GEO-DEMOGRAPHICAL CHANGES IN THE INFLUENCE AREA OF REŞIŢA CITY

George MERCIU
University of Bucharets, Faculty of Geography, Bucharest, Romania,
e-mail: merciugeorge@yahoo.co.uk

Cristian BRAGHINĂ
University of Bucharets, Faculty of Geography, Interdisciplinary Center for Advanced Researches on Territorial Dynamics, CICADIT, Bucharest, Romania, e-mail: cristianbraghina@yahoo.com

Daniel PEPTENATU
University of Bucharets, Faculty of Geography, Interdisciplinary Center for Advanced Researches on Territorial Dynamics, CICADIT, Bucharest, Romania, e-mail: peptenatu@yahoo.fr

Abstract: The importance of the analysis of the influence area of the city of Reşiţa results, on the one hand, from the part played by it as a local development hub in the Banat Mountains, and on the other hand by the city's influence in driving ahead the economy of the localities inside its influence area. The industrial reorganization that impacted on the city of Reşiţa has influenced the neighboring area, influencing the evolution of the main demographic indicators, too. The influence area of the city of Reşiţa is characterized by a rich history, a situation that determined the evolution of the effects of political and historical factors, which, at certain periods of time, had an overwhelming influence on both the evolution of the population numbers and on the evolution's quality-related matters (religion, culture).

Keywords: urban influence area, territorial relations, population, rural, spatial, temporal

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INTRODUCTION

In time, various relations of economic, social, cultural, or other nature are established between urban centers and the neighboring areas (Pintilii, 2008; Drăghici, 2012). Furthermore, the city is considered *„an optimal, open, thermodynamic and informational system"* (Ianoş, 2004, p. 4), a system that develops and survives thanks to the multitude of relationships it establishes with the other, neighboring systems in the territory (Drăghici, 2011, p. 304).

A city's connections with the adjacent area indicate a mutual dependence and they may define the form of the respective urban center's influence area (Ianoş, 1987). By means of its economic power, a city may dynamize the area it polarizes (Ianoş, 1987) or on the contrary, slow down the process of economic development of the adjacent area (Staşac & Bucur, 2010). Most of the time, the relation between the polarizing city and the surrounding rural area reveals that rural areas are vulnerable to changes of an economic nature in the city, with direct consequences on the demographic potential, too (Zamfir et al., 2011). Population is the most active component in the dynamics of an area of influence (Cicharska, 2011).

The purpose of the present study is to analyse the evolution of the population in the area of influence of the city of Reşiţa. A several indicators (the criterion of convergence of transport systems, the demographic, economic, socio-cultural criteria) (Ianoş, 1987; Rusu, 2007; Pintilii, 2008; Drăghici, 2012) were used to define the city's area of polarization. The urban influence area of Reşiţa city includes: 2 towns and 13 communes (Merciu et al., 2012).

Reşiţa's industrial past left marks on the current economic landscape because of the fact that, although the industrial nature has remained dominant, nevertheless, influenced by economic reorganization, it has required an apparent downsizing, from the point of view of both production and workforce. This situation was reflected in a decline of the migration of workforce drawn by Reşiţa from the surrounding area. In time, the effects of industrial reorganization were also visible in the evolution of the population, which went on a downward course in the case of most settlements located inside the influence area of the city of Reşiţa. Industrial reorganization brought about the shutdown of all mining enterprises in the study area, a situation that brought about the decline of the employed population in the mining towns (Anina, Ocna de Fier, Dognecea) and implicitly a downward trend in the main demographic indicators (population evolution numbers, birth and mortality rates). At the same time, there is a noticeable high rate of work-related morbidity among mining workers, which explains, for certain periods of time, the higher mortality rate among the male population.The coal-extracting industry is among the most polluting economic activities, which can have direct effects on people's health, as a consequence of exposure to pollutant agents (Dumitrache, 2004 quoted by Merciu, 2010).

The analysis of the evolution of the demographic indicators is also important for an estimate of the demographic potential of an area and of the labor resources, even more so that in areas impacted by industrial reorganization the problem of employment is one of the most serious and long-lasting consequences of industrial units closure (Haney & Shkaratan, 2003 quoted in Morar, 2012, p. 164).

