the second track. Due to military and strategic considerations modernisation was focused on the Ľviv–Stryi–Chop line during the Soviet period. This railway line connects Transcarpathia and Ľviv regions, and has outmost geopolitical importance. There is also the one-way Beskydskyi tunnel, which makes control over the line significantly easier. This was exactly the reason why that section of the Ľviv Railway (Mukachevo–Lavochne), which includes the tunnel, was firstly electrified (1956), and it was also the first section which obtained double-track infrastructure (1975). These improvements increased the transfer capacity of the line significantly.

As part of railway modernisation the second main Soviet export route (Ľviv–Sambir–Chop) was equipped with Diesel trains in 1960. Thus,

Table 3. Changes in the volume of iron ore exports from the USSR to Hungary and Czechoslovakia due to the increase of capacity of railways in Transcarpathia, in million tons

Country	1956–1960	1966–1970	1975–1979
	Beginning of		
	railway lines electrification	commercial transportations along the line Uzhhorod II–Haniska pri Košiciach	double-track lines and additional platforms construction
Hungary	7.1	13.7	20.3
Czechoslovakia	19.9	45.8	56.9
Total USSR export	60.4	156.1	226.5

Source: compiled by the author from various sources

the two main railway lines passing through the Carpathians were among the firsts in Ukraine that were equipped with modern technology in order to meet the growing requirements set by Soviet export freight transportation. Thus, the capacity of foreign trade shipments, predominantly of bulk cargo exports from the USSR, grew steadily (*Table 3*).

For example in 1969 more than 11 million tons of cargo were delivered to Záhony (Hungary) from the Chop junction, which made around 30% of all deliveries of goods from Transcarpathia and 32.2% of all Hungary's international cargo (Afanasyev, N.P. and Sergushev, Yu.V. 1973, p. 150).

Within the framework of the Soviet modernisation programme 153 km of additional lines and inserts of binary railways were built by the USSR on the route of Lviv–Chop as well as Stryi–International boundary–Uzhgorod II–Batiovo in the 1970s. Also, new crossing points across the state border (Batiovo and Uzhgorod-II) were constructed, whereas existing railway border crossing stations were renovated and technically upgraded (*Photo 2*).

This provided the basis mainly for the growth of rail-freight traffic of bulk loads, transported from the USSR through Transcarpathia to Hungary and Czechoslovakia. The export of iron ore by railway lines increased especially dramatically during Soviet times. It was also connected with the opening of new metallurgical works built with the assistance of the USSR and with cooperation of the Ukrainian SSR in Hungary – *Dunaújváros* (1954), in Poland – *Kraków-Nowa Huta* (1952) and Czechoslovakia – the *Eastern Slovakian metallurgical plant* near Košice (1966). They were designed to use imported iron ore from Krivyi Rih (Ukraine). The biggest volume of iron ore export from the USSR toward Czechoslovakia was reached in 1976 and in the case of Hungary in 1978.

Photo 2. The modernised freight station of Uzhgorod II

The changing role of international railway communication in Transcarpathia after Ukraine's independence

There were several innovations regarding international railway communication that has affected Transcarpathia after Ukraine became independent in 1991. To attract new transit cargo new and renovated machinery for cargo transfer and car bogies rearrangement was introduced at the border station of Chop which allowed a growth in international traffic (Mukminova, T.A. *et al*. 2002).

The introduction of international container and controller trains became also an important step forward in railway services. The first of them was *Ukraine-Express* between Kyiv and Hamburg, which started its operation in 1996 (Mukminova, T.A. *et al*. 2002, p. 69). Today, four such international freight trains operate on a permanent basis one of them (*Csardas*) is passing the entire territory of Ukraine and interconnecting Budapest and Moscow via Transcarpathia.

An important factor contributing to the increase of transit and export rail transportation was the accession of Ukraine to the *Convention Concerning International Carriage by Rail* (2003)**.** This has greatly affected the speed of

movement in international rail traffic. For example, after the Chop–Dyakovo section was modernised in 2002–2004 with the cost of ca. 8.9 million EUR and customs control for international transit trains coming through Ukraine to neighbouring countries were simplified, the relevant cargo transportation increased drastically.

The development of railway infrastructure has also great potentials. For example, the longest (1,746 m) single track Beskydskyi tunnel on the double-track section of Stryi–Batiovo of the 5th European transport corridor can only be passed by up to 24 pairs of freight trains and 23 passenger trains per day, whereas the capacities of the line would allow the passage of more than 100 train pairs a day (Kirpa, G.M. 2004). The construction of the second tunnel was started in 2012, and this is the biggest railway project in the country since Ukraine gained independence (*Photo 3*). The estimated cost of construction is around 102.7 million EUR (Budivnytstvo… 2012).

After 1991 the role of international railway communication via Transcarpathia has tremendously increased. This is mainly due to the fact that Ukraine carries out its exports to Hungary, Romania and Slovakia mainly by railways. According to our calculations, in 2011 the share of railway transport

Photo 3. Construction of the new Beskydskyi tunnel

Table 4. The significance of foreign trade cargo (including transit cargo passing through Transcarpathia / Zakarpattia Oblast) in international railway transportations of Hungary, Slovakia, Romania and Ukraine, %

Country	Year	The share of railway cargo in the total volume of cargo dispatched from the country through cross-border stations			
		in the total volume of cargo dispatched by railways	to Zakarpattia Oblast	from Zakarpattia Oblast	to/from Zakarpattia Oblast
Hungary	2008	19.1	0.60	8.8	9.3
	2009	..	..	7.3	..
	2010	29.7	2.20	7.8	10.0
	2011	31.3	2.30	7.5	9.8
Slovakia	2008	21.5	1.20	32.2	33.4
	2009	45.9	1.50	31.5	33.0
	2010	45,9	1,00	32,7	33,7
	2011	45,7	1,70	35,1	36,8
Romania	2008	9,8	0,40	2,5	2,9
	2009	7,1	0,10	1,0	1,0
	2010	6,3	0,10	0,9	1,0
	2011	9,3	0,20	0,8	1,0
Ukraine	2008	46,1	0,30	5,4	5,7
	2009	44,8	0,20	4,8	5,0
	2010	43,4	0,40	5,2	5,6
	2011	44,0	0,58	5,0	5,5

.. = No data. Source: compiled and calculated by the author

reached 94.5% of all export cargo from Ukraine to Slovakia, 69.7% to Hungary, and 54.3% to Romania (Transport 2012, p. 84), which shows the key role of Transcarpathia's railway network in the foreign trade of independent Ukraine. However, great imbalances in the volumes of international shipment flows can be observed that are inherited from the Soviet era (*Table 4*).

These imbalances are caused by shipments of iron ore and coal mainly, which are supplied to big metallurgic plants and thermal power stations in the neighbouring countries, constructed with the assistance of the USSR.

In the following we shall analyse the role of commercial freight railway transportations between Ukraine and the neighbouring Central European countries in accordance with their share in the total volume

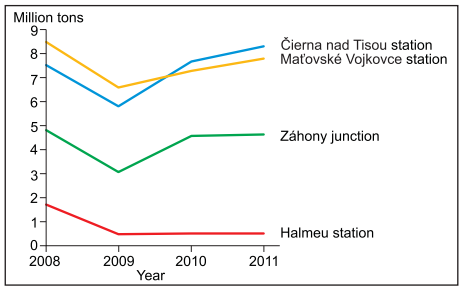

Fig. 2. Cargo turnover at cross-border freight stations connecting Transcarpathia with the neighbouring countries

of cargo transported by the railways in these countries. Special attention will be paid to the role of cross-border freight stations, enabling international cargo transportation from Transcarpathia (*Figure 2*).

Slovakia

The cargo arriving through the freight stations in Transcarpathia plays a key role in the volume of all commercial freight traffic of Slovak railways. In 2012 shipments from Ukraine occupied the leading position in the total commercial freight traffic of Slovak national cargo railway company *ZSSK Cargo Slovakia* – 15.6 million tons or 42.5% of the total commercial freight traffic in the country. Transit shipments from Russia constitute a significant part of the delivered cargo. The major volume of shipments is carried out by broad gauge lines within Slovakia through *East Slovak Transshipment Yards*, consisting of the freight stations at *Maťovce* and *Čierna nad Tisou*, having direct connections with the railway network of Transcarpathia. It should also be noted that the cargo turnover of these freight stations showed increasing dynamism during the last three years, which is the evidence of the recovery of Slovakia from the economic crisis (*Figure 2*).

At present the principal aim of the *ZSSK Cargo Slovakia* is to increase transit shipments along the 5th and 6th European transport corridor due to transit deliveries mainly from Russia to Austria and the Czech Republic. In 2008 *Russian Railways* (*RZD*) leased the end point of Slovakian broad gauge line, freight station *Dobrá* (10 km from the border with Ukraine) for 15 years with the aim of readjusting containers to broad gauge car bogies in an attempt to increase transport shipments along the 5th European transport corridor, which also runs through the territories of Ukraine and Russia.

Slovakia's efforts make the country one of the most important players in transit transportation of commercial cargo from Russia through the Ukrainian railway network. In 2012 Slovakia occupied the leading position among all European countries regarding the volume of Russian transit cargo passing through Ukraine (3.42 million tons). The policy of Slovakia focuses mainly on container transit. Containers are being readjusted to broad gauge car bogies at the freight station *Dobrá* for their further departure into the Ukrainian broad gauge railway network through the freight station *Chop*. Thus, e.g., out of six transit container trains, which ran in 2012/2013 from Russia through the territory of Ukraine used the above mentioned route.

Ukrainian railways are very important transit routes for the Russian Railways. In particular, the role of the broad-gauge railway corridor Moscow–Kyiv–Bratislava–Vienna through Transcarpathia is outstanding. It is expected that by 2025 the volume of transit traffic along this line will reach 35 million tons (Shyroka… 2008).

Hungary

Hungary is less dependent on cargo delivery from Ukraine than Slovakia. Hungarian stations *Záhony* and *Eperjeske* form together the Záhony junction which is the main rival of Slovakian border freight stations in freight traffic from Ukraine as well as in cargo transit from Russia. The infrastructure of this junction was developed during the COMECON era. Earlier the Hungarian direction enjoyed priority in the international freight traffic of the USSR, therefore, the binary Chop–Záhony international rail junction was heavily developed at a European scale. Natural conditions played an important role in the development of the Záhony rail junction. Smooth relief of the Great Hungarian Plain to which the south western part of Transcarpathia belongs, makes railway transportation through Hungary less expensive than through the hilly terrain of Slovakia.

The higher density and better connectivity of the Hungarian railway network with the neighbouring countries (as opposed to Slovakia and Romania) also facilitated the use of the Hungarian railways for Soviet foreign trade with Central Europe. Today the advantages of the favourable geographical location of Hungary are effectively used for cargo transportation not only between East and West, but also along the North–South route. Accordingly, most European transport corridors in Central Europe run through the territory of Hungary.

Contemporary international railway traffic through Transcarpathia to Hungary is carried out at the Záhony junction, which has transfer capacity of 18 million tons. However, at present only small part of the capacity is used. E.g. in 2011 cargo turnover reached only 4.65 million tons, whereas in 1969 it was over 11 million tons (Afanasyev, N.P. and Sergushev, Yu.V. 1973, p. 150).

The Russian Railways rejected the old Soviet policy in the field of transport logistics with the Central European countries, having transferred the majority of its shipments to the Slovakian railways. This caused substantial reduction in the volumes of cargo transit by the RZD through the territory of Transcarpathia to Hungary. A series of projects have been initiated with the aim of preventing further decline of cargo turnover at Záhony freight station, e.g., in 2011 the idea of a new railway corridor Khorgos–Záhony between China and Hungary running through the territory of Kazakhstan, Russia

and Ukraine was put forward. Also activities of bringing new impetus to the transportation along the 6th European transport corridor which ends in the territory of Hungary in Záhony, was started. Moreover, large-scale reconstructions have been carried out in Záhony in order to attract new cargo flows to the junction, particularly the broad gauge track, running from Chop junction, has been reconstructed.

At present the principal volume of freight traffic is carried out between the freight stations of *Batiovo* (Ukraine) and *Eperjeske* (Hungary), where big transfer plants for bulk loads operate. In 2011 3.13 million tons of cargo was dispatched from Batiovo to Eperjeske, and 1.1 million tons passed the opposite direction. We should note that among the freight stations situated on the western border of Ukraine, *Batiovo* takes the second place after the station *Izov* (Volyn Oblast) according to the volume of international railway freight traffic.

The shipments of iron ore from Ukraine still constitute the bulk of international freight traffic between the freight stations *Batiovo* and *Eperjeske*, as it was in the Soviet time. Thus, e.g., in 2010 iron ore accounted for more than $^2/_5$ of the total cargo turn-over at Záhony junction. In addition coal from Donbas also plays an important role. Most of these shipments are delivered to the biggest metallurgic plant in Hungary *ISD Dunaferr*, which belongs to the Ukrainian company ISD (*Industrial Union of Donbas*). The fluctuations in the import of iron ore to Hungary directly influence the transfer turnover of the Záhony rail junction. Although on a limited scale, there is occasionally international transportation of cargo also along the standard gauge railway line between the freight stations Záhony–Chop–Čierna nad Tisou. In 2011 355 thousand tons of cargo was delivered in the given direction from Hungary to Slovakia.

Romania

The freight stations *Dilove* and *Teresva*, situated near the Khust–Rakhiv railway line (passing through the territory of Romania), were not used for international commercial railway freight traffic in the period of 2008–2011. Therefore cargo turn-over between the freight stations of *Dyakovo* (Ukraine) and *Halmeu* (Romania) was the smallest among the investigated sections. From the viewpoint of Romanian State Railways the international cargo turnover with Ukraine and transit freight traffic from Russia is minimal. This can be explained by the fact that the volume of foreign trade railway shipments between Romania and Ukraine is 2.3 times less than the corresponding index with Slovakia (2011). As *Figure 2* shows, cargo turnover of the freight station *Halmeu* remains the lowest among all the investigated freight stations at the borders of Transcarpathia.

There is one feature, however, strongly characteristic for the international railway freight traffic between *Dyakovo* (Ukraine) and *Halmeu* (Romania),

which is common for all cargo transportations between Ukraine and the Central European countries: the predominance of export shipments over the imports. Thus, e.g., in 2011 only 21 thousand tons of cargo was dispatched from the freight station *Halmeu* to the freight station *Dyakovo*, whereas in the opposite direction 502.73 thousand tons was transported. The persisting economic crisis in Romania does not allow for the restoration of the pre-crisis volume of shipments. In 2008 the volume of cargo dispatched from the freight station *Dyakovo* was 1,647.1 thousand tons.

The absence of transit shipments by standard gauge lines through Transcarpathia affects the exploitation of existing possibilities in international transport relations between Ukraine and Romania. This is partly the reason why the given railway line and its extensions on the territories of Slovakia and Romania was not included in any European transport corridor.

Our analysis on the international commercial freight traffic between Transcarpathia and the neighbouring countries showed distinct geographical features:

1. The bulk of foreign trade between Ukraine and the Central European countries is carried out by railway.

2. Shipments from Ukraine constitute the major part of the cargo turnover of the freight stations on the border of Ukraine, and the main part of transit shipments is provided by cargo from Russia.

3. Cargo dispatched from Ukraine strongly exceeds cargo dispatched from Hungary, Romania and Slovakia towards Ukraine.

4. Iron ore is the key commodity in the shipments of cargo from Ukraine, which is delivered to the metallurgic plants built in the COMECON era with the active assistance of USSR using iron ore from Kryvyi Rih and coal from Donbas.

5. Any changes in the volume of international freight traffic in Transcarpathia are directly linked with the development of metallurgy in the neighbouring Central European countries.

6. The existing transfer and trans-shipping capacities are sufficient for further growth of the volumes of commercial freight traffic at the freight stations of Transcarpathia.

Conclusions

The manifestation of historical inertia, both in the fields of directions of international rail services and in the use of existing station and track facilities in Transcarpathia can be clearly demonstrated. Many of the existing problems in the development of rail transport in Transcarpathia are related to physical geographical aspects. The natural conditions of the region are dominated

by a mixture of mountainous and lowland areas. The existence of numerous viaducts, tunnels and bridges, as well as a significant slope profile of the road constitute an important problem. After independence of Ukraine the reconstruction and modernisation of the track facilities in the low-lying parts of Transcarpathia was started with the aim of increasing the transit capacity with Slovakia and Romania. The decision to reconstruct the Beskydskyi tunnel in the mountainous part was made only recently. This will, however, significantly increase the capacity of the 5th European transport corridor.

