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## Population redistribution in the Polish Carpathians during the 19<sup>th</sup> and 20<sup>th</sup> centuries

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**Abstract.** This article presents the spatial disparities of demographic changes in the Polish Carpathians and compares them with the general demographic trends of the area in the 19<sup>th</sup> and 20<sup>th</sup> centuries. Small-area census records for towns and villages between 1869 and 1988 were collected by the author. These records provided data which disclosed new demographic phenomena and processes being formed in this region during the time considered. Using these newly discovered trends, a population redistribution model and a population development scenario for the 21<sup>st</sup> century are presented.

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## 1. Introduction

The main goal of this research is to show spatial disparities of population changes in time and space in the Polish Carpathians, and the coincidental processes of intra-regional population redistribution during the 19<sup>th</sup> and 20<sup>th</sup> centuries. The study area encompasses the Polish Carpathian Mountains – a mountainous region located in southwestern Poland. The boundaries of this region correspond with the south-south-eastern border of Poland with the Czech Republic

and Slovakia to the south, and Ukraine on the east. The northern boundary of the Polish Carpathians was established using various physiographic features (Klimaszewski, 1972). A total number of 1,891 localities within the 19.5 thousand square kilometre area were identified (6% of Poland's total area).

The Polish Carpathians are an atypical mountainous region in both Poland and the whole of Europe as far as demographic activity is concerned. This peculiar behaviour is evidenced by a constant rise in population (from 1.3 million in 1869 to over 2.4 million



**Fig. 1.** Annual urban and rural population growth rate in the Polish Carpathians between 1869 and 1988

Explanation: A – urban population; B – rural population

Source: Author's work based on Austrian (1869–1910) and Polish (1921–1988) national censuses

in 1998) whereas other mountainous regions have experienced depopulation processes. A concentration and permanent increase in rural population make the Polish Carpathians a specific 'demographic basin' in the country. In 1998 this area was inhabited by 11.0% of Poland's rural population and only 3.6% of its urban population. Additionally, the urbanisation rate in the Polish Carpathians for the same year was as low as 35.3%. Interestingly, by the end of the 20<sup>th</sup> century, the area's urban population growth pace slowed; simultaneously, a slight increase in the rural population was noticed (Fig. 1). These trends attest to the end of the urbanisation stage in the urban life cycle and the concurrent beginning of the suburbanisation process of areas adjoining Polish Carpathian towns (Soja, 2008).

Small-area population research for the 1869 to 1988 period enriches current knowledge about the demographic past of this region. Microscale analyses of the country's smallest administrative units (towns and villages) not only reveal new demographic phenomena and processes, but also enable the recording of their development in time and space. Such studies are performed to confirm, modify and even deny some conclusions found by other researchers who analysed shorter time periods.

## 2. Materials

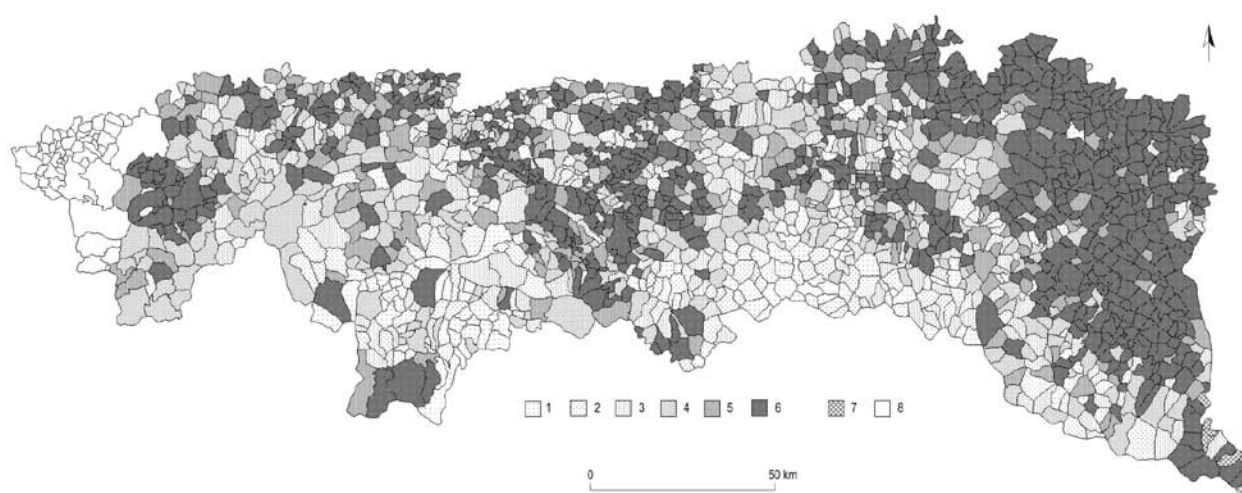
The time range of the research comprises the 19<sup>th</sup> and 20<sup>th</sup> centuries. A large body of published and unpublished statistical data was utilised in this research, of which most was derived from Austrian