METHODS

Choosing as case study an influence area whose geographic location is defined by a space with a relatively big spatial extension, where the historical and political factors visibly marked socio-cultural aspects of human habitation, the evolution of population numbers was tracked from the time of the annexation of the Banat by the Austro-Hungarian Empire (1751) and later by the Habsburg Empire (1780) up to the present time.

It was necessary to choose to analyse a long time span so as to capture the effects caused by the historical factors on the population of the area analysed, both in demographic terms (the settlement of foreign nationals) and in socio-cultural terms (the enforcement of the Catholic and Greek-Catholic religions, the creation of educational institutions for foreign nationals).

The data used in the analysis of the evolution of population numbers (calculated as a rate of growth or decline) were taken from population censuses - those conducted by the Austrians, censuses later conducted by the Romanian state and supplied by the Caraş-Severin county Statistics Bureau, and – for the time span 2002-2011, the data used was supplied by the National Statistics Institute. Raw population data were processed and represented cartographically by means of GIS techniques and later on they were interpreted from the perspective of the factors that influenced the evolution of the demographic indicators for the study area.

RESULTS AND DISCUSSIONS

The analysis of the population dynamics was centered on a longer span of time, from the earliest censuses to offer information about the settlements located inside the influence area of the city of Reşiţa, following – across the several phases – the most important changes in the evolution of the demographic indicators.
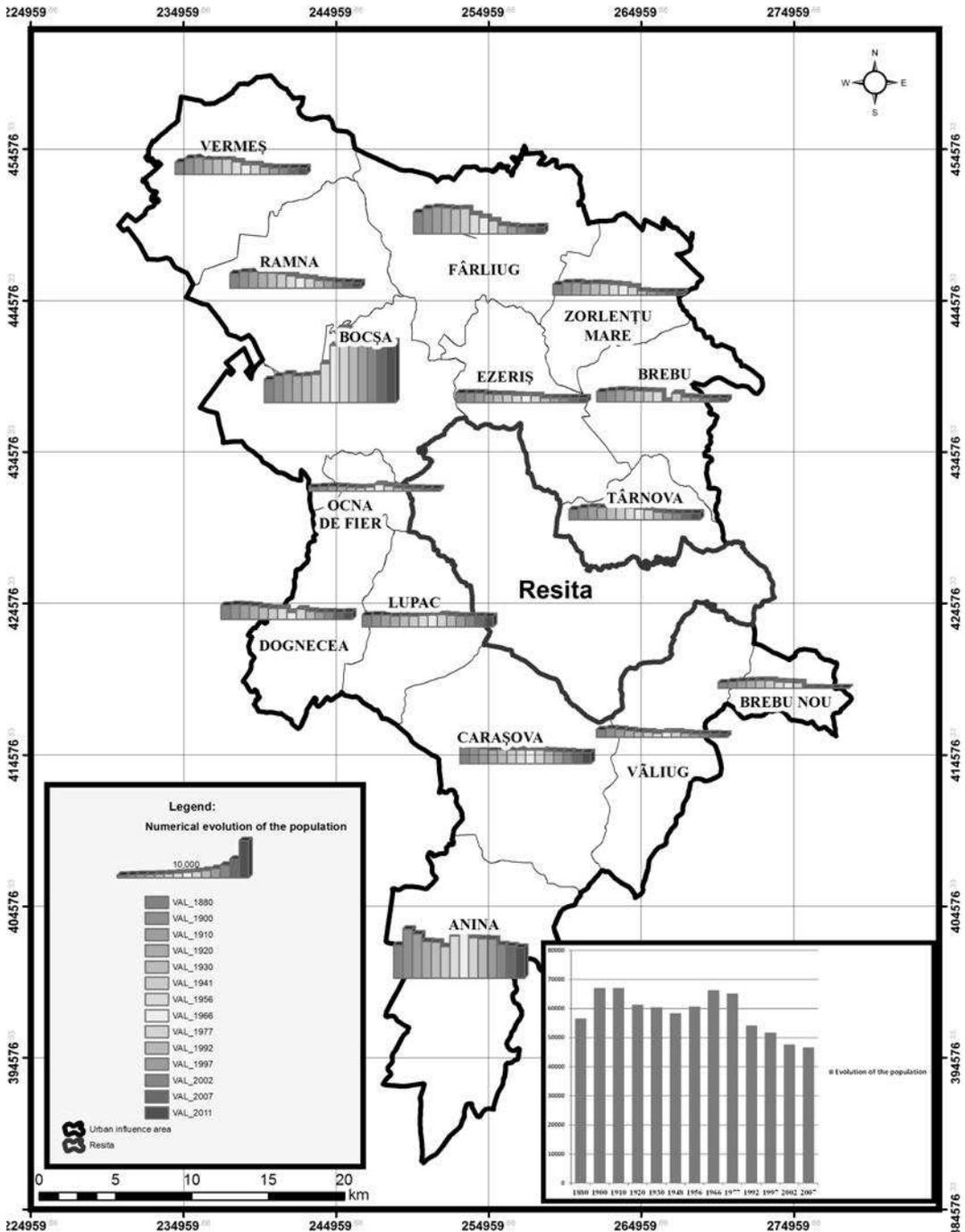
Figure 1. Numerical evolution of the population of the settlements located inside the influence area of the city of Reşiţa (1880-2011)
(Source: censuses: 1880-1930 apud Varga, 1948-2002 - Caraş Severin County Statistics Bureau, 2007-2011 - National Institure of Statistics-INS)