The shifts in the geopolitical situation in East Central Europe after the collapse of the communist block and the USSR provided good opportunities to increase the transit potential of Transcarpathia. The emergence of new countries changed the role of the region in the railway traffic of the Central European states. Ukraine's accession to the *Convention concerning International Carriage by Rail* (2003) facilitated the further development and increased use of the existing lines especially for the purpose of cargo transportation.

The present railway network of Transcarpathia has a number of railway sections, which are of little or no use in cargo transportation. The network of the standard gauge lines was reduced most drastically in the post-war period, and at the same time the volume of operation of the number of lines rose significantly due to the growth of international cargo traffic. This led to the development of a number of railway freight stations in Transcarpathia. A striking example of this change is the construction of a new railway station (Uzhhorod-II), the modernisation and expansion of the Chop rail centre, the construction of the second track on the Ľviv–Stryi–Batiovo–Chop railway line, the construction of the standard gauge railroad Uzhhorod-II (Ukraine)–Haniska pri Košiciach (Slovakia). Yet, there are several opportunities for the increase of transit passenger and cargo traffic after a dramatic decline in the 1990s.

Considering the geographical location of Transcarpathia and its railways, it seems to be possible to return to the pre-crisis traffic level through the attraction of additional cargo and passengers in international transit traffic. However, for this purpose opportunities provided by international transport agreements regarding the European transport corridors, as well as bilateral agreements, or the development of transport infrastructure in the Carpathians EU region should be fully utilised.

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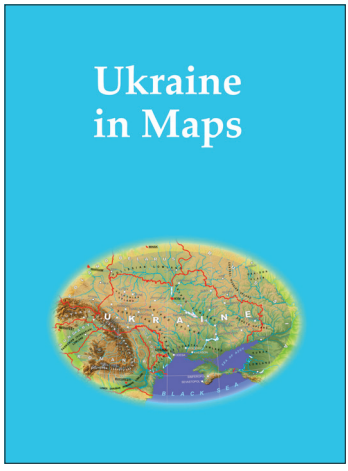
Ukraine in Maps

Edited by: **Kocsis, K., Rudenko, L. and Schweitzer, F.**

Institute of Geography National Academy of Sciences of Ukraine
Geographical Research Institute Hungarian Academy of Sciences.
Kyiv–Budapest, 2008, 148 p.

Since the disintegration of the USSR, the Western world has shown an ever-growing interest in Ukraine, its people and its economy. As the second-largest country in Europe, Ukraine has a strategic geographical position at the crossroads between Europe and Asia. It is a key country for the transit of energy resources from Russia and Central Asia to the European Union, which is one reason why Ukraine has become a priority partner in the neighbourhood policy of the EU. Ukraine has pursued a path towards the democratic consolidation of statehood, which encompasses vigorous economic changes, the development of institutions and integration into European and global political and economic structures. In a complex and controversial world, Ukraine is building collaboration with other countries upon the principles of mutual understanding and trust, and is establishing initiatives aimed at the creation of a system that bestows international security.

This recognition has prompted the Institute of Geography of the National Academy of Sciences of Ukraine (Kyiv) and the Geographical Research Institute of the Hungarian Academy of Sciences (Budapest) to initiate cooperation, and the volume entitled "Ukraine in Maps" is the outcome of their joint effort. The intention of this publication is to make available the results of research conducted by Ukrainian and Hungarian geographers, to the English-speaking public. This atlas follows in the footsteps of previous publications from the Geographical Research Institute of the Hungarian Academy of Sciences.



Similar to the work entitled South Eastern Europe in Maps (2005, 2007), it includes 64 maps, dozens of figures and tables accompanied by an explanatory text, written in a popular, scientific manner. The book is an attempt to outline the geographical setting and geopolitical context of Ukraine, as well as its history, natural environment, population, settlements and economy. The authors greatly hope that this joint venture will bring Ukraine closer to the reader and make this neighbouring country to the European Union more familiar, and consequently, more appealing.

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Time-space differences of population ageing in Europe

Marcela KÁČEROVÁ, Jana ONDAČKOVÁ and Jozef MLÁDEK[1]

Abstract

Age structure is one of the most important demographic characteristics of the population, which is multicausally related to almost all population processes. On one hand, age structure is the complex result of processes such as fertility, mortality, immigration and emigration. At the same time, it substantially affects a number of socio-demographic phenomena such as marriage, divorce, migration, potential labour resources etc. Certain relationships between the age structure and other population characteristics, such as ethnic, educational, sex, economic or religious structure can also be observed. The demographic behaviour of the European population in the second half of the 20th and the beginning of the 21st century is characterised by significant changes. They are reflected in a number of population processes and indicies, which are typically interconnected and interrelated. These changes have been most strikingly manifested in a drop of fertility rates, changes in family behaviour, and shifts in the age structure of the population. The main aim of this paper is to analyse the time-space development of the age structure of the European population. The period of investigation is 1950–2010 which is extended by a projected development until 2060. Changes in age structure are analysed through several indicators such as coefficients of inflow, outflow and exchange, as well as with indices of economic and social support. Authors make also efforts to provide a complex assessment on population ageing. Using the method of standardised variable, 11 indicators of age structures for 39 European countries are used in the synthesis. In view of the londer time span, several types of age structures are pointed out in Europe.

Keywords: population ageing, coefficients of inflow, outflow and exchange, indices of economic and social support, age structure typology

Introduction

The age structure of population and its development can be considered as a highly complex demographic phenomenon. From the point of view of time, age composition is the result of long-term processes. The complexity of the age structure of

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population is also demonstrated in its multi-causal relationships with a number of population and social phenomena. The current age structure reflects the long-term evolution of different processes, e.g. natality, mortality and migration.

One of the most typical processes of population development in European countries is population ageing (population rejuvenation is much less frequent). Changes in the age structure have not only relevant demographic consequences and attract the attention of scientists, but they also represent an important social phenomenon. Ageing implies the need to deal with a whole range of social problems that are currently topical mainly in the more developed countries.

The first group of problems is economic by nature, and relates to the balance of active/inactive population. With the increasing proportion of inactive population, it is more and more difficult to cover their pensions. Therefore, it seems to be necessary to create favourable conditions for the further use of their knowledge and workforce (active ageing). Another group of problems is related to the increasing demand for social and medical services by elderly people. As life expectancy is steadily increasing, the share of elderly is rising as well, and their requirements for social services and healthcare are also growing. Special demand of elderly towards housing, transportation, and other services is also well documented.

A seemingly simple assessment of young and elderly population is in fact more complicated due to their mutual relationship, as well as their relation to other age groups. Some authors consider population ageing as the most burning issue of the current population development, in particular in the economically more developed countries. This is because the impact of ageing on the socio-economic and welfare systems of countries (e.g. public pension, healthcare) has been permanently growing (Lanzieri, G. 2011).

The main aim of this paper is to analyse the time-space changes of the age structure of the European population. The period of investigation is 1950–2010 which is extended by a projected development until 2060. Changes in the age composition will be analysed through several indicators such as coefficients of inflow, outflow and exchange, as well as with indices of economic and social support.

Theoretical context and methodology

From a demographic point of view population ageing is understood as a process, where the number (or share) of population of older age groups is increasing (top-down ageing). This also implies a decrease in the number (or share) of children (bottom-up ageing). The term 'ageing from the middle' is used by MacKellar, F.L. (2003) for the shift of numerous years of the baby-boom cohort in the middle of the pyramid (i.e. the 55-year-olds) into the age group of elderly population.

Population ageing is one of the most typical features of the second demographic transition (Van de Kaa, D.J. 1987; Pastor, K. 1998; Mládek, J. 1998). The ageing process reflects a decrease in fertility, and also improving mortality rates. Jackson, N. (2001) offers an interesting view of ageing, distinguishing between two technical dimensions: structural and numerical ageing. On one hand, structural ageing is mainly the result of a decrease in fertility. A decrease in the mortality of children and an increase in life expectancy result in a higher number and higher share of elderly population. On the other hand, numerical ageing is originally caused by a drop in mortality.

If child mortality is decreasing, most children survive, causing acceleration of population growth. In the course of several decades, these children reach reproductive age, causing further acceleration of population growth. Both of them cause an initial rejuvenation of the age structure. If the life expectancy of the adult population, those who have survived childhood are more likely to live until old and very old age. High fertility during the baby-boom years will shortly become a contributing factor to numerical ageing, while this need not be the dominant cause. The population will not see a significant increase in the number of elderly people, if mortality is high and even if fertility is very high.

The question about the impact of individual demographic processes on changes in the population age structure is becoming topical. Natality, mortality, immigration and emigration are the processes that basically influence the age structure of population.

Since it is the birth rate that primarily determines the number of people in individual generations, this can be considered the one of the decisive factors. With a decreasing number of born children, bottom-up ageing occurs as well as relative top-down ageing. On the contrary, with increasing numbers of born children, the population gets younger. Similarly, death rate may lead to both population rejuvenation and ageing, therefore this is another important factor. If mortality in young age groups is decreasing (newborn, infant, child mortality etc.), the population gets primarily younger. If mortality in higher age groups is decreasing, the population gets older.

The third factor which might affect the age structure of population is migration. Since population of productive age tends to migrate most frequently emigration causes normally population ageing. In contrast, immigration increases the proportion of productive population and results in rejuvenation of the age structure.

However, the effect of these processes does not only depend on the intensity itself, but also on the age structure of the population in which the processes take place (e.g. the number of born children depends not only on the birth rate intensity, but also on the number of women of fertile age). In addition, their effects may multiply or be partially eliminated, so the age structure may be

Table 1. Selected demographic characteristics of world regions in 2011

Region	Crude birth rate, ‰	Crude death rate, ‰	Crude rate of natural increase, ‰	Infant mortality, ‰	Total fertility rate	Share of population, %		Life expectancy at birth, in years		
						0–14	65+	Both	Males	Females
World total	*20*	*8*	*1.2*	*44*	*2.5*	*27*	*8*	*70*	*68*	*72*
Africa	36	12	2.4	74	4.7	41	4	58	56	59
North America	13	8	0.5	6	1.9	19	13	78	76	61
Latin America and Caribbean	18	6	1.2	19	2.2	28	7	74	71	77
Asia	18	7	1.1	39	2.2	26	7	70	68	72
Oceania	18	7	1.2	24	2.5	24	11	77	75	79
Europe	11	11	0.0	6	1.6	16	16	76	73	80
European Union	11	10	0.1	4	1.6	16	17	80	77	82
Northern Europe	13	9	0.3	4	1.9	17	16	80	77	82
Western Europe	10	9	0,1	4	1.7	16	18	81	78	83
Eastern Europe	12	13	– 0.2	8	1.5	15	14	71	66	76
South Europe	10	9	0.1	5	1.4	15	18	80	77	83

Source: Population Reference Bureau, 2011

formed very differently in each population as a result of the abovementioned processes.

The age structure of European population from a global perspective

Changes in the age structure have spatial implications. They are manifested at all geographical levels, from the lowest municipal level, to regions, countries, and the global level. On the level of continents, age structure and ageing has specific features (*Table 1*).

The ageing of population is most pronounced among the continents in Europe (738 million people), mainly as a result of a drop in the total fertility (1.6) rates. In 2011 the share of children was equal with the share of people aged 65+ with 16% each. The ratio of people aged 65+ has doubled since the mid-20th century. The most dynamic growth can be seen in the population group 80+, where the 1950 share (4.1%) in-

creased by 3.7 times by now. The European population has a high median age – 40 years; it has a high life expectancy at birth (73 for men and 80 for women). The forecast (UN 2011) points out this ageing trend, mainly at the top of the pyramid, where the share of the population aged 65+ will increase to 27.6%. Ageing of the senior population itself requires special attention. On the global level, the pace of ageing is considered to be the most dynamic in Europe.

On the regaional level we can see certain differences in population ageing. Two large regions – Northern and Western Europe – currently have similarly low level of infant mortality rates, higher rates of total fertility, and higher proportions of elderly population. In contrast, Eastern and Southern Europe have a slightly higher infant mortality rate, and lower rates of total fertility, and lower proportions of children.

In terms of ageing Europe is followed by North America which has similar demographic features. The level of ageing is very similar in three global geographical units – Asia, Latin America and Oceania – although there are certain differences among them. The lowest infant mortality rate is recorded in North America; whereas the highest share of the post-productive group and also the highest level of life expectancy is recorded in North America and Oceania. Highest infant mortality rate and lowest life expectancy at birth is recorded in Africa.

Development and regional differentiation of ageing within Europe

In the mid-20th century Europe had a relatively young population. However, dramatic ageing process has taken place over the last 60 years, and it is expected to continue. In the current stage of demographic evolution of most European countries, we may speak about an alarming level of population ageing. Based on the processes shown by maps we may conclude that ageing is taking place in Europe in two dimensions: buttom-up ageing, and top-down ageing.

Bottom-up ageing, expressed as the proportion of 0–14 population, has become differentiated since the middle of the 20th century among European countries (*Figure 1*). In this respect we can identify higher ratios of children in the countries of Eastern and Southern Europe; in contrast, a lower proportion is seen in Western European countries. In addition to the sharp decrease of this population group, its spatial pattern shows remarkable differences. In 2010 the lowest children ratios were seen in Germany (13%) and Italy among European countries which were also front-runners in the mid-20th century. The liberalisation of the abortion law in 1972 (Coleman, D.A. 1993) contributed to robust bottom-up ageing in Germany, when both parts of the country saw a drop in total fertility rates down to 1.5. Ever since, the former West Germany has not been able to achieve higher levels.

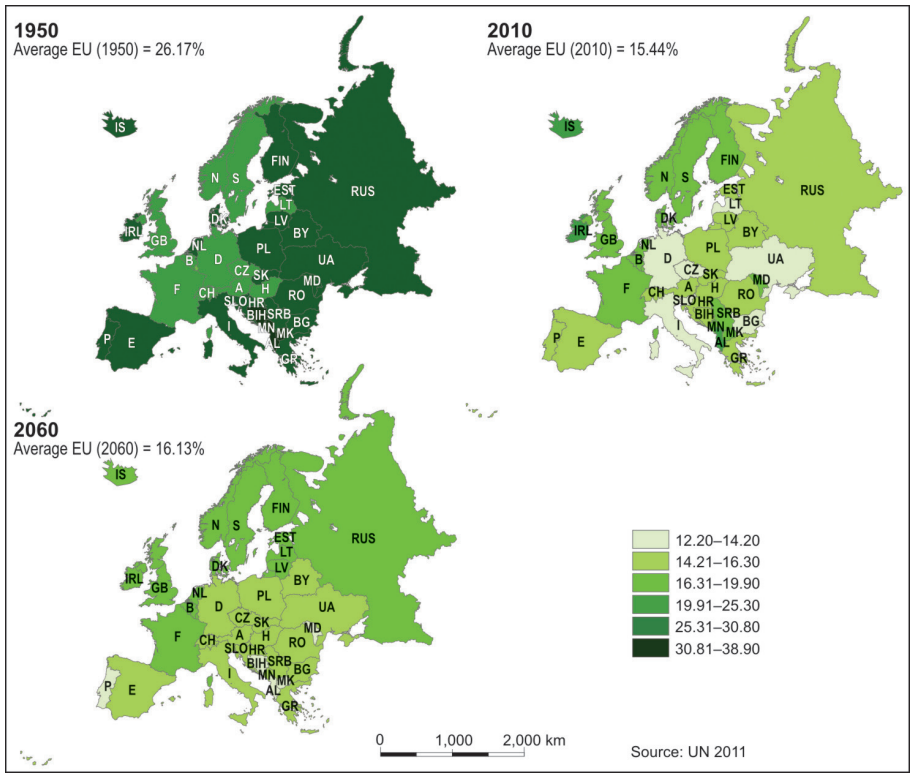

Fig. 1. Proportion of population aged 0–14 years in Europe, %

However, minimum levels can also be seen in East Central European post-socialist countries e.g. Bulgaria, Slovak Republic, Czech Republic and Latvia. In this case, the main reason is a sharp drop in the birth rate as a result of a later start of the second demographic transition, multiplied by the complicated socio-economic situation (coupled with high unemployment rates) in the transformation period.

The position of Benelux countries is interesting within Europe, as these countries seem to be above-average throughout the monitored period. E.g. in the Netherlands a relatively late drop in fertility rate and a significant baby boom in the period immediately after WWII were the main reasons for continuing population growth (Nimwegen, N. *et al*. 2003). In Luxembourg population ageing is slower due to the massive immigration of younger age groups (Leduc, K. 2009). Long-term forecast shows an even starker bottom-up ageing in the monitored countries. In spite of this fact we assume slightly

better values in Northern and Western Europe in comparison with Eastern and Southern Europe. Bottom-up ageing will be fastest in countries which currently have higher proportions of children in the population (Albania, Macedonia and Moldova).