population censuses (1869, 1880, 1890, 1900, and 1910, published), Polish pre-World War II population censuses (1921, 1931, published), Polish post-war population censuses (1950, 1960, 1970, 1978, 1988, unpublished, available at the Central Statistical Office in Warsaw) and current Polish running records (1990s, published). In addition, some titles from the literature were used to supplement the numerical data (e.g. Pilch, 1984). The time period under consideration was determined by the availability of small-area data and therefore coincides with the first and last available censuses (1869 Austrian, 1988 Polish) that include the needed information. A map of the Polish Carpathians, where the main spatial units represent towns and villages, was produced using both historical and contemporary cartographic sources (e.g. Mapa Galicyi; Uhorczak, 1939).

Some of the main methodological constraints of research conducted from the secular perspective (120 years) include plausibility and comparativeness of statistical and cartographic datasets during the considered time. In this study, all of the sources are completely plausible, trustworthy and comparative therefore bypassing these common obstacles.

## 3. Dynamics of population changes

The Polish Carpathian Mountains are characterised by large spatial disparities in the intensity of population processes. Noticeably, though these mountains are presently under Polish political jurisdiction, before 1918 they were a part of the Austro-Hungarian



**Fig. 2.** Dynamics of population changes between 1869 and 1921 (1869=100, by towns and villages)

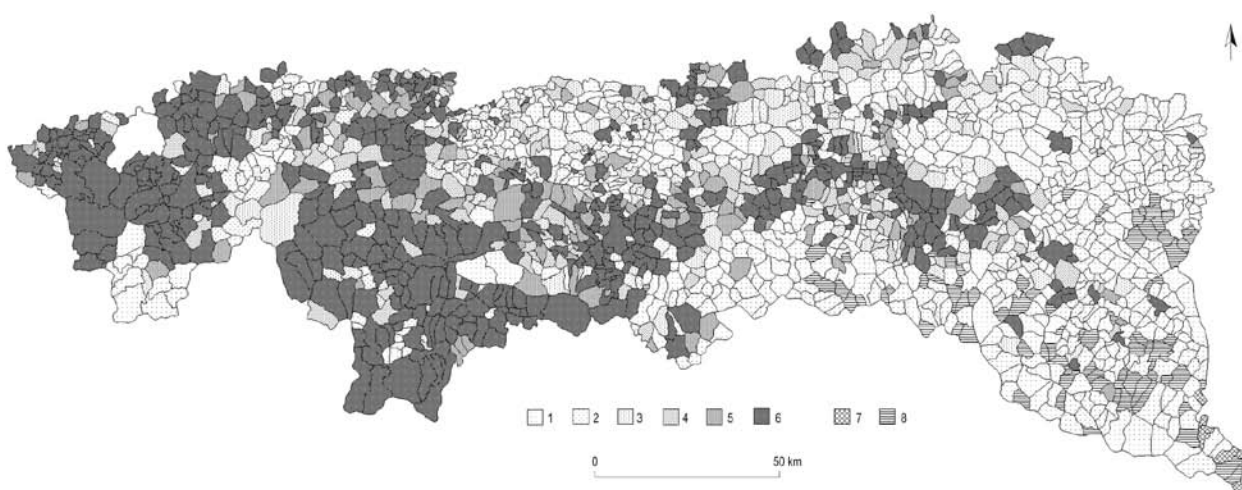
Explanation: 1 – < 90%; 2 – 90–100%; 3 – 100–110%; 4 – 110–120%; 5 – 120–130%; 6 – > 130%; 7 – villages excluded from the research; 8 – data missing for Silesia