The 1880-1977 phase registered a net increase of 8,360 inhabitants in the influence area of the city of Reşiţa, with intervals defined by slight growth, with the exception of the years of the two world wars, when the population dropped. Several sub-phases were identified during this phase:

The 1880-1930 sub-phase the influence area of the city of Reşiţa registered a slight increase of 3,787 people, with the population growth rate standing at 6.69%. 9 administrative units registered positive figure evolutions, with the steepest growth rates (above 10%) occurring in: Brebu Nou (43.75%), Târnova (31.64%), Vermeş (24.59%), Fârliug (18.34%), Bocşa (18.25%), Zorlenţu Mare (11.62%), Brebu (11.48%) and lower rates in: Anina (9.10%), Râmna (3.89%) (figure 1).

In the case of the town of Bocşa, the settlement's economic evolution left its mark on population dynamics, too. When the decision was made to relocate the factories in Bocşa to Reşiţa, the population went on to stagnate and then to rise slowly, a trend that persisted up to 1956.

Although in the overall influence area of the city of Reşiţa the total growth rate was positive, 6 communes registered negative values: Văliug (-24.88%), Caraşova (-16%), Dognecea (-17.09%), Ezeriş (-14.25%), Lupac (-3.3%), Ocna de Fier (-2.37%) (figure 1).

The main cause of the decline of the population in most of the administrative units was brought about by the effects of the first world war. In particular, in the case of the town of Anina, one may mention the numerous work accidents typical of underground work, resulting in the death of miners.

The 1930-1941 interval sees a relatively small drop in population in the study area, which matches a -3.29% rate, registering a decrease of 1.992 persons. One notices that during this time the number of communes with negative growth rates rose to 10: Ocna de Fier (-3.54%), Brebu (-3.31%), Dognecea (-5.56%), Ezeriş (-1.6%), Râmna (-5.2%), Târnova (-4.88%),Văliug (-6.92%) and the town of Anina (-12.59%). Only 4 administrative units register slight population increases, with a higher rate registered in Bocşa (3.63%), with very low figures elsewhere (below 1%): Vermeş (0.90%), Fârliug (0.75%), Brebu Nou (0.36%) (figure 1).

The 1941-1956 span sees an increase in population figures from 58,401 to 60,661, meaning a net growth of 2,260 people, that is to say a 3.9% growth rate. Several communes, which had registered a drop in population in the previous phase, register a positive growth rate during this interval: Ocna de Fier (12.59%), Lupac (5.05%), Dognecea (0.96%), Caraşova (0.3%). The urban centers inside the influence area of the city of Reşiţa, too, post positive population growth rate values: Bocşa (38.65%), Anina (34.35%). The latter town undergoes an important rebound in the number of inhabitants compared to the previous period, as a result of the migration of people seeking jobs in the extractive sector. Another 9 communes register negative population growth rate values, some of them continuing the downward trend of the previous period: Brebu (-3.23%), Ezeriş (-8.4%), Râmna (-14.66%), Văliug (-19.85%), Zorlenţu Mare (-4.42%), Târnova (-4.08%). During this period, several communes register, for the first time, negative growth rate values: Brebu Nou (-17.80%), Fârliug (-23%), Vermeş (-17%) (figure 1).