Top-down ageing expressed by the proportion of population aged 65+, shows a more radical development. The growth of the proportion of elderly generally spreads from the West to the East. The maximum values in 1950 were recorded in France, Latvia, Ireland, Belgium and Great Britain, i.e. countries where the first manifestations of the second demographic transition were seen after World War II (*Figure 2*).

Currently, on the basis of the elderly Europe can be divided into two parts: Western older one and the Eastern younger one. The reasons for this situation were identified in the work of Meslé, F. and Vallin, J. (2002). They pointed out that thanks to progress in the treatment of infectious diseases in the 1950s life expectancy in Eastern Europe increased to the levels of Western

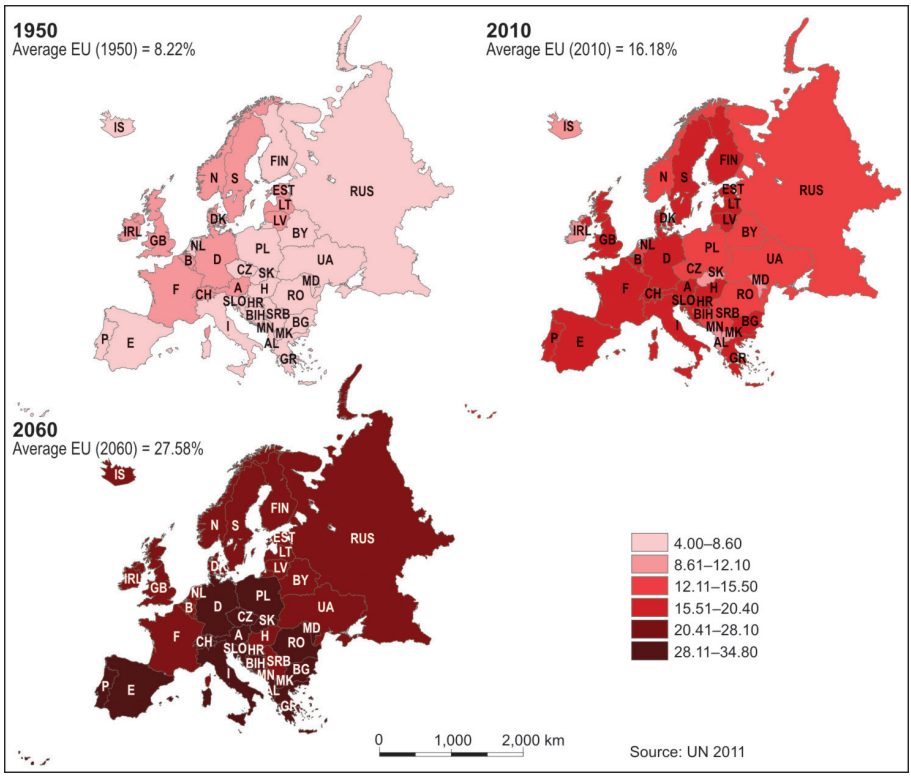

Fig. 2. Proportion of population aged 65 years and over in Europe, %

European countries. However, Western countries, after a slight stagnation in the 1960s, saw further progress in medicine, mainly in the area of treating cardio-vascular diseases, which Eastern European countries could not keep pace with, consequently their life expectancy started to stagnate or even fell. Cardio-vascular diseases belong to the most frequent causes of death of seniors (Holmerová, I. *et al*. 2007). The variation interval of this indicator (8%–10%–11% points) has a slightly growing tendency; the top-down ageing process is diversified in the European area. The populations of Germany and Italy are the oldest top-down ageing populations in the whole monitored period.

The development of fertility and mortality have special implications in the age structure of European countries. In many studies fertility is considered to be a decisive factor determining the process of population ageing (Dittgen, A. 1989; Bartoňová, D. 2001; Jackson, N. 2001). In the monitored period European countries have seen significantly lowering fertility rates. The group of European countries is very homogeneous in this respect; according to the forecast, in most countries it will remain just below the maintenance value. On the other hand mortality rates are improving, as indicated by the life expectancy values, even though the heterogeneity of the indicator is much stronger as in the case of fertility. Mortality rate is expected to differentiate population ageing in Europe in the future.

At the same time, we may also see a certain influence of migration on population ageing. "Currently, migration from so-called third world countries is becoming increasingly important, and most European countries have a positive migration balance; 24 out of 27 EU countries. In absolute numbers, the highest migration increase was seen in 2005 in Spain (652,000) and Italy (338,000), followed by Great Britain (196,000), France (103,000) and Germany (99,000). As for Central Europe, the highest migration increases are seen in the Czech Republic (36,000)" (Muez, R. 2007).

A triangle chart enables us to make a synthetic assessment of age structures within Europe, according to the representation of three productive population age groups (Ossan triangle). The sides of an equilateral triangle show the shares of three age groups, representing the coordinates of positions of individual countries in the chart. If we use average proportions of age groups in the whole Europe, then the chart is divided into six fields displaying individual types of age structures (*Figure 3*). The lines of averages enable us to classify countries into 'young' and 'old', while different averages of the representation of age categories in 1950, 2010 and 2060 have to be taken into consideration.

Table 2 shows the representation of individual types of age structures. The numbers of types in the three monitored years has to be assessed separately. The 'young' and 'old' populations have different parameters of representation of individual age categories.

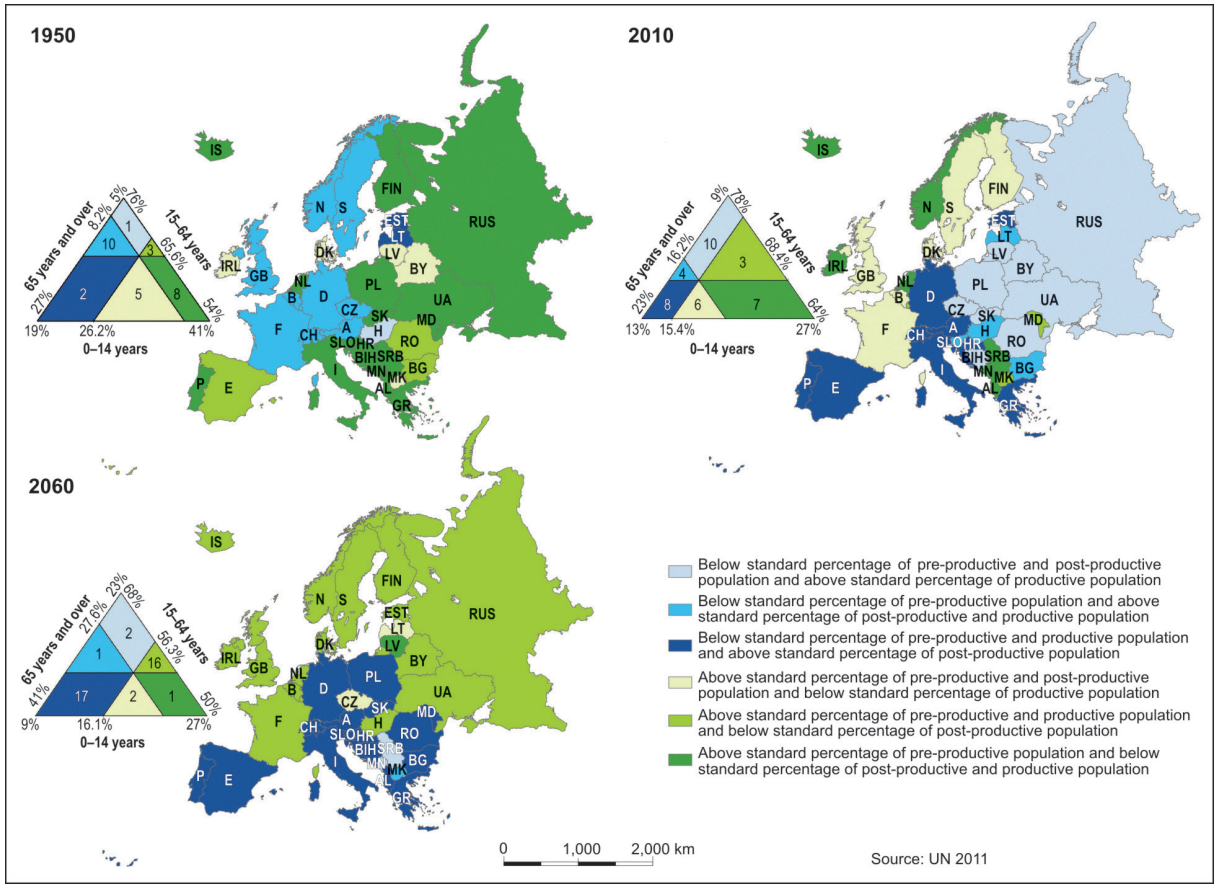

Fig. 3. Types of age structures of European populations

Table 2. Types of European populations according to age structures

Types of population according to the shares of age-groups (in comparsion with average age structure of Europe)	1950		2010		2060	
	0–14	65+	0–14	65+	0–14	65+
	number of states					
young*	26	22	16	20	19	19
old**	13	17	23	19	20	20
	according to both age groups					
young	21		10		17	
old	12		13		18	
other	6		16		4	

*Below standard percentage of 65 +, respectively above standard percentage 0–14.

**Above standard percentage of 65+, respectively below standard percentage 0–14.

The assessment of countries applies to different average European proportions of populations of age groups. In 2010, Europe had 16 young populations, based on the proportion of people aged 0–14, and 20 young populations, based on the proportion of people aged 65+. At the same time, there were 23 old populations, based on the proportion of people aged 0–14, and 19 old populations, based on the proportion of people aged 65+. If we combine both criteria, then there were 10 young and 13 old populations in Europe.

Economic and social aspects of ageing in European countries

The category of productive population is considered to be important from a socio-economic perspective. Its size depends both on young age groups joining the category of the productive population, or older age groups leaving it (Hrubý, J. 1996; Káčerová, M. 2009). The level and development of ageing has, therefore, significant impact on the size of the productive age group in each society. The ratio of population of productive age in Europe is currently 68%. Since 1950 its number has increased by almost 29%. The growth has been extremely influenced by two cohorts, people born in the 1950s and 1970s, i.e. the age category of 15–64 years, born in the last 60 years.

The size of the productive age group is currently culminating. 2011 represented the last year of an extreme growth of the productive age group, as it is considered to be the end of the effect of the post-war baby-boom cohort (Carone, G. and Costello, D. 2006). This generation will intensify and have a significant impact on the top-down ageing process after 2011. The forecast until 2060 assumes a decrease in the number of the productive age group by 27%, meaning a level almost equal to that of 1950 (explained in more details by the inflow coefficient). An absolute expression of this age group in combination with an old or young population is defined by specific indicators.

Coefficient of inflow

The coefficient of inflow (C_i) expresses the number of people aged 10–14 ($P_{10–14}$) joining the productive age group ($P_{15–64}$) per 100 people in the productive age.

$$C_i = \frac{P_{10-14}}{P_{15-64}} * 100$$

In the base year of 1950, Europe was strongly differentiated according to the coefficient of inflow (*Figure 4*). The most favourable situation (above 17%) could be seen on the Balkan, which was only in the initial stage of the demographic transition, and the total fertility rate was between 4.14 and 5.60 in many countries (Albania, Bosnia and Herzegovina, Macedonia), ensuring a stable influx of new labour force into the productive population category. Here Botev, N. (1990) also pointed out the possible influence of Islamic reli-

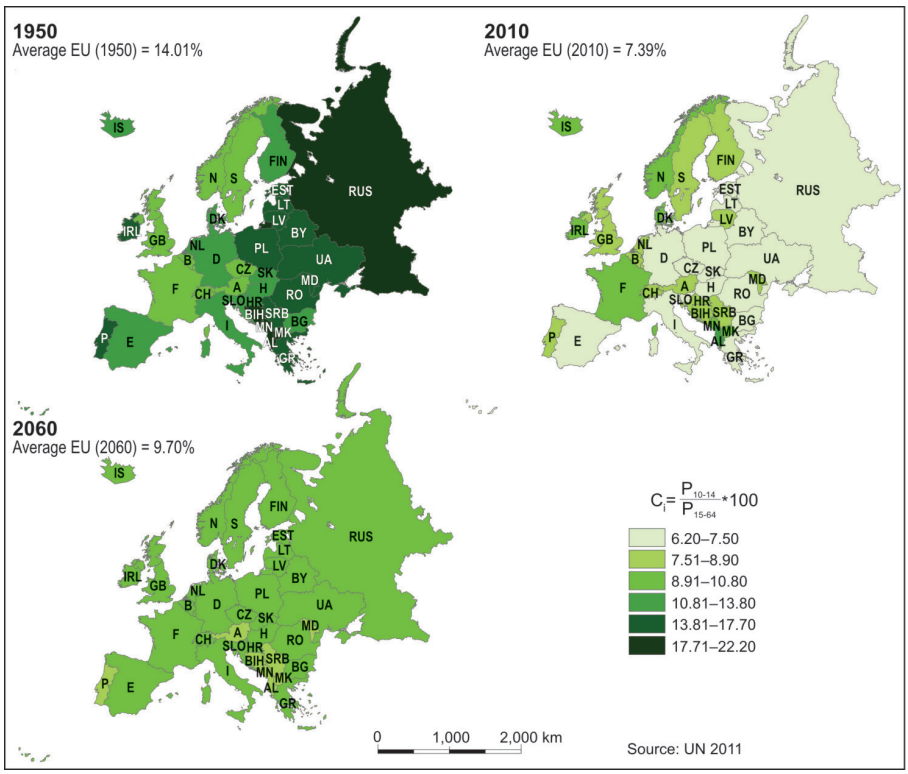

Fig. 4. Coefficient of inflow for European countries, %

gion on early marriages and higher fertility rates in some of these countries. Urbanisation played also a significant role which was only 20% in these countries in 1950, while in a number of Western and Northern European countries it was over 60% (UN 1980). A similarly favourable situation in the inflow coefficient could be seen in Russia, where the age structure and mainly the representation of the productive age group was still considerably distorted by losses in World War II.

Below-average values of the coefficient (7.51–13.80%) could be seen in Western and Northern Europe, which is connected with the division of Europe according to the Hajnal line. This area was characterised by a higher marriage age and consequently a lower number of children; and in Eastern Europe by a low marriage age and a higher number of children. After World War II some countries from the western model (e.g. the Czech Republic) approached the eastern model (Rabušic, R. 2001) and fertility was influenced by interferences and changes in regulations (pro-natality measures in Czechoslovakia in the 1970s, liberalisation of abortions in the 1950s and subsequent restrictions in the 1970s in most countries, etc.). At that time modern family planning was applied in Northern and Western Europe, leading to the second demographic transition in the 1970s. Natality was lower and people put off having children until a higher age. However, the subsequent births which were initially delayed partially erased this pace effect.

In Eastern Europe there was scope for spreading new demographic patterns in the 1990s, intensified by the complex socio-economic situation, including high unemployment rates and the inaccessibility of housing for young families. Thanks to these facts, 2010 saw higher values of the coefficient in Western European countries (above 8.91%) in comparison with Eastern Europe (6.20–7.50%). On aggregate, this indicator has dropped to half of its value since the mid-20th century. The forecast until 2060 assumes further growth and a certain unification of aggregate fertility in Europe. So in the future we can expect a levelling out in the spatial differentiation of the inflow coefficient.

Coefficient of outflow

The coefficient of outflow (C_o) expresses the proportion of people aged 60–64 ($P_{60–64}$) leaving the productive age group ($P_{15–64}$) for the post-productive one.

$$C_o = \frac{P_{60–64}}{P_{15–64}} * 100$$

The group of people aged 60–64 leaving the labour market for retirement also plays a significant role in the number of productive age category. The

coefficient of outflow inform us about this process, even though the age of retirement is specified by the law, and this is slightly lower in Eastern European countries (mainly for women) compared to the West. However, some trends are obvious. In the mid-20th century six people per 100 workers reached retirement age. Above-average values (above 6.71%) were achieved in Western and Northern Europe mainly due to lower mortality rates (*Figure 5*).