Source: Author’s work based on Austrian (1869) and Polish (1921) national censuses

Empire. Hence, the lengthy time period of this study was divided into two separate stages: 1869–1921 and 1921–1988. The change in national affiliations over this time is clearly mirrored by the demographic development of this region (Fig. 2, 3, 4).

The rapidity of population changes affected almost the entire area under investigation (except the Beskid Niski, Spisz and Podhale regions). The highest

population increase was observed in villages located to the east, and also, to a lesser extent, in the middle part of the Polish Carpathians. Appreciably, the entire southeastern section of the former area shows a cohesive population increase. Noticeably, this cohesive region extends to the east beyond the present borders of Poland. Irrespective of the data missing for the Silesian Polish Carpathians, the area of population



**Fig. 3.** Dynamics of population changes between 1921 and 1988 (1921=100, by towns and villages)

Explanation: 1 – < 90%; 2 – 90–100%; 3 – 100–110%; 4 – 110–120%; 5 – 120–130%; 6 – > 130%; 7 – villages excluded from the research; 8 – data missing for Silesia

Source: Author’s work based on Polish national censuses (1921 and 1988)

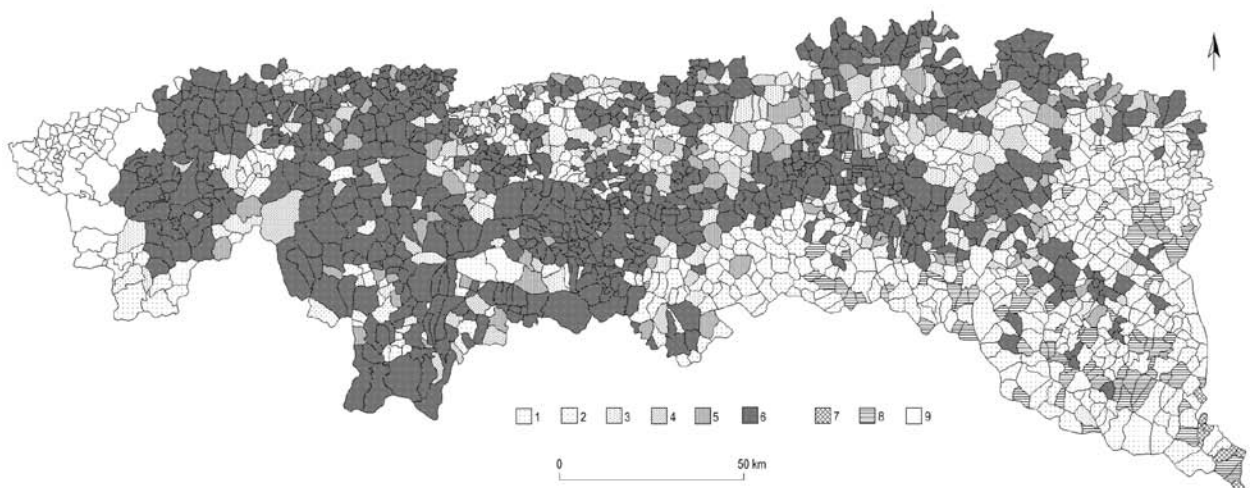
increase in the Żywiecka Basin almost certainly includes the present city of Bielsko-Biała and town of Cieszyn (Fig. 2). The largest area of depopulation was that of the Beskid Niski and partially the Beskid Sądecki. Both these regions were experiencing population decline long before World War II, as a consequence of two types of migration: intraregional (within Austria, or the entire Austro-Hungarian Empire) and interregional (foreign emigration, mainly to America). According to A. Pilch (1984), a total of 1.1 million people emigrated from Galicia between 1850 and 1914, 0.9 million of whom went overseas. Almost all of the administrative counties in the Austro-Hungarian Carpathians were affected by emigration processes between 1880 and 1890. At first, only Polish people were likely to move, but starting at the beginning of 1880s Rusyn (Lemko) emigrations became more and more common. Thus, economically induced depopulations of villages in the Beskid Niski during the 19<sup>th</sup> century were later only intensified, expanded, and non-economically induced by the consequences of World War II.