During the 1956-1966 sub-phase the influence area is characterized by a population increase of 5,657 people, that is to say a total growth rate of 9.32%. During this interval the two urban centers and the 4 communes registered positive growth rate values: Anina (18.80%), Bocşa (46.67%), Ocna de Fier (72.70%), Dognecea (6.40%), Lupac (4.15%), Văliug (24.60%). However, mention must be made that 9 communes register some of the highest negative values, such as: Vermeş (-24.2%), Fârlig (-15.86%), Râmna (14.53%), with lower negative values typical of the communes of Ezeriş (-1.87%), Brebu (-3.41%).

One may notice, in the case of the town of Bocşa, like in the case of Anina, an important population increase during the years of the communist regime, a time when industry is reactivated in the town, which brought about a population growth, too.

During the 1966-1977 interval the influence area of the city of Reşiţa registers a slight decline, with a total -1.63% decline rate (respective 1,082 persons), as a result of the decrease of the population of most of the communes (even those with a an industry-based economy): Ocna de Fier (-23.25%), Anina (-18.38%). The town of Bocşa, with a 29.44% rate, and the commune of Lupac (2.52%) are the sole administrative units to post positive population-evolution figure values.

The 1977-2011 phase was characterized by a significant drop in the number of residents of the influence area, especially in the latter part of this phase, from 65,236 people to 45,911 people. The main cause of this negative evolution, more visible starting the latter half of this phase, was the shutdown of most of the industrial enterprises, which brought about a downward evolution of the demographic indicators. During the 1977-1992 span the population of the influence area lost 11,009 people, registering a negative growth rate (-16.87%). All settlements registered negative values, but there were differences in terms of bigger drops in the rural areas and smaller drops in the urban centers: (Anina: -1.30%, Bocşa: -7.62%).

As far as the rural area is concerned, one may notice very big differences in the values of the evolution of population numbers. The communes with the highest negative values are: Brebu Nou (-91.18%), Zorlenţu Mare (-47.40%), Brebu (-43%). Smaller negative values were found in the communes with a predominantly Croat population (Caraşova: - 6.87%, Lupac: - 6.93%).

The steep decline of the population numbers, typical of the villages created during the time of Austrian systematization (Gărâna, Brebu Nou), is accounted for by the Swabians' departure for Germany. While migration during the communist regime occurred against an unfavorable political background (the law on the expatriation of the Banat Swabians), after 1990 the migration of the Germans was grounded in individual decisions, with the purpose of reuniting families, in the place of origin. The law on the expatriation of the Swabians brought about mass emigration, especially after 1970 and with a higher intensity after 1978-1980 (Moldovan, 2009). The enactment act's foremost effect was in ethnic terms (the decline of the German population).

The emigration of the German population continued after the fall of the communist regime, at a more intense rate in the early 1990s and gradually declining in the present period, a situation whose main effect was the decline of the population of the old villages established during the Austrian systematization (nowadays the German villages of Gărâna and Brebu Nou have the smallest population among rural settlements inside the influence area of the city of Reşiţa).

During the 1992-2002 time span the evolution of population figures was on a downward trend, registering a negative -12.09% growth rate. Just like in the previous period, the study area registers negative values both in urban and rural areas. However, one can notice that in the case of most settlements, which had registered steeper drops in the previous period, the negative values during 1992-2002 are smaller (for instance Ezeriş: -2.42%, Ocna de Fier: -12.70%, Lupac: -4.59%, Vermeş: -7.61%, Dognecea: -10.03%). A mere three administrative units register bigger negative values compared to the previous time span: Anina (-17.64%), Bocşa (-8.86%), Caraşova (-7.60%).

During the 2002-2011 sub-phase, although the decline of the population figures in the study area continues, the decline is much smaller compared to the previous time period (is decreased by 663 persons from 46,574 in 2002 to 45,911 people in 2011), with the total growth rate standing at a mere -3.69%. The less steep decline is due on the one hand to the smaller values registered by administrative units that had been on a downward course, and on the other hand there were several administrative units that registered positive growth rate figures: Brebu Nou: 40.27%, Lupac: 3.68%, Ezeriş: 3.54%, Zorlenţu Mare: 0.32%.

The downward evolution registered by the urban centers inside the influence area of the city of Reşiţa in the past 20 years, more visibly starting since 1992, is a direct consequence of the loss in importance suffered by the part played by industrial enterprises in their economy.