As shown by Grundy, E. (1991), the cohort of people born between 1886 and 1900 was the very first in England and Wales where at least half the population lived until the age of 65. There was a significant shift in this field until 2010, with the coefficient of outflow growing up to 8.28%. The main reason was improving conditions in medicine (prevention, new medicines, technical and material equipment, accessibility of healthcare), thus also growing life expectancy. Currently all European countries have a higher life expectancy at birth than the age of 69. Higher values of the coefficient (above 7.91%) are again recorded in Western and Northern Europe. Here a more pronounced

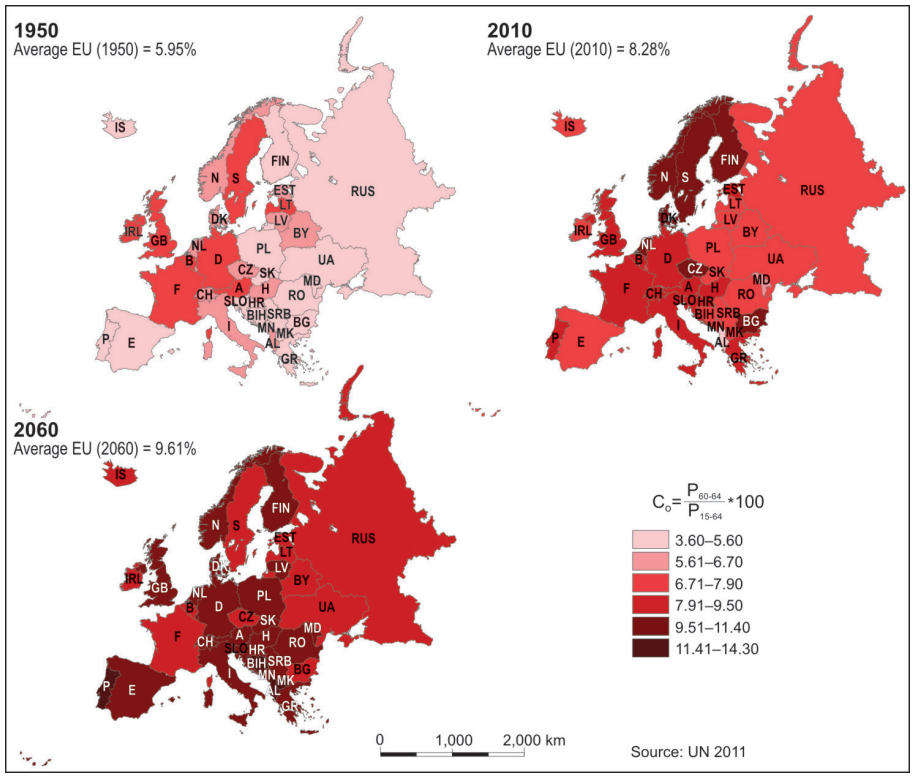

Fig. 5. Coefficient of outflow for European countries, %

post-war baby boom is also a contributing factor in comparison with Eastern Europe. However, spatial patterns will change in the future. Some countries with currently extreme values (e.g. Czech Republic, Sweden, Finland, Bulgaria) may even see a drop in the outflow coefficient. In contrast, the countries of the Balkan will have a rapidly ageing labour force (in particular Albania, Bosnia and Herzegovina and Macedonia).

Coefficient of exchange

The coefficient of exchange (C_e) expresses changes in the proportion of people, entering' (P_{10-14}) and ‚leaving' (P_{60-64}) the productive age category.

$$C_e \frac{P_{10-14}}{P_{60-64}} * 100$$

The most dynamic development is seen in the field of the coefficient of exchange (*Figure 6)*. In the base year, much bigger generations entered the productive age group than were leaving in all European countries. Generally, Europe was characterised by the entry of 235 potential workers (aged 10–14) per 100 people leaving the productive age group (aged 60–64). On the one hand, highest values could be observed in Russia and in some Balkan countries where the exchange coefficient was over 345% in 1950. On the other hand, lowest values (below 172.50%) were recorded in North-Western Europe, in Germany, or in the Czech Republic that was more similar to Western than Eastern populations with its demographic behaviour in this period. Europe has considerably changed as a result of the drop in the inflow coefficient and the rise in the outflow coefficient since 1950.

In 2010, in many countries the entering age groups did not compensate the loss caused by people leaving the active age group, and the productive age group was shrinking. Countries were trying to deal with this challenge by using migration; however, as research has shown (UN 2001; Lutz, W. and Sherbov, S. 2003) its impact was not sufficient. Countries are currently focusing more on the migration of highly-qualified people. Nonetheless, their number may help avert a natural loss rather than bring about a change in the age structure.

Moreover, it is often illegal migration from third countries and the incorporation of migrants in the society is problematic. In this case we can also speak about a certain levelling out of values; more distinctive favourable values (above 114.21%) have only remained in some Balkan states or Iceland and the markedly catholic Ireland. Similarly, balanced values are also assumed by the population forecast; however, it is only the area of the Balkan peninsula that will see the least favourable values (below 85.10%).

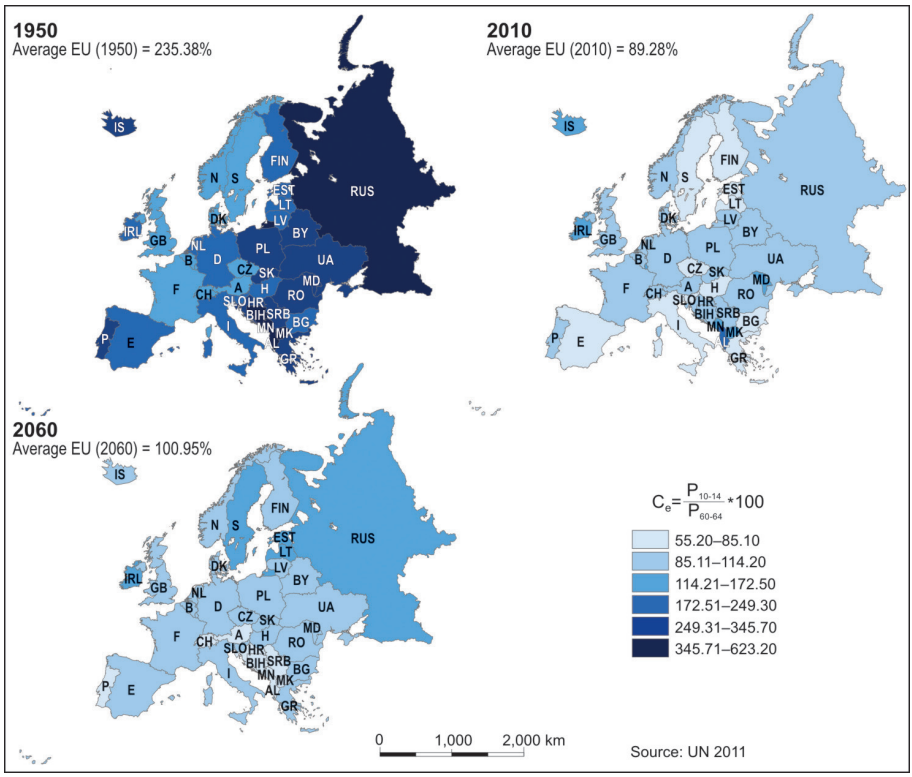

Fig. 6. Coefficient of exchange for European countries, %

Index of economic support

The index of economic support (I_{es}) expresses the number of population in the productive age ($P_{15–64}$) falling on 100 persons (or on 1 person) in the post-productive age (P_{65+}).

$$I_{es} = \frac{P_{15–64}}{P_{65+}} * 100$$

On the basis of the previous indicators the index of economic support can be elaborated (*Figure 7*). The value of the European average of this indicator is decreasing in the investigated period. The number of those working per seniors is radically changing. 1950 saw significant economic security, when almost 8 people of the productive age worked per one pensioner. More than 10 people of the productive age per one senior was recorded in Eastern Europe in

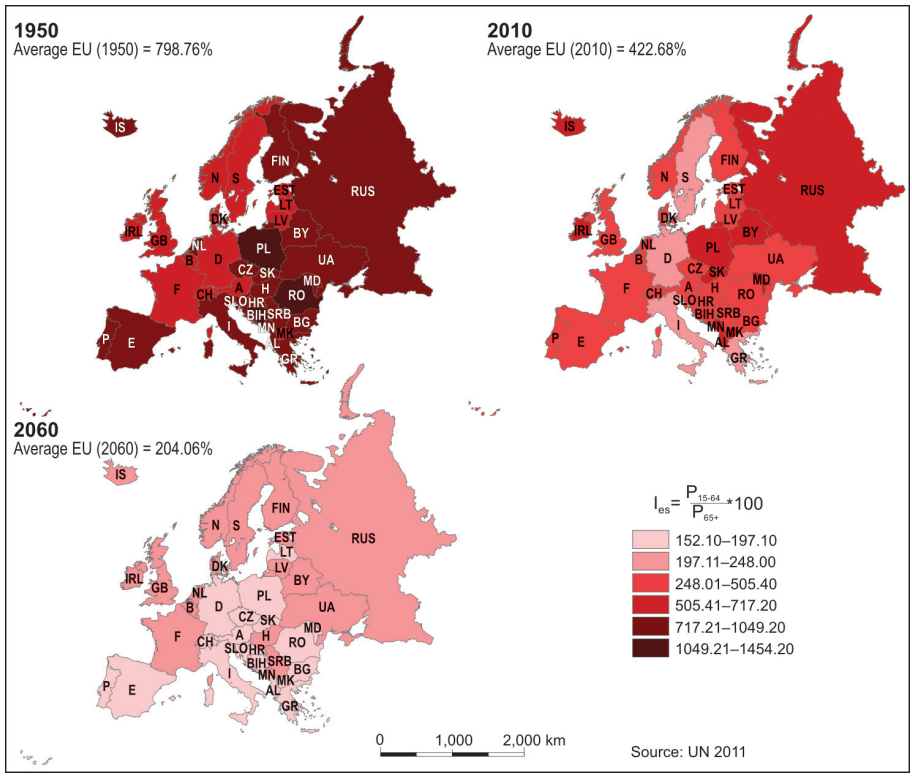

Fig. 7. Index of economic support for European countries, %

the mid-20th century (the low proportion of the old population in these countries had a significant impact on this fact). Maximum values were achieved by Bosnia and Herzegovina, followed by Poland and Romania. Countries with a larger proportion of old population had lower economic support of elderly population (e.g. Ireland, France, Lithuania).

Until 2010, the spatial pattern has partially changed. E.g. thanks to migration gains, Ireland became a country with an above-average support value: 5.75 workers per pensioner. Although their population ageing process has become more distinctive in the last 20 years, Slovakia, Moldova and Albania are countries where the number of working people was higher than 6 per one senior. These are European maxima. The populations of Germany and Italy, being currently the oldest, have fewer than 3.3 working people per one senior. The situation until 2060 assumes that the oldest populations will retain their minimum positions and will be below the average. Yet countries of Southern Europe and the Balkan will achieve the lowest values.

Index of social support

The index of social support (I_{ss}) expresses how many people aged 80+ (P_{80+}) fall on 100 persons aged 50–64 (P_{50-64}). This ratio may also be understood as a relation between generations of parents and their children and as a potential direct inter-generation help.

$$I_{ss} = \frac{P_{80+}}{P_{50-64}} * 100$$

The relation of 'parents' and their children, expressed through the index of social support in 1950 reflected the fact that the European average of the proportion of population aged 80+ was 1.1% (*Figure 8*). People born in the 19th century were not expected to live until old age and their numbers were influenced by migration waves and wars. In spite of that, the indicator shows great geographical differences.

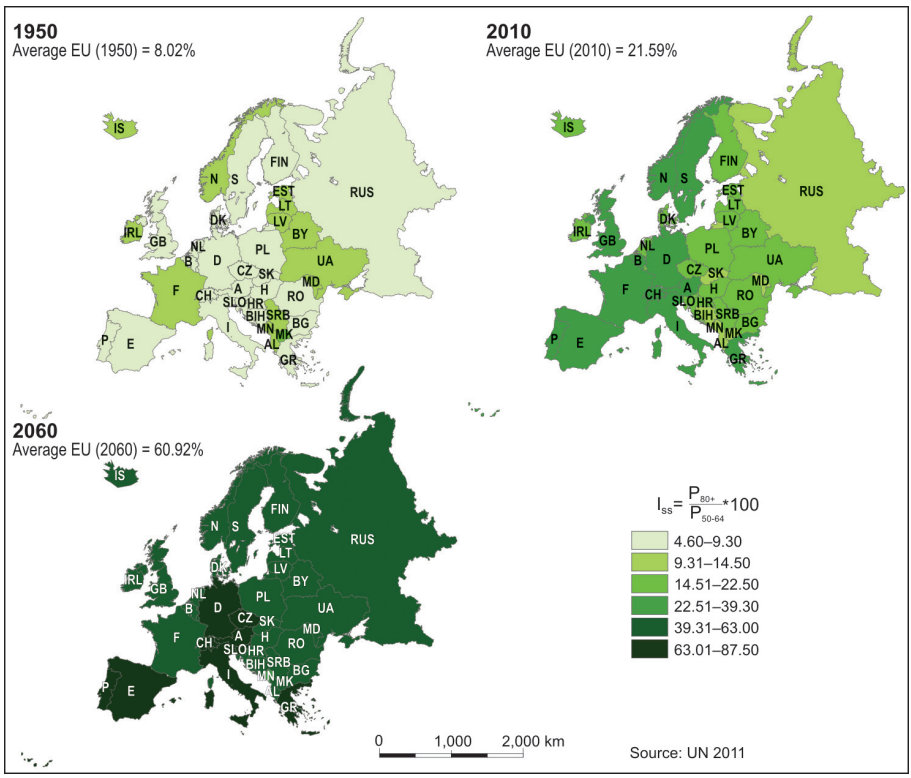

Fig. 8. Index of social support for European countries, %

A higher index of social support was seen in the Baltic countries where the share of population aged 80+ was higher (1.5–1.8%). Another group was formed by the Balkan countries which, on the contrary, had a significantly below-average representation of the productive age group (54–58% in comparison with the European average of 66%). The main reason could be the massive emigration of young people after 1990 in these countries and a low fertility rate (Lukic, T. *et al.* 2012).

In 2010 the spatial differentiation reflected the level of population ageing (in particular the ageing of the senior population itself) and a spread of the second demographic transition: Eastern and Central Europe with a lower social support index value and Western and Northern Europe with a higher value. The Benelux countries and Ireland are exceptions; they are considered to be younger, thanks to migration. The projected period identifies the highest need for social support in Spain, Italy and Switzerland, where there are more than 80 seniors aged 80+ per 100 people aged 50–64. In contrast, the lowest values are seen in Montenegro, Serbia, Russia, Moldova and Albania. A common factor in these countries is low life expectancy. A secondary factor in Moldova is the effect of migration. It started after 1990, and according to statistical data, 314,000 people emigrated, i.e. almost 10% of the population (Helpage International, 2010).

Complex assessment of ageing of European populations

The complex assessment of population ageing with several indicators offers detailed information on its evolution and regional differentiation. Sometimes the individual assessment of these indicators is misleading and the assessment of the population ageing may be ambiguous. Therefore, a synthesis of these indicators has become topical. On the level of European countries, this task was performed using the method of standardized variable. It is a method which transforms some real data (with different nature and sometimes unitsof measurement) for certain geographical units (countries) into comparable systems of measurement (non-dimensional figures), enabling to perform various statistical operations.

In our study eleven indicators of ageing or age structure were used for all European countries, including: population aged 0–14, Billeter index, inflow coefficient, exchange coefficient, index of economic support with a negative relation to population ageing, and 65+ aged population, 80+ aged population, ageing index, outflow coefficient, index of social support, age median with a positive relation to population ageing.

As a second step every indicator was changed by standardization into a non-dimensional figure (z_i):

If the relation to ageing is positive:

$$z_i = \frac{X_{ij} - \overline{X}_j}{s_{xj}}$$

If the relation is negative:

$$z_i = \frac{\overline{X}_j - X_{ij}}{s_{xj}}$$

where X_{ij} is the indicator value for the particular country, X_j is the indicator average and s_{xj} is a standard deviation of the particular indicator.

The resulting characteristic – a synthetic indicator – was specified as a weighed arithmetic average of the standardised values:

$$S_i = \frac{1}{k} \sum_1^k z_{ij} \bullet v_j$$

where $i = 1, 2 \ldots n$; v_j = weight of the j^{th} indicator (in our case the weight for all indicators was equal to 1).

In view of the fact that we wanted to achieve comparability of values over time, the European average was calculated for all three periods. With a standard division, the value of the synthetic indicator achieves values in the interval from –3 to +3 (Stankovičová, I. and Vojtková, M. 2007).

The values of the indicator are directly proportional to the level of population ageing, with the oldest European populations achieving the highest values.

The synthetic analysis of population ageing shows considerable ageing in all European countries (*Figure 9*). The result of 1950 showed strong dichotomy within European with two distinct macro-regions from the point of view of current population ageing.

Countries of Southern and Eastern Europe were characterised by a population with the youngest (the Balkan, Russia, Poland) and very young age structure, whereas countries of North-Western Europe had a young age structure. In 1950, all 39 countries were in the three sub-types of young population. By 2010, only the population of 11 countries remained in the 'young population' type, and the rest moved to the other three types of old population.

The ageing of population in the individual countries and their shifts between the constructed types were not so simple or straightforward.