The spatial distribution of population changes between 1921 and 1988 was completely different from the preceding period. The once-cohesive area of high population increase in the eastern Polish Carpathians went into decline and instead, a large and unified area of population growth appeared to the west. Similarly, a second area of this kind formed to the west as a longitudinal band of localities along the main Carpathian railroad. At the same time, areas of depopulation

emerged to the north and to the south of this railroad (Fig. 3). Population increase was no longer a characteristic of the eastern Polish Carpathians, where the number of residents dropped significantly. Instead, the trend of population growth moved westward as a consequence of state border changes – a new Polish-USSR border was delineated to the east and fostered the depopulation of this border area (Eberhardt, 1994).

Generally, such a shifting spatial configuration of population growth areas was, to some extent, a feature of the entire area under consideration between 1869 and 1988 (Fig. 4). The forming stage of this configuration endured from the end of the 19<sup>th</sup> century through to the early 20<sup>th</sup> century, spreading gradually and creating large population growth areas through the first half of the 20<sup>th</sup> century. Subsequently, population decline in the second half of the 20<sup>th</sup> century caused these areas of growth to wane and sometimes disappear completely.

For more than a century, localities situated within the Polish Carpathians were characterised by population increase (present in many localities) as well as population decrease (present in fewer localities), both trends of which formed cohesive longitudinal regions more often than latitudinal ones. Such band-like arrangements also rendered spatially diverse population densities, the total of which almost doubled during the time considered – from 68 persons per 1 km<sup>2</sup> in 1869 to 98 persons per 1 km<sup>2</sup> in 1931 and 127 persons per 1 km<sup>2</sup> in 1988.



**Fig. 4.** Dynamics of population changes between 1869 and 1988 (1869=100, by towns and villages)

Explanation: 1 – < 90%; 2 – 90–100%; 3 – 100–110%; 4 – 110–120%; 5 – 120–130%; 6 – > 130%; 7 – villages excluded from the research; 8 – data missing for Silesia

Source: Author's work based on Austrian (1869) and Polish (1921) national censuses



#### 4. Intraregional population redistribution

The secular perspective of this study provides the possibility of gaining a much broader understanding of population changes in the Polish Carpathians, especially as the examination is performed in the microscale. Centred upon this research, a space-time dependent population redistribution model was created for the discussed area. Regions of population growth were established based upon spatial disparities of population changes in the Polish Carpathians between 1969 and 1988. These areas of population growth have always been present in the Polish Carpathians during different points in time and in varying places – their appearance in one area and simultaneous waning in others shows the directions of growth within time and space. As a consequence, a band-like demographic configuration of the Polish Carpathians formed. The northern band of this configuration stretches across the Carpathian Foothills, and the southern band includes the Beskid Mountains. This newly discovered spatial configuration existed in the entire Polish Carpathians in only the second half of the 19<sup>th</sup> century and the end of the 20<sup>th</sup> century. Interestingly, during the 20<sup>th</sup> century characteristic displacements of demographically vital areas occurred in this same region. In the first half of the 20<sup>th</sup> century, areas of population growth existed in the eastern part of the examined region, only to move after World War II to the western half of the Polish Carpathians (stretching from the 1950s through the 1970s). Notably, the band-like demographic configuration appeared again during the 1980s and 1990s, although this time, population growth areas were limited to the southern region (Beskid Mountains) and absent from the northern (Carpathian Foothills). These displacements of population growth areas occurred throughout time in the following directions: from the north to the east, then from the east to the west, and finally from the east to the south.