The communes located inside the influence area of the city of Reşiţa follow a demographic course different from that of urban settlements. Although some of them had an economy involving mining, nevertheless their demographic evolution was not a strong upward one. Although they had previously registered an increase in population figures, the growth from one period to the next had been modest and it had sometimes registered fluctuations. Even in the case of the communes with a predominantly agrarian economy, the evolution of figures was not characterized by major discrepancies, as there were periods of slight growth followed by declines (due either to the two world wars or to local-influence or political factors). Among the communes located in the influence area of the city of Reşiţa that have had, over time, a more numerous population, there

are: Fârliug, Caraşova, Dognecea, Râmna, Vermeş. Among these, Dognecea and Râmna have been economy-wise dominated by the extractive industry, with the other communes characterized by agrarian and agro-pastoral economy.

The differences in economic terms among the communes inside the influence area of the city of Reşiţa indicate that the local geographical conditions, characterized by rich above-ground and underground resources, were put to best use by the local population, which adapted to the local conditions. Inside the influence area of the city of Reşiţa, a mere three communes (Dognecea, Fârliug and Zorlenţu Mare) registered, close to the end of the time span analyzed, a slight increase in population. Among them, the commune of Dognecea alone registered a smaller decline of the number of inhabitants during 1992-2010, a situation that explains the slight rebound of the population figures.

The significant downsizing of the industry in Reşiţa brought about a limitation of the population inflow coming in to work in the city and it also had negative effects on the evolution of the population in the area surrounding the city. Economic reorganization, a process launched in the early 1990s, impacted on the industrial sector first of all, which was reflected in the decrease of the population of the settlements inside the area under study, whose economic nature was extractive-industry. The mining enterprises in several communes and cities were shut down, and their population, most of it middle-aged, employed in the mining sector, as well as the young population, chose to emigrate abroad. Economic reorganization was a process with a destabilizing effect, from the economic point of view, and it also had important consequences in social terms on the local economies, dominated by industry.

Birth rate

The analysis of the birth rate is meant to highlight the intensity of the birth rate across environments (urban-rural) and across the area so as to identify the trends of future evolution of the settlements inside the influence area of the city of Reşiţa.

The average birth rate during the 1992-2011 time span fluctuated between a 5‰ low in the commune of Lupac and a 16‰ peak in the commune of Dognecea. The highest birth rate values, above 10‰, were registered in 4 administrative units, that is to say Bocşa (12‰), Ocna de Fier (11.74‰), Anina (10.47‰). Average values were registered in the communes with a predominantly Croat population: Caraşova (9.05‰), Lupac (9.04‰). At area level, the birth rates ranged from a 20.2‰ peak registered in the commune of Dognecea and a low in the commune of Brebu Nou, where there were no births in two different years (2002 and 2011) (figure 2).

During the 1992-1997 interval, most settlements inside the influence area of the city of Reşiţa register drops in the birth rate, with the exception of the communes of Dognecea, Târnova and Zorlenţu Mare. In the case of the first two communes, the occurrence of a high birth rate is explained by the persistence of the importance of industry for the local economy into the early 1990s, a situation that influenced for the better the inhabitants' demographic behavior (while in the case of the commune of Dognecea the extractive industry was still present in the local economy, in the case of the commune of Târnova the biggest part of the employed population was working in the steel industry in Reşiţa).