In the first period (1950–2010) Albania, Bosnia and Herzegovina, Montenegro, Russia, Iceland, Ireland, Romania, Slovakia, Moldova, Macedonia and Serbia were clearly presented as the youngest populations. Their young

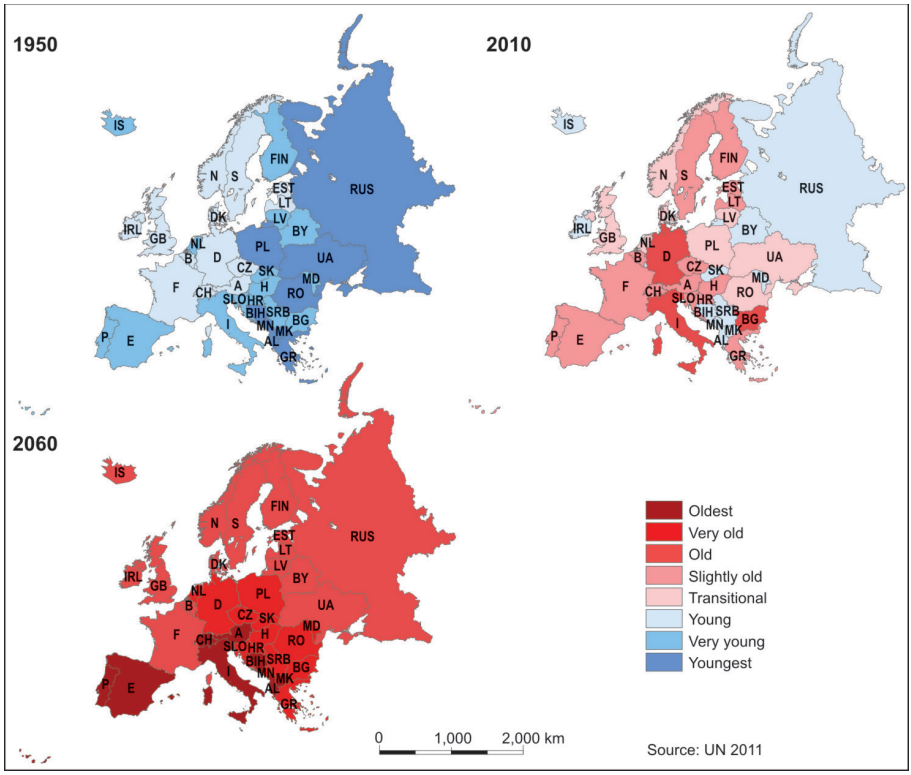

Fig. 9. Types of population according to intensity of population ageing in Europe

age structures were still influenced by a relatively higher fertility rate; the top-down ageing was manifested in a lower extent. On the other hand, the oldest populations were seen in Italy, Germany, Austria, Switzerland, Sweden, Belgium, France, Great Britain and the Czech Republic.

In this period, age structures were assessed on the basis of the real achieved values. Population ageing is expected to continue until 2060 to a certain extent (based on the projected values). Populations of all countries will shift to the three oldest types of population by then. In addition to traditional countries with old population, also Bosnia and Herzegovina, Albania, Portugal, Malta, Macedonia, Moldova and others will become countries with very old population. These countries will see the effect of a cyclical transition of numerous young generations (from 2010) to older age groups (top-down ageing).

Conclusions

The demographic behaviour of the European population in the second half of the 20th and the beginning of the 21st century is characterised by significant changes. They are reflected in a number of population processes and structures, what are strongly interconnected. These changes have been most strikingly manifested in a drop of fertility, changes in family behaviour, and changes of population age structures. Changes in population age structures are mainly characterised by the processes of ageing (rejuvenation was only seen in shorter time periods), both from the bottom as well as from the top. Bottom-up ageing is a result of a radical drop in fertility (until 2010 the total fertility dropped below the replacement level in all European populations with the exception of Iceland and Ireland). This process is slowly coming to end, and until 2060 fertility should rise slightly, thus softening the bottom-up ageing processes.

Top-down ageing process has been influenced by two demographic and social phenomena. The first one was the fact that numerous generations entered the post-productive age (mainly from the period of high fertility after World War II). The second one is the extension of life expectancy as a result of increasing standard of living in many areas of material conditions, better healthcare, and a higher level of education.

A characteristic feature of age structures is their regional differentiation; and it is also true for the population of European countries.The ageing level in 1950 was distinctively differentiated, mainly as a result of extremely young and old populations. This differentiation decreased until 2010, and the group of European countries has become more homogenous. This trend of levelling out will continue, and in 2060 the differences in ageing will be significantly lower.

The processes of population ageing have relevant social and economic consequences; therefore large number of indicators and different methods should be applied to learn these processes. Indicators such as coefficients of inflow, outflow and exchange, have brought interesting results. The effort to make a synthetic assessment on the level of population ageing has become topical as well. Using the method of standardized variable, 11 partial indicators of age structures of 39 European countries have been used in the synthesis. In view of the large span of the assessed time period, a significant number of types of age structures have appeared in our typology.

In the first period (1950–2010) structures were assessed on the basis of real values, and in many countries they were presented quite clearly and unambiguously. Several countries in Western and Northern Europe have seen older age structures (earlier fertility decrease, longer life expectancy). In Central, Eastern and mainly Southern Europe younger age groups have been identified

(higher fertility, lower life expectancy). Classification into individual types of age structures in the projected period has changed in many countries.

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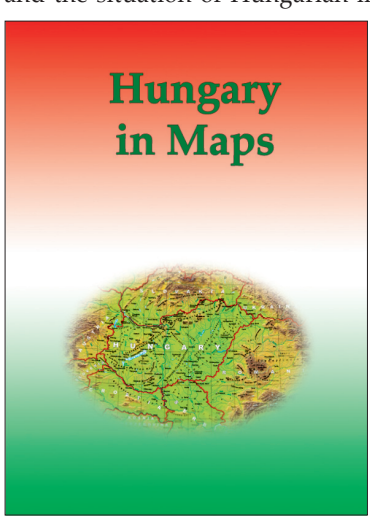
Hungary in Maps

Edited by
Károly Kocsis and Ferenc Schweitzer

Geographical Research Institute Hungarian Academy of Sciences
Budapest, 2009. 212 p.

'Hungary in Maps' is the latest volume in a series of atlases published by the Geographical Research Institute of the Hungarian Academy of Sciences. A unique publication, it combines the best features of the books and atlases that have been published in Hungary during the last decades. This work provides a clear, masterly and comprehensive overview of present-day Hungary by a distinguished team of contributors, presenting the results of research in the fields of geography, demography, economics, history, geophysics, geology, hydrology, meteorology, pedology and other earth sciences. The 172 lavish, full-colour maps and diagrams, along with 52 tables are complemented by clear, authoritative explanatory notes, revealing a fresh perspective on the anatomy of modern day Hungary. Although the emphasis is largely placed on contemporary Hungary, important sections are devoted to the historical development of the natural and human environment as well.

In its concentration and focus, this atlas was intended to act as Hungary's 'business card', as the country's résumé, to serve as an information resource for the sophisticated general reader and to inform the international scientific community about the foremost challenges facing Hungary today, both in a European context and on a global scale. Examples of such intriguing topics are: stability and change in the ethnic and state territory, natural hazards, earthquakes, urgent flood control and water management tasks, land degradation, the state of nature conservation, international environmental conflicts, the general population decline, ageing, the increase in unemployment, the Roma population at home and the situation of Hungarian minorities abroad, new trends in urban development, controversial economic and social consequences as a result of the transition to a market economy, privatisation, the massive influx of foreign direct investment, perspectives on the exploitation of mineral resources, problems in the energy supply and electricity generation, increasing spatial concentration focused on Budapest in the field of services (e.g. in banking, retail, transport and telecommunications networks), and finally the shaping of an internationally competitive tourism industry, thus making Hungary more attractive to visit.



This project serves as a preliminary study for the new, 3rd edition of the National Atlas of Hungary, that is to be co-ordinated by the Geographical Research Institute of the Hungarian Academy of Sciences.

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The geographical position, system and modelling of golf tourism

Róbert Kiss[1]

Abstract

This paper aims to present the spatial assumptions related to the tourism theory and the geographical correlations of golf tourism. It attempts to define the concept and to study golf as a tourism product in a systemic approach: it presents its internal and external environment. In the first place, golf courses being the most important factor of golf tourism and the interconnection of other supply elements are discussed. In the second place, the paper highlights the role of the intermediary sector specialised in satisfying golf-related special needs. In the third place, it describes the characteristic features of golf demand. It presents the Western European, Mediterranean and Central European regions (the most preferred areas of research), and it establishes the theory of ABC golf destinations in the Mediterranean region, i.e. tourism supply elements in a unique spatial arrangement. The research results include the interpretation of Maslow's hierarchy of motivational needs from the golfers' approach, which helps us understand the golfers' decision-making process and the stages thereof. Based on the theory, the author establishes the golf ball model of the interconnected material conditions of tourism in which the layers of the basic, infra- and suprastructure required for golf tourism are interconnected like the concentric shells of a sphere.

Keywords: golf, model, tourism, system, geography

Introduction

The topicality of researching and spatially mapping of golf tourism in Hungary is given by the fact that although golf is one of the most popular and most widely played sports in the world, in Hungary it is regarded as an overly stereotyped, mystified, hardly-known recreational activity of foreign origin, and as such, its value as a sport is considerably questioned. It is partly due to this approach that Hungarian scholars have never or have hardly dealt with that niche area of sport tourism.

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Most of the publications released on golf and golf tourism so far are surveys linked to active tourism (Szonda Ipsos 2000; Rátz, T. and Kiss, R. 2007) researching materials on the demand for and the supply of golf opportunities in Hungary (Rátz, T. and Kiss, R. 2010) and investigating golf as an Olympic sport (Baráth, K. *et al.* 2011). The small number of publications, in itself, indicates that golf is underrepresented among the Hungarian tourism products in terms of research. In contrast, the international literature shows that plenty of surveys have been conducted on golf demand and supply in destinations heavily affected by golf tourism (Petrick, J.F. *et al.* 2001; Correia, M. and Pintassilgo, P. 2006; Kim, S.S. *et al.* 2005; Wilson, J. and Thilmany, D. 2006) and on the elements of infra- and suprastructure required for receiving players. publications presenting golf tourism in its entirety have been also released (Hudson, S. and Hudson, L. 2010).

The definition of golf tourism

Finding a definition to golf is as difficult as finding one for tourism, since first we need to resolve the golfers' dilemma: some regard golf as a sport, some regard it as a leisure activity, others consider it as a type of community lifestyle, and a smaller number of people regard it as an element of belonging to a club, a certain community. According to many, golf is a combination of the above in varying proportions. Golfers are motivated by several factors, the common thing being crave for enjoyment through golf. Most people regard golf as a leisure activity, but there are also many who play golf within the framework of business tourism.

The definition of golf tourism must be started with a short review of foreign literature so that golf tourism can be presented in a systemic approach. According to the authors Hudson, S. and Hudson, L. (2010), who teamed up to publish the first separate book on golf tourism, golf tourism is a branch of sport tourism, one of the most rapidly developing fields of tourism as a whole.

It was Robinson, T. and Gammon, S. (2004) who attempted to sum up golf tourism in a framework typical for sport tourism built on motivation. As such, they distinguished between golf sport tourism and golf tourism sport. They identified a soft and hard subtype in each case (Hudson, S. and Hudson, L. 2010) (*Table 1*).

While the hard definition of golf sport tourism means active or passive participation (player or spectator) in competitive sporting events (e.g. Ryder Cup, USA Masters, British Open, European Tour, American PGA Tour, etc.), the soft definition of golf as a sport is about active participation for recreational purposes (such as visiting golf resorts, cruises and schools).

The common characteristic feature of golf tourism sport is the primary motivation of travelling. According to its hard definition, the term pertains to visitors whose engagement in some minor form of sport or leisure as a

Table 1. Application of the sport tourism and tourism sport theory to golf

Golf Sport and Tourism			
Golf Sport Tourism		Golf Tourism Sport	
Hard	Soft	Hard	Soft
definition			
Passive or active participation is a competitive sporting event	Primarily active recreational participation in sport	Visitors who engage in some minor form of sport or leisure, their participation is purely incidental. Includes all golf related facilities a tourist may encounter	Tourist as a secondary reinforcement passively or actively participate in sport
(Ryder Cup, Walker Cup, USA Masters, European Tour, American PGA Tour, Senior Tour, British Open, Amateur championship, LPGA, Junior events etc.)	*(Golf holidays, golf resorts golf cruises, golf schools)*	*(Executive golf courses, pitch and putt, crazy golf, minigolf, putting, driving ranges, target golf)*	*(Sport resorts, hotels, cottage holidays or holiday villas near golf courses; Visitor Attractions World Golf Hall of Fame, Florida; British Golf Museum, St. Andrews, Scotland)*

Source: Robinson, T. and Gammon, S. 2004 adapted by Hudson, S. and Hudson, L. 2010, and Kiss, R. 2013

secondary motivation is purely incidental (e.g. training courses, pitch and putt, mini golf, etc.), while the soft definition relates to tourists who as a secondary reinforcement participate golf passively or actively (e.g. hotels at the golf courses, the use of resorts of villa park with golf courses, visiting to the World Golf Hall of Fame, etc.) (Hudson, S. and Hudson, L. 2010).

A similar fourfold categorisation was developed by Kiss, R. and Rátz, T. (2007) who believes that golf as a physical activity and as a part of the tourism supply can be interpreted along all dimensions described under sport tourism. Moreover, it can correspond to each alternative of all four dimensions. On one hand, golf can be a leisure activity, primarily for private recreational purposes as well as for business purposes to a smaller extent, since playing sport together with potential business partners has an important role in the development of formal relations. On the other hand, it can be a primary or secondary attraction forming part of domestic or international tourism supply. Based on the above, golf can attract players and spectators both in an active and passive form, and it can be concurrently regarded as a competitive sport and "elite mass sport", for the activity is not restricted to a small group of professional competitors.

In harmony with the definitions presented above, the author believes that golf tourism is a sort of recreational travel away from home with the primary purpose of playing golf, and it involves accommodation booking as well as a higher spending not typical for an average tourist. All this can happen through playing golf (pursuing an active physical activity), attending a golf competition as an escort or spectator (passive participation) or visiting golf-related attractions (a world famous golf course or a museum, etc.). An example to the latter passive activities is attending the Ryder Cup championship as a spectator or visiting St. Andrews, the Mecca of golf (Hudson, S. and Hudson, L. 2010). Playing golf is often linked to a second home or a timeshare property investment in a resort having a much more pleasant climate than the place of permanent residence, so the place of permanent residence is left behind as per the definition, and this type of travel (if it lasts for less than a year) can be regarded as golf tourism provided to those concerned with in playing golf.

Now that the author has provided his basic definition, it is reasonable to present golf tourism from the practical approach, based on the following aspects:

1. *nature* (leisure or business tourism)
2. *form* (mass tourism or alternative tourism) and
3. *type* (domestic or international).

In terms of *nature*, golf tourism can primarily be associated with recreational tourism, since tens of millions of people play golf around the world and travel regularly in order to enjoy their favourite sport. Requiring strong concentration for several hours, this outdoor physical activity can be regarded as a type of active tourism (Michalkó, G. 2002; Csapó, J. *et al.* 2010).

Apart from the recreational nature of golf tourism, it must be pointed out that in terms of nature, golf tourism is also considered as business tourism. Golf primarily appears as an auxiliary program of business meetings, as an invitation of fellow players to join a club or as a venue of such meetings. In the latter case, playing golf without the involvement of a referee, strictly on the basis of the rules of fair play can help to become acquainted with the potential contracting party/to learn about the personality of the negotiating party, since the behaviour demonstrated on the golf course gives you hints about his conduct in the world of business. Consequently, it can be easily determined whether you would like to cooperate with your game partner in the future, whether you consider him as a reliable person who knows and complies with the rules, or you would not like to work with him due to his unreliable personality.

At an international level, golf is a popular form of reward at certain companies or company groups either as a special programme or as part of the incentive package. It is a popular form of rewarding corporate performance in the Far East giving golf-related business bonuses, gifts and rewards (Hudson, S. and Hudson, L. 2010). Some other companies maintain golf societies serving the

purpose of community development, keep a healthy competitive spirit and satisfy the competitive needs of avid golfer employees (competitive sport). Finally, in the case of business tourism, a company may enter into a sponsorship agreement with the club which in return, for financial support, accepts a certain number of members or it offers discount membership for a given period of time either for specific persons or for any employee of the sponsoring company.

As far as its *form* is concerned, golf tourism was initially regarded as a part of alternative tourism (which was not defined in the first stage of development), i.e. as an active tourism product sought after by individuals, since at the beginning, it was significant neither in supply nor in demand.