Spatial disparities in population changes between the northern and southern parts of the Polish Carpathians were initialised during the beginning of colonisation in this area and continued on until the 20<sup>th</sup> century. This discrepancy was only distorted at times by various kinds of disasters, political border changes and the two World Wars. Population relocations between the northern and southern parts of the Polish Carpathians varied in their individual duration and intensity. Agriculture, due to favourable natural conditions, played an economically more important role in the north than in the south. Thus,

the inhabitants of the northern Polish Carpathians had more food reserves and more opportunities to meet human needs. These advantages led to a higher population concentration in the Carpathian Foothills than in the more mountainous south. However, while in the north a gradual depletion of arable lands is observable for the considered time period, in the Beskid Mountains there were still large, poorly developed, sylvan lands. The settlement of this part of the non-ecumene spread not only along the valleys (horizontally), but also upwards along the slopes and ridges. Demographic and settlement pressure upon the natural environment lasted, with fluctuating intensities, until the end of the 20<sup>th</sup> century.

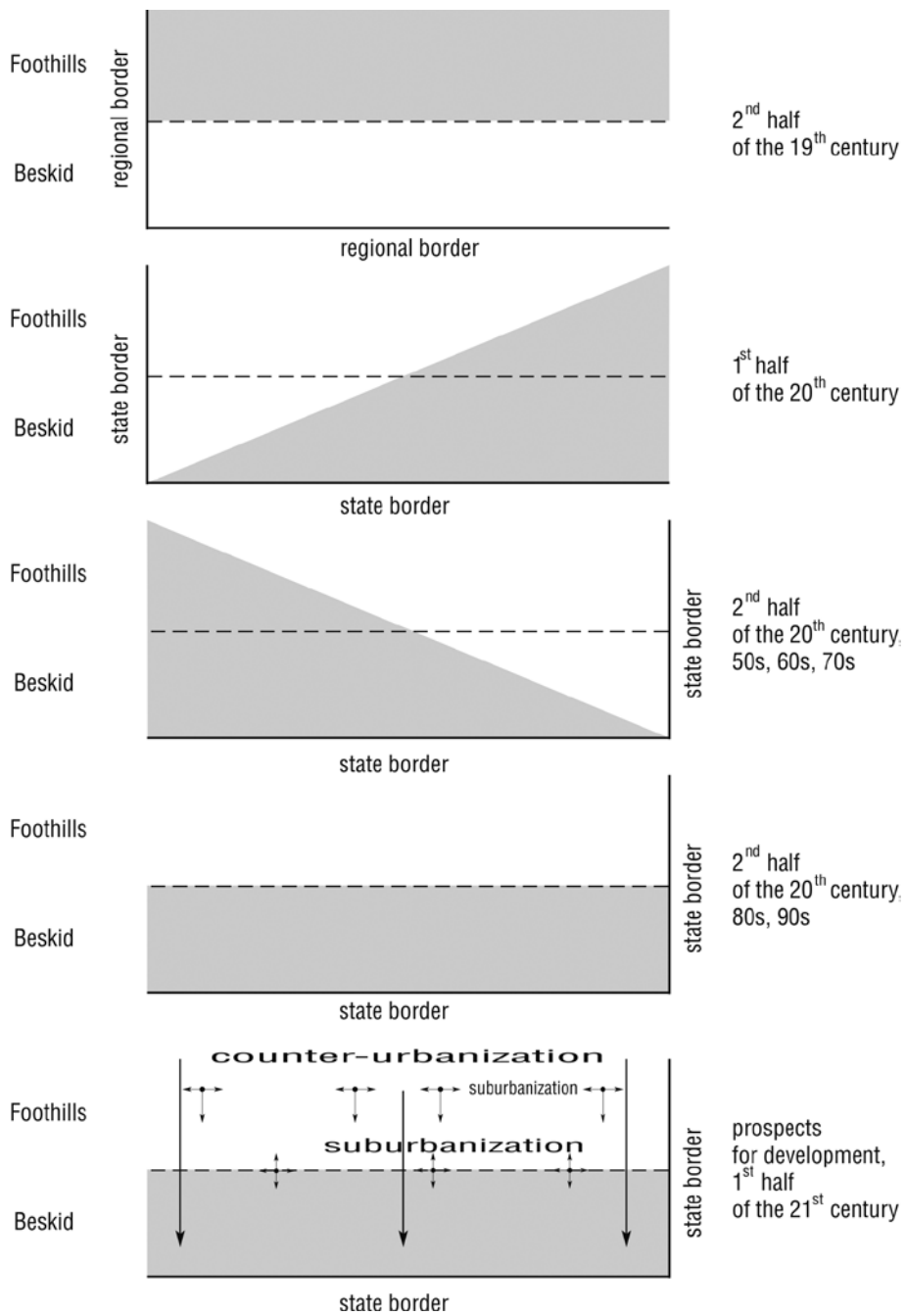
The settling of this southern area caused a need by the inhabitants for the provision of sustenance. Due to the harsh natural conditions (diverse land relief, poor soils, and a short vegetative period), primitive agricultural techniques and farming methods, livestock breeding became the main economic activity. Forestry and individual craftsmanship developed as the most popular non-agricultural activities. Inhabitants of the Polish Carpathians were diverse as far as economic development was concerned. This diversity was evidenced by their methods of homestead maintenance and their level of income. Economic