After 1997, the first effects of the enforcement of economic reorganization become felt, consisting in the gradual shutdown of mining enterprises (Ocna de Fier during 1999-2001, Anina in 2006). In addition, the socio-economic changes that occurred after 1997 directly influenced the evolution of the main demographic indicators, with a decline of the birth rate registered in certain settlements (Anina, Bocşa).
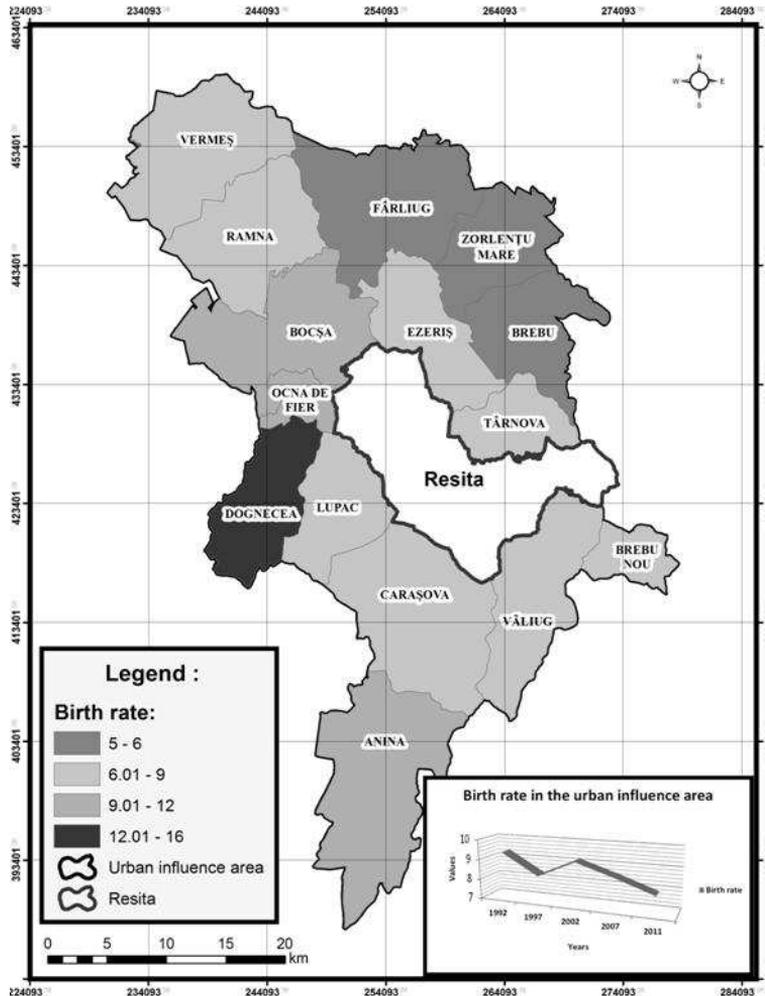
Figure 2. Average birth rate (1992-2011)
(Source: Caraş Severin County Statistics Bureau, National Institure of Statistics-INS)

One may notice that in mining areas, because of the severance pay received by laid-off miners, there was a relative state of financial security in the subsequent time span, a situation that caused the birth rate to remain high: by 2002 Ocna de Fier: 14.8‰, Dognecea: 20.2‰.

Birth rate drops were found in the communes with an agriculture-based economy, as these communes were impacted by population aging: Ezeriş (from 7.51‰ by 1997 to 5.26‰ by 2002), Fârliug (from 6‰ by 1997 to 4‰ by 2002). During 2007-2011 span there occurs a slight drop of the birth rate across the influence area of the city of Reşiţa (from 11.16‰ by 2007 to 10.4‰ by 2011, from 12.93‰ by 2007 in Bocşa to 10.6‰ by 2011, from 13.9‰ by 2007 to 11.22‰ by 2011) in those settlements where industry used to play an important part in the economy, or the birth rate remained constant (from 10.69‰ by 2007 to 10.8‰ by 2011 in Ocna de Fier).

In the settlements where the economy is dominated by agriculture, there occurred slight drops of the birth rate (in the commune of Brebu from 5.72‰ by 2007 to 4.52‰ by 2011), the value remained constant (the commune of Fârliug) and there was even a slight upward trend (in the commune of Caraşova: from 6.94‰ to 8‰ by 2011, the commune of Ezeriş from 7.42‰ by 2007 to 11‰ by 2011).

Mortality rate

During 1992-2011 the average mortality rate remained within 12‰-20‰, peaking at 40.7‰ in the commune of Zorlenţu Mare in 1997 and hitting a low at 5.4‰ in Văliug in 2011.