In connection with the expansion of golf, during the recent decades, it can be seen that in many cases (e.g. Turkey) radical development has been achieved with state support, and the growth of the industry is increasingly due to the rise of mass tourism (Kıss, R. 2012). Especially in regions with a pleasant climate, for the better utilisation of the huge primary tourism, suprastructure developed to meet the demands of summer seaside tourists, service providers turn towards sport tourism able to create a demand even in the low season. Initially, golf course construction at seaside resorts was carried out within the framework of alternative tourism, and then having realised the economic benefits, investors started major property developments. That practice can partly be blamed for the ill-considered golf course construction projects of the 1970s–1990s which failed to take environmental considerations into account and increased the built-up ratio of seaside resorts.

The current strict environmental rules and requirements of golf course construction call for the optimum utilisation of the resources of the geographical environment, and they allow construction projects which spare the original environment to the greatest possible extent. In parallel with this, environment conscious consumption of golfers is on the rise, wherefore we can witness the development of an international golf community which involves more and more people while protecting the resources and the natural environment.

In terms of *type*, golf tourism can be domestic or international depending on whether the destination of the trip with golf being the primary motivation is within or outside the country. The different geographical regions are at different levels of economic and cultural development, therefore due to the different motivations of golfers, there have emerged traditional outbound (Scandinavia, Great Britain, Germany) and inbound (Spain, Portugal and Turkey) golf markets and the combinations thereof (Ireland, Scotland) with a lot of inbound and outbound golfers. One of the best examples for domestic golf tourism is the United States where the popularity of the so-called sunshine states (Florida, Georgia, South and North Carolina, Arizona, Nevada and California) can be explained with the climate similarly to that in Europe. In states above, the golf season starts in early spring, (in some places in autumn)

and it lasts until the beginning of summer, then it resumes in autumn. In terms of statistics, domestic golf tourism seems to be less significant, however, if the high number of recreational golfers is also included, it brings stability to this segment of the tourism industry.

In terms of tourism product types, golf tourism must be classified under active tourism products as a physical activity, provided it as a free time activity. It is supported by the fact that 97–98% of the world's golfers are amateurs, most of whom play golf only within their own community as a hobby for their own pleasure and entertainment. The remaining 2–3% of golfers are professional players and/or instructors who compete and/or teach on a regular basis for which they are paid, i.e. they purely pursue sports activities to make a living.

Without making claim for completeness, it must be noted that near big cities, golf is also considered as a major recreational activity, because it offers relaxation and refreshment from everyday work without having to leave one's hometown and pay for accommodation elsewhere. In certain classic golf destinations (USA, British Isles, Japan), golf is a part of business tourism as well, but its share is insignificant compared to recreational golf, and in such cases golf is only a secondary motivation.

On the basis of the above, the typical golf tourist who aims to play on several golf courses in a destination can be linked to recreational tourism or active tourism within that. In support of this argument, it must be pointed out that Magyar Turizmus Zrt. (Hungarian National Tourist Office) listed golf tourism under the category of premium products as an atypical segment of the Hungarian active tourism programmes on offer which lacks local traditions and does not enjoy great international demand, but those involved in it spend more than an average tourist. It is a well-founded definition, since golf tourism is primarily an auxiliary segment which provides additional services, recreational opportunities (as a secondary motivation) to tourists visiting Hungary for other purposes.

Methodology

The primary aim of this publication is to share the results of the theoretical research conducted by the author in preparation for his PhD thesis (Kiss, R. 2013) which was based on the analysis of major secondary sources (statistics, development plans), the adaptation of models and correlations used in golf tourism and on the primary research. Apart from the mainly international publications, the author conducted over 60 personal interviews with Irish, Portugese, Turkish, Kenyan and Hungarian golf experts, and he presents the results, the conclusions based on the theory as well as his model in the follow-

ing chapter. The interviewees included golf club directors, course managers, golf investors, golf instructors, golf tour operators, golfers, etc., i.e. the research covered the entire system, the supply and the demand side of golf tourism as well as the intermediary segment. The interviews were made between spring 2009 and autumn 2012, and they were supplemented with focus group questionnaires on both the supply and demand elements.

Results – The system and model of golf tourism

Tourism as a complex phenomenon and sector forming an organic part of the economy can be described with market characteristics similarly to any other industry. In other words, it equals with the open system of demand and supply interacting with its (natural, economic, social, political and technical) environment (Lengyel, M. 1992). Due to the interaction, the development of tourism is influenced by certain factors of the environment, but at the same time, tourism also affects the environment in a positive or negative manner with its processes and the development of its infra- and suprastructure. This generally accepted model ("The internal and external system of golf") is taken from Lengyel, M. (1992), and it revised and adapted to the studied tourism product. The model also supports the assumptions about the market operation of golf tourism *(Figure 1).*

Presenting the definitions of tourism, it was concluded that the internal system forms the demand, i.e. the connection between golf tourists (golfers) and supply (golf courses) by the intermediate sector jointly make up the tourism market. Tourists (golfers in this case) reach a product through their primary motivation, i.e. his attraction to golf. The objective of a travel can take various shapes, because it can be significantly influenced by the marketing activity of other players of the tourism market, e.g. the intermediaries and the service providers representing the tourism supply.

An appeal can be one or more characteristics of a golf course (e.g. quality, difficulty level, reputation, designer's name, location, proximity to other golf courses, etc.) or an entire golf destination which has been tested earlier or which simply has a favourable image (Antalya-Belek). In addition to motivation, the development of the demand can be fostered by the size of disposable income and sufficient free time. The desire for travelling can be strengthened by the natural endowments, i.e. the climatic reason can be twofold: on one hand, it has a so-called push effect due to the unavailability of domestic golf courses in winters, while on the other hand, an exotic environment with a pleasant climate acts as a pull factor.

Golfers involved in international tourism are more likely to visit new courses in addition to the ones they have already played on. Thanks to this customer demand, golf destinations which have been built as a result

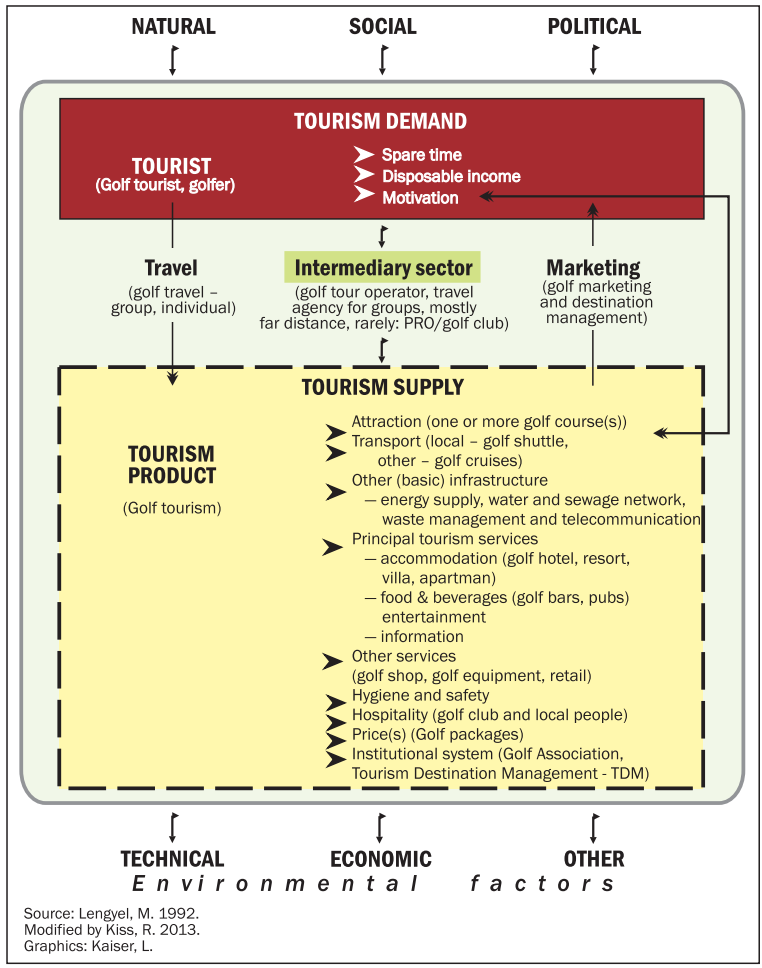

Fig. 1. The internal and external system of golf tourism. *Source:* Lengyel, M. 1992, modified by Kiss, R. 2013

of purposeful tourism development and have several adjacent golf courses, adequate tourism and suprastructure on Mediterranean or subtropical coasts enjoy a competitive edge. The author calls the popular geographical areas (countries, provinces, coastlines and isles) above the ABC destinations of the European (Mediterranean) golf tourism (*Figure* 2) on the basis of their English names which are the following:

– (A) Andalusia (Costa del Sol and Costa de la Luz) a Spanish province with a stretch of coastline; Algarve in Portugal and Antalya(-Belek) in Turkey (coastline); the African destinations of mass tourism (Morocco, Tunisia, Egypt).

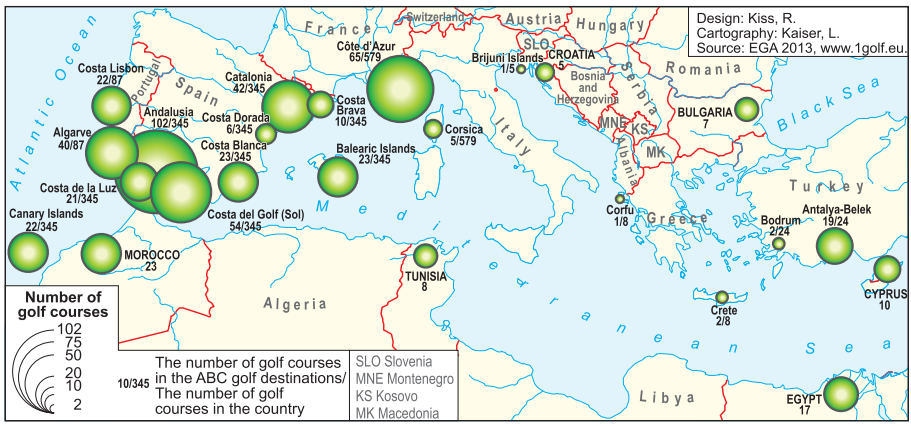

Fig. 2. The ABC golf destinations of the European (Mediterranean) golf tourism. *Source*: Kiss, R. 2013

– (B) From among the coastlines and islands, the Belek and Bodrum(-Mugla) regions in Turkey, the Balearic Islands off Spain, the Brijuni Islands in Croatia, and as a country, Bulgaria (non-Mediterranean).

– (C) The outstanding Spanish Costa's: Costa del Sol (Golf) and Costa de la Luz (both in Andalusia), Costa Brava and Costa Dorada (both in Catalonia), Costa Blanca, Costa Lisbon in Portugal, the Côte d'Azur & Provence in France. There are other larger and smaller islands such as the Canary Islands off Spain, the French Corsica, Corfu and Crete in Greece and there are countries as well: Croatia and Cyprus.

The ABC golf destinations are a good illustration of the role of climatic attractions bridging the continents. The golf regions listed above are unanimously the most popular among the international destinations (Spain, Portugal, France, Turkey, Cyprus, Morocco, Egypt), and the typical seaside areas which have not been discovered by golfers (Corsica, Crete, Corfu) have a significant growth potential despite the current insignificant supply. The Southern European regions with a pleasant climate are, first of all, recipient golf centres at the edge of the continent similarly to the African coastal region with its Mediterranean climate. Africa is mentioned here exclusively as a destination building on outbound European golf tourism, including Morocco, Tunisia and Egypt which have close ties with the outbound markets. For golfers, the Mediterranean region can be regarded as one region, because the climatic conditions are almost identical. Therefore, the choice is mostly influenced by the suprastucture of golf tourism.

In the system of golf tourism, the primary motivation for travelling is golf. Golf tourism is induced by the fact that the demand and supply elements can be found in different regions, therefore in international golf the trips usually

for groups to places further afield are organised by a specialised intermediary sector (golf tour operators, travel agencies, possibly PROs or golf clubs; according to Michalkó's theory (2007), golf media also belongs to that sector).

The attraction, i.e. the golf course which represents the basis for golf tourism is basically a man-made attraction which blends into its environment to the greatest possible extent, and it provides an enjoyment via the best possible play, and it is organically linked to the natural, the social and the economic environment. That demand is the alpha and the omega of experience. It is indicative of the size of the intermediary sector that the International Association of Golf Tour Operators (hereinafter: IAGTO), the most significant professional organisation managing golf tourism established in 1997, has 2,057 members from 90 countries totally covering the travel sector.

Apart from 488 accredited golf tour operators from 61 countries, the association brings together golf courses, golf hotels, golf resorts, airlines, passenger transportation companies, tourism organisations, the media and their business partners. IAGTO sells 85% of the world's golf packages at a value of around USD 1 billion. They often tailor their programmes to the individual needs, since they have a vested interest in building up a pool of regular customers willing to visit other golf destinations, too.

The golf tourism supply is made up of the concurrent availability of several factors. Apart from the attraction mentioned above, in the major golf destinations, not only the existence of basic and tourism infrastructure is required, but also that of the primary and secondary suprastructure. In other words, apart from transport networks serving tourism (airports, transfer, car rental or shuttle services), there is a need for quality accommodation (special golf hotels, resorts), catering facilities (golf pubs and bars) and other supplementary services (golf shops, golf equipment retailers). The marketing of the tourism supply done by the regional destination management boards also plays an important role. Apart from the high standards of hygiene and security related to the quality services, demonstrating hospitability is equally important for both the golf clubs and the residents of the resort.

The outer system is the collection of interacting environmental factors each of which influences the operation of the market to varying degrees. The constant dynamism of these factors requires continuous adjustments from the system's intermediaries.

Being a factor adjusting to the individual needs, motivation plays an exceptional role in the research of tourism (Aubert, A. 2011). Motivation manifests itself on different levels, and it is important to study its interpretation from the perspective of golf on the basis of Maslow's hierarchy (1979) of motivational needs (*Figure 3*).

– In the *lowest* level of the pyramid, one can differentiate between two groups of physiological needs: the biological needs related to golf (accom-

Fig. 3. Interpretation of Maslow's hierarchy of motivational needs from the perspective of golf (modified by Kıss, R. 2013)

modation and catering as well as a club house related to the game), while the other group includes a health-conscious way of thinking, the ability to play and the satisfaction of the needs for physical activity.

– The *second* level represents the need for security which after the satisfaction of the needs at the previous level can be further divided into two groups: psychological security means adequate and sure playing skills as well as problem-free playing opportunities with the required gear, while physical security means the availability of a job and income. A great advantage of private courses lies especially in the latter ones.

– The *third* level represents the need for love and the sense of belonging which is clearly satisfied for the members of a golf club. In case of competitions, it can be further reinforced by a team membership. It is also typical and has been mentioned in the theory part that corporate golf societies satisfy the need for belonging to a community similarly to a team-building training session.

– The *fourth* category represents the need for recognition as a team member, a balanced personality, which is mostly related to the quality of a golfer's performance. An image is formed about the golfer which becomes measurable on the basis of his playing skills (HCP), and the better a golfer can play, the greater recognition he can hope for, irrespective of his weekday profession. In a developed golf society, there is no difference between golfers on the course: only the playing skills matter.

– The *fifth* level represents cognitive needs, i.e. the need for golfers to get to know themselves and their fellow players, in which a great emphasis is given to a balanced personality, which can be the basis for a successful and an effective game.

– The *sixth* level is that of aesthetic needs including the pleasant geographical environment surrounding the golf courses, the interior design and the quality finish of a golf club, a golf hotel or a resort. They all indicate environment consciousness and the need for tidiness, as well.

– The *seventh* level (the peak of the pyramid) represents the need for self-actualisation through enjoying the game and skill development.

In line with the systemic approach, the most characteristic features of golf tourism as a tourism product are marked with the 4As taken from the international literature. The 'A' mark of the tourism product can be replaced with 'G', since the proper terminology for each category begins with a 'G'. So 4As corresponds to 4Gs as follows:

– Attraction = Golf course(s),
– Access = Golf shuttle / golf cruise / golf transfer,
– Accommodation = Golf hotel / golf resort,
– Attitude = Gentlemen's sport.

From the 4Gs of golf tourism, we must take the golf course as an "Attraction" first, since it represents the greatest appeal. It is the interest in the golf courses which puts millions of avid recreational players on the move. The appeal of a course is usually influenced by several factors, i.e. the difficulty (playability), the quality, the location, the environment, the physical accessibility, the price, the reputation as well as the design (layout) of the course in the case of more able golfers.