development differences in this area were in part due to the varying ethnicities of the inhabitants. In the southeastern parts of the Polish Carpathians, Polish people lived together with the Rusyn ethnic group (comprised of the Lemko and Boyko). The latter groups were so socially diverse that R. Reinfuss (1998) stated that the Boyko were about 100 years behind the Lemko as far as economic and cultural developments were concerned. The Lemko have been engaged mainly in sheep breeding and trade, whereas the Boyko preferred the less economically advantageous activity of ox breeding, though, to a lesser extent, they also practised sheep breeding and trade. Both groups cultivated land, but this served as just an extra source of income, much like the forestry and individual craftsmanship mentioned above (Czajkowski, 1995). Instead, farming was a more popular practice in the north: the crop structure was more favourable (more oats were sown and reaped in the north even though 80% of the sown area in the south was sown with oats) and the harvest was richer. As compensation, livestock breeding, forestry, and weaving developed rapidly in the south (Przyboś, 1995).

The Polish Carpathians, during the time period in question, were a typically agricultural, economically backward area, with few environmentally friendly agricultural practices. Overpopulation and arable land

fragmentation dominated in the rural areas. This situation was fostered by the Habsburg's policy towards Galicia, the aim of which was to create a new market for products from the developing Austrian and Czech industries (Adamus, Luchter, 1995). In the second half of the 19<sup>th</sup> century (after Galicia gained autonomy in 1867), the Polish Carpathians started to thrive economically, mainly due to industrialisation in the

west and oil extraction in the east. Furthermore, new functions connected with tourism and the health resort business began to appear in this region (Groch, Kurek, 1995).