Analysing the mortality rate across urban-rural areas during 1992-1997, one notices that the population of urban centers registered the lowest values (around 10‰), below the average figures for the influence area, every year. This situation is explained by the higher ratio of the young and adult population of the overall population. As far as the rural areas are concerned, one may notice two trends. One trend consists in very high mortality rates (exceeding 20‰), typical of the communes with an aged population: Brebu (29.9‰ by 1997, 29,9‰ by 1997), Fârliug (23.1‰ by 1997), Zorlenţu Mare (28,8‰ în 1992 and 40.7‰ by 1997). A second trend is typical of the communes with an industry-based economy, which feature relatively high values as a result of the higher mortality rate among the male population as a result of the more hazardous work environment where they are employed (mining): Ocna de Fier (12,9‰ by 1992 and 23.6‰ by 1997) (figure 3). One notices a decline in the mortality rate during 2002-2011 in most of the administrative units: (Anina: 12.5‰ by 2002 and 5.8‰ by 2011, Ocna de Fier: 13.6‰ by 2002 and 6.7‰ by 2011, Ezeriş: 21.8‰ by 2002 and 14.5‰ by 2011, Zorlenţu Mare: 38.5% by 2002 and 21.3% by 2011). Most of the communes where the mortality rate remains relatively high feature a high elderly population ratio.
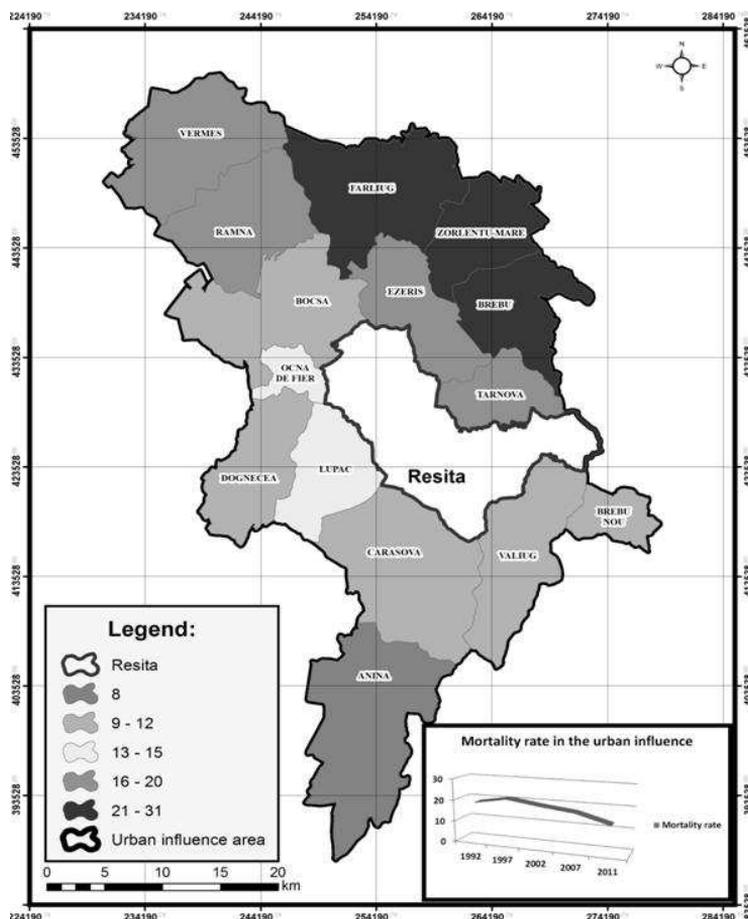

Figure 3. Average mortality rate (1992-2011)
(Source: Caraş Severin County Statistics Bureau, National Institure of Statistics-INS)