As far as the second G (golf shuttle, golf cruise) is concerned, "Access" (A) is an important factor when choosing a golf destination for two reasons. On one hand, the accessibility of the destination is important, therefore airlines ask already at the time of booking whether the customer intends to travel with a golf bag, i.e. unusual baggage. The distance between the golf course and the airport is an important criterion. On the other hand, it is a common practice to use local transport (shuttle buses) in case of group and individual travels alike (such services are ordered by the tour operator), however, a car rental is also an option for individuals. The shuttle transfer of group guests from the hotels to the golf courses is also of utmost importance, partly because golf tourists do not like long local trips and it is important that 3–5 golf courses should be within 30–50 minutes drive from one another. Accessibility significantly increases customer satisfaction, therefore the positive reputation of the destination.

The third G is 'golf hotel, resort' as in "Accommodation" (A). It is a self-explanatory, organic part of the golf package. The hotels either belong to the golf course, or they are located nearby, and transfer between the two

is provided by shuttle services as mentioned above. Golf courses are usually the destinations of quality tourism with high-end tourists in terms of needs and spending alike.

The fourth G represents 'gentleman' or "Attitude" (A). This factor is important, because the sport or the game itself requires fair play without a referee. The gentleman attitude is less visible in the developing destinations and in the emerging markets, and it is more difficult to establish it than in a country with golf traditions and culture. Yet, the real threat of being excluded by the golf community encourages golfers to observe the rules.

Following the above chain of thoughts, the author defines golf as a sport with another set of 4Gs as follows:

- Gorgeous/Great – unique experience,
- Game (on) – exciting game,
- Green,
- Grass.

Golf as a sport implies the passion for the game, humbleness and respect, since golf is an exciting outdoor activity providing enjoyment even when played without referees, simply on the basis of honesty, in a wonderful natural setting with calming colours. *Table 2* summarises the product approach of golf tourism and the definition of golf sport.

Table 2. The 4Gs of golf tourism and golf sport

The 4Gs of golf tourism	The 4Gs of golf sport
Golf course	Gorgeous/Great
Golf shuttle / cruise	Game
Golf hotel/resort	Green
Gentleman	Grass

Source: Kiss, R. 2013

A tourism product cannot exist without the material conditions, the development of which follows the proven steps of regional and tourism development. The prerequisite of service development is the availability of basic infrastructure: transport, utilities (electricity, gas and water supply, sewage system) and communications which can serve as a foundation for suprastructural investments (Aubert, A. 2001). Resorts emerge as a result of the successive stages of implementation.

The peak or most significant stage of every scientific activity or research is independent modelling. The system of relationships of golf tourism as a tourism product, as well as that of the material conditions of tourism, is shown by the golf ball model (*Figure 4*).

The name of the model refers to the layered structure of the Earth as well as the layered interior of a golf ball. That parallelism is represented by the entirety of the interconnected basic, infra and suprastructural investments and

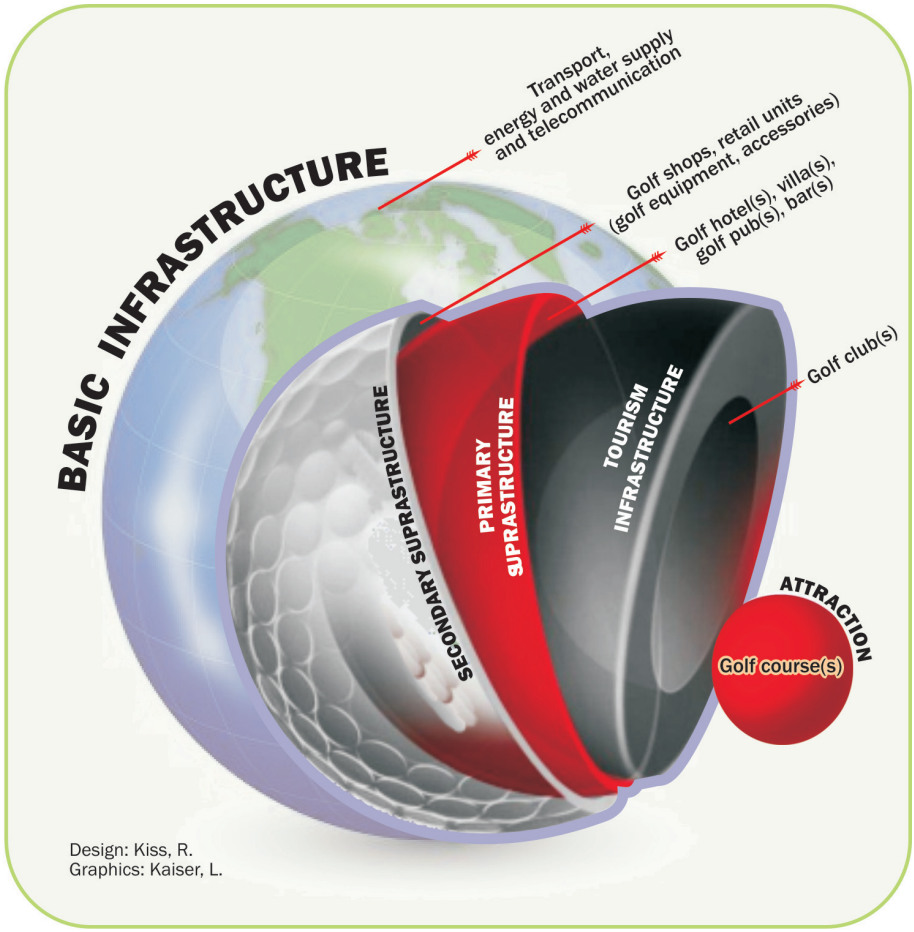

Fig. 4. The relationship between the material conditions of golf tourism as a tourism product and that of tourism on the basis of the golf ball model. *Source:* Kiss, R. 2013

services which are held together by an outer solid crust (basic infrastructure) similarly to the Earth crust holds the deeper, malleable layers of the Earth.

If we translate the model into golf tourism, the golf course acts upon the golfer as the most important attraction (encourages travel). A significant investment project even a property based one starts with the construction of the course. The development of the surrounding tourism infrastructure (golf club), as well as that of the primary suprastructure (golf hotel, golf resort, golf buffet) and the secondary suprastructure (shops selling golf equipment and accessories) comes only afterwards. However, the model developed for the

classic, mainly seaside golf destinations cannot be fully used for certain regions which are not specialised in golf (e.g. Hungary) only due to the larger distances between the individual courses as well as the underdeveloped primary and secondary suprastructural facilities.

Although the golf ball model can primarily be used to study seaside golf developments, it is also suitable to determine the extent to which golf tourism is present in a given region. Therefore, it is necessary to provide a short overview on the international expansion of golf.

The geographical expansion of international golf tourism supply elements

As far as the origin of the nowadays widespread golf is concerned, it is widely accepted that golf is a Scottish invention. According to this approach, in the 15th century golf was played by shepherds on the undulating links in the southern coastal region of Firth of Forth, in an area of sand dunes. The author shares the opinion that golf has Scottish origins (1457) and there is no doubt that the etiquette of golf reflects Scottish and English influence , just like the appearance of gentlemen playing a sport based on fair play with no referee and observing the strict rules. The first golf course was built in Leith, Scotland in 1744. It was followed by the construction of the most renowned course in 1754 which was later named Royal & Ancient Golf Club of St. Andrews (R&A), and it is still regarded as the cradle of golf.

The geographic expansion of golf started in the 19th century and it had accelerated by the 20th century due to having been exported by colonisers as a popular recreational activity. The dynamics of the expansion can be detected mostly in the foundation of golf clubs, which illustrates the spatial expansion of Anglo-Saxon culture. The United States, Canada, Australia, the Republic of South Africa, as well as the British Isles are turned to be the most significant golf tourism markets, and at the same time, they are considerable factors on both the demand and supply sides of international tourism. As it can be seen in *Table 3*, nearly half of the world's golf courses are located in the United States, and nearly half of the world's golf players live there.

It is due to the fact that the North Atlantic economic power gradually shifted from Europe to North America, and in parallel with the strong industrialisation, the expansion of golf courses has also accelerated on the American continent since the 1890s. The process lasted until the 1920s, and forty years later a new boom started, primarily for two reasons:

– The state gave preference to the construction of inexpensive public golf courses to make golf a mass sport. That effort was facilitated by easily accessible bank financing supporting new investment projects.

Table 3. The largest golf super powers in 2012

Rank	Country	Number of golf courses	Number of golfers, 1,000 people	Ratio of the number of courses to the world total,%
1	USA	17,000	27,000	50.0
2	Japan	2,350	9,000	7.0
3	Canada	2,300	1,500	7.0
4	England	1,867	750	5.0
5	Australia	1,500	..	4.0
6	Germany	716	624	2.0
7	France	579	418	2.0
8	Scotland	541	230	1.0
9	China	500	..	1.0
10	Sweden	436	491	1.0
	World total	*35,112*	*56,000*	*100.0*

.. = no data. *Source*: EGA 2013

– The emergence of media interest in professional golf tournaments, sponsorship.

Assisted golf course development reached its peak in the 1990s and property development remained in the focus in the areas suitable for recreational activities, since homes built around golf courses became very popular, especially in the southern states where buyers were willing to pay up to 30% more for such apartments, whether they played golf or not (KPMG 2008). However, since the 2000s the number of American and British golfers has been decreasing slowly, while certain European countries (Germany, Austria and Eastern Europe), as well as some Asian countries and cities (China, Dubai) have experienced a golf boom (KPMG 2010b).

A dynamic development similar to the one in the US could also be witnessed in Europe in the 1980s, since the Scandinavian countries, Germany, France and Spain joined Britain with significant investment projects. During that period, a growth of 40 to 60% could be registered (*Figure 5*). It resulted in the creation of special golf destinations in different versions around the world. Thus, we can differentiate among property development (residential parks in the US), the acquisition of a second home (Southern Europe) as well as golf resorts in exotic places (Dubai) (KPMG 2010b; Hudson, S. and Hudson, L. 2010). Southern European countries with a Mediterranean climate (Portugal, Spain and Turkey) aimed to extend the season by attracting golf tourists to facilities used by vacationers in the summer high season (Kiss, R. 2012).

The concentration of the European golf supply is illustrated by *Figure 5* which also shows that the level of golf in a given region is significantly influenced by the economic and social conditions. Therefore, it goes without saying that golf destinations include the Western countries (British Isles 30.9%,

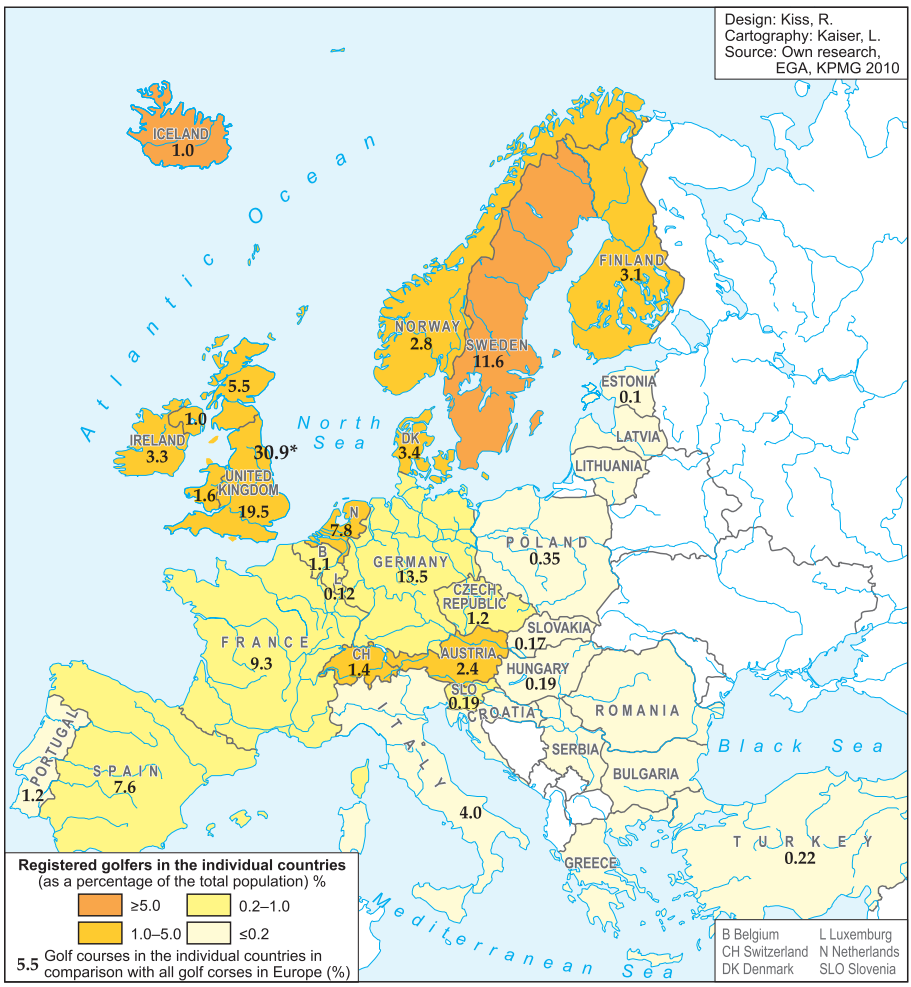

Fig. 5. The breakdown of major European golf destinations and the ratio of golf demand to the population of the individual countries. *Playing golf is not tied to registration in the British Isles (there are around 4 million golfers in the UK, approx. 7% of the total population). *Source:* KPMG 2010a, EGA 2013, Kiss, R. 2013

Germany 13.5%, Sweden 11.6%, France 9.3%, Spain 7.6% and the Netherlands 7.8%). The six countries account for 80.7% of the golf supply in Europe. Consequently, on the demand side the ratio of golfers to the whole population exceeds 1 to 5% in economically strong countries with a large population density, but also in Scandinavia which has a low population density.

The expansion of golf continued to the east on the continent, thus by the very beginning of the 20th century it had reached the Austro-Hungarian

Monarchy where several golf courses were built. Some of them survived the collapse of the empire, and they still exist thanks to the aristocracy, a strong middle class and wealthy people in general providing a sufficient base for sport, especially in the "eternal provinces" (Austria, Bohemia). All this is history. The fact that in the Eastern Bloc only the Czechs did not ban golf as an elite sport provides the Czech Republic a great advantage impossible to overcome.

In the Central European region, a significant development can be witnessed in Poland, Slovakia and Bulgaria. Poland and Bulgaria have excelled in golf course construction, while Slovakia has shown talent in the recruitment of golfers (KPMG 2010a). In comparison, following a promising start after the change of the political regime, Hungary's performance has been characterised by slowing growth, stagnation and more recently a decline. Therefore, due to the small supply and demand, it is continuously falling behind its neighbours in terms of competition (*Table 4*).

Table 4. Golf demand and supply in the countries of Central Europe in 2012

Country	Number of golf courses (with 9, 18 or more holes)	Share in the European supply, %	Number of golfers
Austria	156	2.40	104,732
Czech Republic	96	1.20	55,547
Hungary	15	0.19	1,419
Poland*	27	0.35	3,008
Slovakia	14	0.17	7,200
Slovenia	13	0.19	8,762
Croatia**	3	..	550
Serbia	2	..	618
Romania**	4	..	551
Bulgaria	7	..	639

*2012 **2010, .. = no data. *Source*: KPMG 2010b, 2012; EGA 2013, Kıss, R. 2013.

Conclusions

The geographical expansion of golf has been influenced by several concurrent processes, therefore, in addition to the level of the economic development of a golf centre, the social factors (the cultural background of the local population, the openness of people), as well as the political system and the openness of a country have also played a great role. In addition, the natural environment has been extremely important and just like in the expansion of tourism, it appeared as 'push' and 'pull' factors in certain popular regions with a pleasant climate (e.g. Mediterranean or subtropical).

The importance of golf tourism in the tourism industry can be measured by international standards; it plays an outstanding role in certain (golf) destinations. The appearance and the development of golf and tourism

strongly depend on the climatic and geographic features of a region. The author has presented the geographical expansion of golf and the breakdown of the supply side within Europe. He also highlighted the strong correlation between the geographical expansion of golf and the current golf super-powers, indicating the social and economic acceptance of this sport.

The state-assisted development of golf as a tourism product supplementing mass tourism has proved to be successful, especially in the Mediterranean region of Europe. The coastal areas and islands primarily used by mass tourists have seen the emergence of supply elements used by golf tourists rather than vacationers in the low seasons. Consequently, the European Mediterranean region can be divided into A, B and C golf destinations.