At the end of the 19<sup>th</sup> century, population mobility increased significantly in the Polish Carpathians due to economic motivations. Manumission (1848 in Galicia) and an increase in the transportation



**Fig. 5.** Population redistribution model for the Polish Carpathians in the 19<sup>th</sup> and 20<sup>th</sup> centuries and the prospects for the first part of the 21<sup>st</sup> century (from the secular and spatial perspective)

Source: Soja, 2008 – authors work, supplemented and expanded

accessibility of this region through the construction of railroads both in latitudinal (the so-called Galician Transversal Railway going from Żywiec through Nowy Sącz, Krosno, Ustrzyki Dolne, and even further east) and longitudinal (linking Galicia with Hungary) directions were conducive to increased ease of migration. Undoubtedly, an equally important role in these migrations was played by agents who canvassed the area, looking for people willing to work in both other Habsburg Monarchy countries and other European or overseas countries (Pilch, 1984). The results of people's emigrations at this time (being a shrinking population) were much more prominent in the southern than the northern Polish Carpathians. This situation continued to exist through the first half of the 20<sup>th</sup> century.

Political jurisdictions were also significant contributors in the shaping of demographic processes in the Polish Carpathians. At the time, when this region was a part of the Austro-Hungarian Empire, political borders were as meaningful as interior, provincial borders. There were two of these interior borders that covered the Polish Carpathians at this time, one being the Silesian border to the west and the other the Hungarian one to the south (which coincided with the natural border created by the mountain ridges in the range). For this reason, the northern and eastern parts of the Empire had much better accessibility than the rest of Austro-Hungary (due to the absence of the interior political borders). The regaining of independence by Poland in 1918 caused a new spatial configuration to crystallise. The Polish Carpathians region became more open in the west (as a result of border changes and gaining more western territory), whereas in the south the same natural border remained, but now as a state border (between Poland and Czechoslovakia) rather than a regional one. The state border changes after World War II with a new boundary between Poland and the USSR to the east limited the Polish Carpathians in the same direction (Eberhardt, 1994).

The demographic development of the Polish Carpathians was modified by political jurisdiction, which caused obstacles to border area development. Originally, this barrier existed in the south and west, and later in the south and east. However, the principal influence upon demographic development was exerted by the consequences of border changes.

Areas of population growth moved from the east to the west of the discussed region (Fig. 2, 3). The waning of the band-like configuration (taking place in the second half of the 19<sup>th</sup> century in the Carpathian Foothills of the north and the Beskid Mountains of

the south) for a few dozen years could be regarded as a distortion (disturbance) of this state of increase. Additionally, the waning was more substantial because it was induced by wars, which always result in population losses and mass migrations (Soja, 2008). The band-like configuration re-emerged at the end of the 20<sup>th</sup> century, but this time the demographic development was observable in the south, and not, as it was in the 19<sup>th</sup> century, in the Carpathian Foothills (Fig. 5).

## 5. Conclusions

The population changes in the Polish Carpathian Mountains in the 19<sup>th</sup> century mainly resulted from demographic determinants and economic motivations. By the end of the 20<sup>th</sup> century the situation was similar, but the newer society was affected not only by quantitative, but primarily qualitative changes connected with the demographic transition. The society of the latter 20<sup>th</sup> century had to endure advanced urbanisation processes and, at the same time, new suburbanisation processes as well as the newest process – counterurbanisation (Zborowski, 2007).

Drawing from the preceding decades of the 21<sup>st</sup> century, it can be assumed that the band-like spatial and demographic configuration (the Carpathian Foothills in the north and the Beskid Mountains in the south) will be preserved well into the future. The ongoing demographic vitality in the mountainous area will continue, fostered by the characteristic settlement configuration. Almost half of all Polish Carpathian towns and cities are located along an intraregional railroad connecting the towns of Żywiec and Ustrzyki Dolne. The increasing suburbanisation processes are not only filling the space between towns, but also spreading south towards the Beskid Mountains. There are also new and increasingly intensive counterurbanisation processes taking place. The best evidence for these processes is found in the former Warsaw and Kraków citizens who moved to far-flung villages.

The Polish Carpathians are not uniform as far as the on-going demographic processes are concerned. The observed tendency of a decreasing spatial mobility in Poland and the entire Carpathians is not true for some areas of the Polish Carpathians. Remarkably, these rural and mountainous lands do not depopulate in the same way as similar areas in Europe. The observed tendency of a declining population growth rate ultimately means the future demographic stabilisation of this region.

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