Natural demographic balance

The evolution of the natural demographic balance during 1992-2011 followed, in general, the same course as the birth rate and the mortality rate. Two very clear patterns can be identified: the former is directly influenced by the high birth rates and the somewhat lower mortality rates, which resulted in a positive rate of natural increase; but this pattern was only visible in the case of administrative units with an industrial economy that had an upward evolution (Anina, Bocşa, Dognecea).
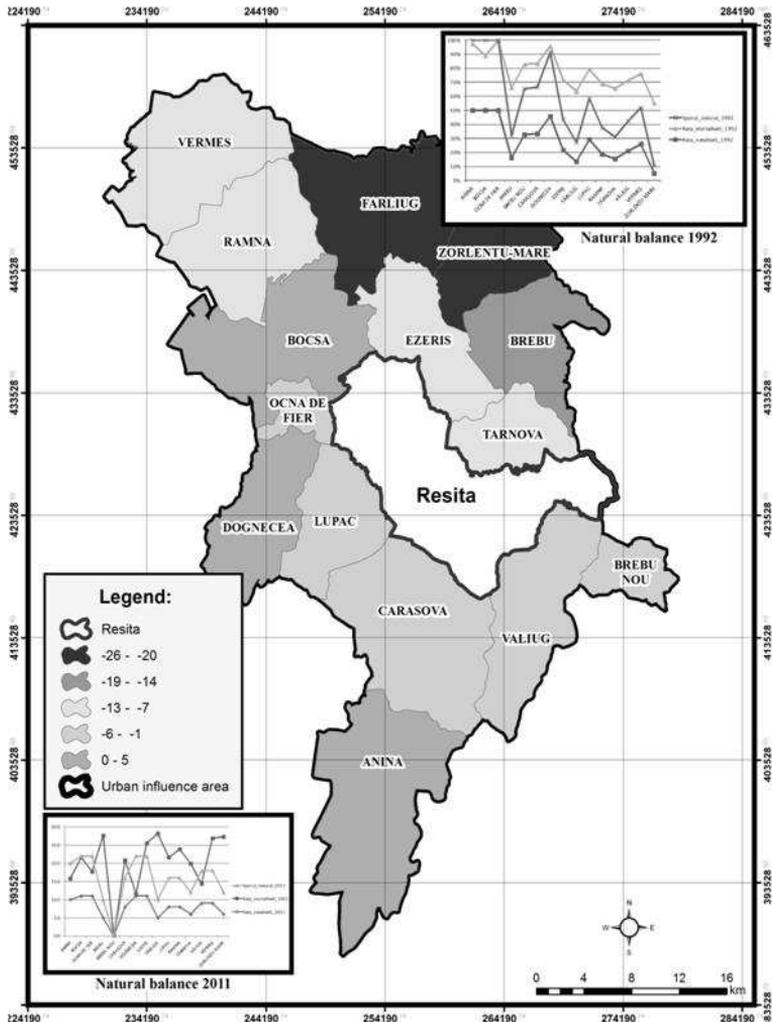

Figure 4. Natural demographic balance in the influence area of the city of Reşiţa (1992-2011)
(Source: calculated data)

The latter pattern consists in the communes that register negative rates of natural increase, with some others registering negative values throughout the time span analyzed. These drops occurred against the background of the constant decline of birth rates and the rise of the mortality rate, especially in those communes suffering from population aging: Zorlenţu Mare (where the average rate of natural increase was -26.2‰), Brebu (average rate of natural increase: -20.8‰), Brebu (-19.4‰) (figure 4).

In between the two patterns, which stand for the extreme ends of the rate of natural increase, there are also certain communes that register smaller negative rates of natural increase as a result of a less severe decline of the birth rate and as a result of actually positive values, even

higher than the mortality rate, during certain time periods (for instance Ocna de Fier registered a rate of natural increase of 0.1‰ in 1992, with the figure dropping strongly to -14.6‰ in 1997 and then recovering to 1.4‰ in 2002, remaining positive in 2007, too: 1,6‰ and then rising significantly to 4.3‰ in 2011, but registering an average rate of natural increase over the time span analyzed of -1.6‰) (figure 4).

One may notice, as far as the evolution of the rate of natural increase of the commune of Ocna de Fier is concerned, a trajectory influenced by the events occurring in the field of the extractive industry, starting in 1997, a moment when the commune of Ocna de Fier registers a sudden drop of the rate of natural increase. Because the shutdown of the mining enterprises was a gradual operation, there can be noticed a slow recovery of the evolution of the rate of natural increase in the ext few years.

By 2011, one may notice a slight recovery of the rate of natural increase at the level of the administrative units inside the influence area of the city of Reşiţa, with a total of 5 administrative units standing out because of their positive values (Anina: 4.2‰, Bocşa: 0.4‰, Ocna de Fier 4.3‰, Dognecea: 10.5‰ and the commune of Văliug: 3.6‰).

CONCLUSIONS

Reşiţa has attracted into its economic system, created by a particular conjecture and with the assistance of the natural and politico-historical factors, a relatively large territory surrounding it, which supplied either the necessary raw materials or the additional workforce.

The population in the influence area of the city of Reşiţa underwent changes in its evolution, as a result of mainly the effects of the economic and historical factors. Most settlements included in the influence area of the city of Reşiţa had the extractive industry as their dominant economic enterprise (Secu, Dognecea, Ocna de Fier).

This meant that the reorganization of the industrial sector brought about a series of manifold consequences in the demographic sector, the most important being the decline of the birth rate and the intensification of emigration abroad. In addition, one may also mention a second demographic profile, typical of the settlements with a predominantly agricultural economy.

These settlements are characterized by a strong population-aging trend and very low birth rates, with the additional factor of the definitive emigration of the German population to their areas of origin, a situation that has decisively contributed to the decline of the villages founded during the time of the Austrian systematization.

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