In the system of golf tourism, the main travel motivation is the golf course itself therefore it was essential to prepare the hierarchy of golfers' needs following the classic example of Maslow's pyramid of needs. In the revised model, the author interpreted the relations between the individual levels from the golfers' perspective. As a result of further theoretical innovation, the 4As (most important characteristic features) of golf tourism known as a tourism product in the international literature was converted into 4Gs. It was inevitable to define golf tourism in the paper and the related research.

Following the systemic approach within his own research activities, the author established an independent model which is based on the basic model of the external and internal system of tourism, supplemented with the special features of golf in the form of a golf ball model. Since the interior structures of both the golf ball and the Earth are layered in spherical shells, the model is suitable for the illustration of the interconnection of the basic assumptions on tourism product development as well as that of the interactions among the material conditions of tourism product.

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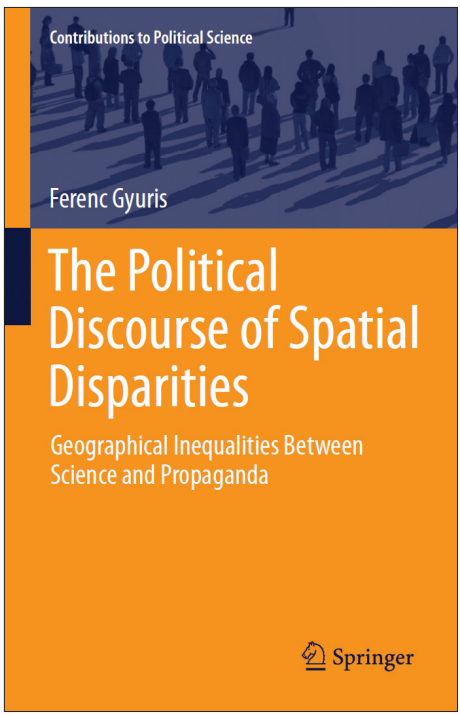
Ferenc Gyuris: The Political Discourse of Spatial Disparities. Geographical Inequalities Between Science and Propaganda (Contributions to Political Science Series). Springer Verlag, Berlin–Heidelberg–New York, 2014. 381 p.

The issue of spatial disparities has been in the forefront of geographical thought and enquiry for a long time, along with a number of other disciplines contributing to the topic. Beyond the otherwise obvious core concern of these analyses, however, there have always been (and still there is) a massive load of ballast, either explicitly political or 'only' obliquely ideological. Taking this into consideration, yet quite surprisingly, this volume is the very first attempt to provide a comprehensive, in-depth overview of the political discourse on geographical inequalities, based on the author's doctoral dissertation submitted to (and defended at) Ruprecht-Karls Universität Heidelberg. As the subheading of the book suggests, the analysis of such a topic is never 'neutral', nor apolitical; on the contrary, the results of scientific enquiry have always been tightly connected to political and economic power and, therefore, might be considered as a set of socially constructed and/or negotiated claims, cloaked in a scientific (dis)guise. To put it very briefly, the principal aim of the author is to unveil these intricate relationships.



In order to do so, Ferenc Gyuris first provides concise definitions for the contested concepts of '*spatial unevenness*', '*spatial differentiation*', '*spatial inequality / disparity*', and '*spatial inequity / injustice*', thereinafter focusing on '*spatial disparities*' which are understood by him as '*the spatial aspects of social disparities, thus, those forms of unevenness in space that can be traced back to human agency*' (p. 13.). After that, he presents a wide-ranging historical overview of the conceptualisation of social disparities spanning from the Antiquity (Ancient Greece and Rome) through Christianity and the Age of Enlightenment in England and France (with a short Central and Eastern European outlook) to the Marxist and Anti-Marxist interpretation of Darwin's ideas on natural selection and the post-WWII problematisation of social disparities.

In Chapter 2.6, as a case study from the recent years, the author analyses the extensively debated 2009 book entitled '*The Spirit Level*', written by epidemiologists Richard Wilkinson and Kate Pickett. With left-wing reviewers tending to present its findings as

'scientific truths', whereas right-wing critics questioning its validity (and thus, labelling it as an 'unscientific' work), the diverse receptions of the book clearly demonstrate the politically constructed nature of such contributions to the debate.

Beyond the conceptualisation of inequalities in general, the emphasis is then shifted from social to *spatial* disparities (from Chapter 3 to 9), with a particular emphasis on the actors shaping the dominant discourse(s). Just as in the case of the previous compendium on social inequalities, this contextual analysis is also embedded in a broader historical context, from the early social surveyors relying on 'moral statistics' in the wake of the Industrial Revolution through the 'classical' Marxist tradition to Non-Marxist and Neo-Marxist approaches. Concerning the 19th century French and British contexts, the author first provides an overview of the pioneering work of Adolphe Quetelet, Charles Dupin, André-Michel Guerry and Charles Booth, along with the latter's far-reaching influence on the other side of the Atlantic, especially on the subsequent work of the Chicago School of urban sociology. However, even before (and partly parallel with) their ecological approach, another highly influential tradition emerged from the mid-19th century; the Marxist conceptualisation of spatial disparities.

Within the confines of the 'classical' Marxist tradition, Ferenc Gyuris thoroughly analyses the spatial aspects of the work of Marx and Engels, Rosa Luxemburg's concept of 'uneven spatial development', as well as the related writings of Lenin and Stalin. In connection with this particular strand of thought, he concludes that the issue of spatial unevenness gradually became one of the focal points of their arguments and hence, made the entire Marxist discourse inherently spatial. Moreover, under the umbrella of 'scientific socialism', the above-mentioned thinkers almost exclusively presented their concepts as scientific ones (aimed at providing legitimacy *against* capitalism).

In reaction to the Marxist authors' problematisation of spatial unevenness, however, several Non-Marxist voices also emerged from the mid-20th century. Concerning the early Cold War context, Ferenc Gyuris comprehensively examines a number of important (yet conflicting, both neoclassical and non-neoclassical) theoretical contributions published within only one decade, i.e. the works of Myrdal (1957), Hirschman (1958), Easterlin (1958), Borts and Stein (1964), Williamson (1965), and Friedmann (1966). After this initial heyday fuelled by the 'big science', there has been a sudden decline in spatial disparity research in the Western world during the 1970s, caused by the changing circumstances of global geopolitics on the one hand, and the harsh criticism of these concepts on the other. Nevertheless, this temporary devaluation was soon followed by another significant re-appreciation of the topic in the rapidly neoliberalising economic environment of the 1980s, primarily marked by the works carried out on β and σ convergence, along with endogenous growth theories and Paul Krugman's 'New Economic Geography' (NEG), not to mention the booming neoclassical spatial disparity research connected to the policy-making (planning and monitoring system) of the European Union.

Largely building on Scheler's (1926) distinction between factual and orientation knowledge, the author attempts to deconstruct 'objective' research results throughout the entire book and demonstrate how they alter(ed) in favour of different political claims requiring scientific legitimacy. In addition, most of the abstract – yet often taken-for-granted – models of spatial inequalities formulated in the above-mentioned works (for instance Williamson's inverted U model or the later concepts of β and σ convergence) are also critically (re-)analysed. Ferenc Gyuris provides clear and thoroughly elaborated arguments, and eventually comes to the conclusion that over this long-standing tradition, the problematisation of spatial disparities has almost always gone hand in hand with the legitimisation and delegitimisation of certain political powers.

As its main tools, several strategies are presented, such as the selective use (or in some cases the complete negligence) of case studies, the acceptance of hypotheses as explanations, or – perhaps less intentionally – the misinterpretation of the actual causes of inequalities. To recapitulate the main findings of the book, figures 9.1 and 9.2 (pp. 332–334.) provide an excellent synopsis of this extraordinary discourse analysis.

Obviously, this monograph fills a significant theoretical gap, therefore it is strongly recommended for Hungarian readers from the field of social sciences, mainly human geographers (and those familiar with regional science), sociologists, economists and political scientists. Nonetheless, even for the international academia, the work of Gyuris also points far beyond the usual theorisation of the subject from a rather unconventional, (post)socialist perspective by throwing light on the theoretical and empirical shortcomings of Western mainstream Neo-Marxist approaches (various kinds of leftist 'dependency theories' and especially the concept of 'uneven development' worked out primarily by David Harvey and the late Neil Smith).

The true novelty of the book undoubtedly lies in the arguments elaborated in Chapter 8.2 (and particularly in 8.2.2 and 8.2.3., pp. 270–330.): here, the author provides the critique of the re-discovered concept of 'uneven development' supplemented by a wide array of empirical examples spanning from the former Soviet Union to post-World War II China and Hungary. (Even by the publisher, Springer Verlag, the book is labelled as '*the first work to test Harvey's uneven development concept on »real existing socialism«*'.) In connection with the massive body of Neo-Marxist literature on the topic of geographical inequalities, although underlining that these accounts should definitely not be thrown to the garbage heap of pure political propaganda, Ferenc Gyuris convincingly argues for an urgent need of the international recognition and a greater appreciation of the context of the actually existing socialism(s) (or, as he puts it, '*the real existing socialism*').

Indubitably, this comprehensive volume is highly recommended for researchers, lecturers and university students interested in the contested research history of spatial disparities from all fields of the social sciences.

Márton BERKI

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Report on the 2014 Annual Meeting of the Association of American Geographers

Tampa, April 8–12. 2014

Although the Association of American Geographers (AAG) is a US-based organisation, some of its events have global significance among which the Annual Meeting is probably the most important. This year the conference was hosted by Tampa and most events took place in three sites, among which the most important was the Tampa Convention Centre (TCC). The Convention Centre is a 600,000 square-feet event facility located at the heart of Tampa, along the attractive Riverwalk of the city. It features a 200,000 square-foot exhibit hall, a 36,000 square-foot ballroom and 36 additional meeting rooms, providing excellent infrastructure for such occasions. However, as we were informed by American colleagues, the centre is considered as only a medium-sized congress venue in the US (!). The other two conference places were the Marriott Waterside Hotel and Marina and The Westin Harbour Island Hotel, not far away from the TCC.

Registration board in Tampa Convention Centre (Photo: Lajos Boros)

The exhibition hall in the Convention Centre (Photo: Lajos Boros)

The Convention Centre from Franklin Street (Photo: Szabolcs Fabula)

According to the organisers, altogether more than 6,000 participants registered for the meeting, involving geographers, GIS specialists, environmental scientists and representatives of several other disciplines. As AAG emphasised, the group of the attendees was truly international since its members were coming from 78 countries. It is concurring with the recent trend of increasing foreign participation at the Annual Meetings. For example, approximately 30 percent of all participants represented other countries than the US, while this figure was about 20 percent in 2006 in Chicago and only 2.8 percent (59 international attendees) at the 1982 meeting in San Antonio.

Thanks to its interdisciplinary character, the conference was very colourful by the topics of the presentations as well. A large proportion of the sessions concentrated on human geography but several others focused on physical geography, environment, climatology, meteorology or teaching. Among the panels, theoretical as well as methodological ones could also be found while some of them were organised around ethical or practical questions (e.g. publishing). Some of the main themes might be familiar from the previous years, among which climate change had remained one of the most central. This topic was addressed by several sessions over the five days of the conference – for example by the Presidential Plenary – examining different aspects of this extremely complex phenomenon: impacts on health or indigenous populations, paleoclimatology, modelling, risk management and planning.

Health-related topics were also relatively popular among the lecturers. For example, in the session 'Difference, space and the uneven geographies of health' lectures showed a lot of innovative potentials. One of them investigated the gender differences in physical activity in Canada demonstrating the importance of scale as the gender gap proved to be the most conspicuous at the metropolitan level. Another one highlighted some connections between fast-food exposure (at home, during journey to work and at workplace) and body weight. It suggested that higher exposure caused higher BMI, and that significant inequalities existed by socio-economic status since lower-income groups consume more fast-food even at lower levels of exposure. The third lecture introduced the so called photovoice method, a community-based participatory research technique which combined photos taken by local residents and the narratives those people made.

There were several sessions dealing with other dimension of social difference and inequalities. Some of these focused on the promotion of meaningful encounters between different cultures. One lecture, for instance, showed how small actions could result in meaningful encounters and foster tolerance between Muslim and non-Muslim people in Warsaw. There were also lectures concentrating on mental health. As one of them suggested, social enterprises as alternative (in contrast with most for-profit firms) economic spaces could provide enabling spaces of encounter for people with mental illness by addressing the needs of these people and enhancing their social capacities. The above mentioned examples consist only a little part of the conference lectures but perhaps highlight the diversity even in a particular session. Besides these topics, significant emphasis was also paid to GIS science, sustainability and several different environmental questions.

It is worthy to note that, similarly to the previous years, several Hungarian lecturers contributed to the meeting with thought-provoking presentations. Ágnes Erőss (Geographical Institute, RCAES Hungarian Academy of Sciences), for example, investigated the connections between ethnicity and violence analysing Serb and Hungarian students' mental maps in Temerin. Lajos Boros (University of Szeged) assessed regulations on public space in Hungarian cities, with special attention to homelessness and begging. György Csomós (University of Debrecen) participated as a discussant in a panel organised (primarily) for non-native English speakers, where attendees could share their ideas about academic

The interior of the Convention Centre (Photo: Szabolcs Fabula)

Tampa Convention Centre, channel entrance (Photo: Szabolcs Fabula)

publishing. Zoltán Gál (Centre for Economic & Regional Studies, Hungarian Academy) analysed the FDI development path of CEE countries in the post-transitional period and the unequal power relations between home and host country institutions in the banking sector. As he stated, foreign investors' parent-subsidiary networks maintained the dependency of CEE countries and also caused regional economic disturbances at the same time. Ferenc Gyuris (Eötvös Loránd University, Budapest) examined the role that Richard Florida's concept of creativity and the creative city had played in the practices of urban developers and other local actors in Budapest. Last but not least, Zoltán Kovács (University of Szeged) analysed national census data and highlighted some features of socio-economic segregation in Budapest, for instance the growing separation of the rich in the quarters of Buda.

Besides sessions and workshops, the Meeting regularly offers other programs for the attendees. This year, for instance, the schedule contained exhibitions for different actors connecting to geosciences, like federal governmental agencies, NGOs or private companies. AAG presents different awards annually in order to celebrate exceptional achievements. The most prestigious of these acknowledgements is the AAG Atlas Award which 'recognizes outstanding accomplishments that advance world understanding'. This year the award was given to professor emeritus Julian Bond, a social activist and a leader of the American civil rights movement. During the conference, attendees could also join field trips to Tampa and the Tampa Bay Area. These excursions touched several topics like natural ecosystems of the region (e.g. wetlands, swamp forests, marine habitats) or the past and present of Tampa (e.g. brewing industry, cigar manufacturing, landmarks, urban renewal).

We can make the conclusion that the 2014 Annual Meeting followed the traditions of the event and the AAG. Thousands of lecturers gave the state-of-the-art in a very wide range of topics and the conference provided exciting scientific as well as non-scientific programs, in- and outdoor. The city of Tampa also did its best hosting the conference. In 2015 the meeting will take place in Chicago and hopefully it will be similarly successful with even more attendees from Hungary.

Szabolcs FABULA

GUIDELINES FOR AUTHORS

Hungarian Geographical Bulletin (formerly Földrajzi Értesítő) is a double-blind peer-reviewed English-language quarterly journal publishing open access **original scientific works** in the field of physical and human geography, methodology and analyses in geography, GIS, environmental assessment, regional studies, geographical research in Hungary and Central Europe. In the regular and special issues also discussion papers, chronicles and book reviews can be published.

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We accept most word processing formats, but MSWord files are preferred. Submissions should be single spaced and use 12pt font, and any track changes must be removed. The paper completed with abstract, keywords, text, figures, tables and references should not exceed **6000 words**.
The Cover Page of the article should only include the following information: title; author names; a footnote with the affiliations, postal and e-mail addresses of the authors in the correct order; a list of 4 to 8 keywords; any acknowledgements.
An abstract of up to **300 words** must be included in the submitted manuscript. It should state briefly and clearly the purpose and setting of the research, methodological backgrounds, the principal findings and major conclusions.

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Submit each illustration as a separate file. Figures and tables should be referred in the text. Numbering of figures and tables should be consecutively in accordance with their appearance in the text. Lettering and sizing of original artwork should be uniform. Convert the images to TIF or JPEG with an appropriate resolution: for colour or grayscale photographs or vector drawings (min. 300 dpi); bitmapped line drawings (min.1000 dpi); combinations bitmapped line/photographs (min. 500 dpi). Please do not supply files that are optimized for screen use (e.g., GIF, BMP, PICT, WPG). Size the illustrations close to the desired dimensions of the printed version. Be sparing in the use of tables and ensure that the data presented in tables do not duplicate results described elsewhere in the article.

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Journal papers:

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Books:

Pye, K. 1987. *Aeolian Dust and Dust Deposits.* Academic Press, London, 334 p.

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