

DEPOPULATION AND POPULATION AGEING OF RURAL AREAS IN BJELOVAR-BILOGORA COUNTY (1961–2011)

Nenad Pokos*, PhD., Ivo Turk*, PhD., Dražen Živić**, PhD.

*Institute of Social Sciences Ivo Pilar

Marulićev trg 19, 10 001 Zagreb, P.o.b. 277, Croatia

**Institute of Social Sciences Ivo Pilar – Regional Centre Vukovar

204. vukovarske brigade 6, 32 000 Vukovar, P.o.b. 58, Croatia

e-mail: nenad.pokos@pilar.hr; ivo.turk@pilar.hr; drazen.zivic@pilar.hr



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Abstract

Bjelovar-Bilogora County is located in the central part of the Croatian Pannonian-Peripannonian space. In spite of good location within Croatia and favourable physiogeographical characteristics, this county was marked by very negative demographic characteristics in last fifty years. In relation to the county as a whole, the demographic situation in the rural parts is more unfavourable than in urban settlements. Between 1961 and 2011, the rural population of the county was reduced for 46.7%.

Key words: Bjelovar-Bilogora County, total depopulation, natural depopulation, emigration, population ageing

DEPOPULACIJA IN STARANJE PREBIVALSTVA NA PODEŽELSKIH OBMOČJIH BJELOVARSKO-BILOGORSKE ŽUPANIJE (1961–2011)

Izvleček

Bjelovarsko-bilogorska županija leži v osrednjem delu hrvaškega panonsko-subpanonskega prostora. Kljub ugodni lokaciji znotraj Hrvaške in ugodnim fizičnogeografskim značilnostim ima v zadnjih 50 letih zelo negativne demografske značilnosti. Z vidika celotne županije so demografske razmere v podeželskih delih še veliko bolj neugodne kot v mestnih naseljih. Med letoma 1961 in 2011 se je delež podeželskega prebivalstva v županiji zmanjšal za 46,7 %.

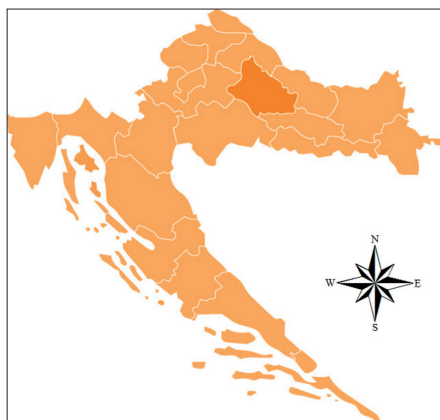
Ključne besede: Bjelovarsko-bilogorska županija, Hrvaška, depopulacija, naravna depopulacija, izseljevanje, staranje prebivalstva

I INTRODUCTION

Bjelovar-Bilogora County was formed in 1992 in the central part of Croatian Pannonian and Peripannonian region. With its 2,640 km² (4.7% of the total Croatian land area) it is a medium-sized Croatian county (Statistical yearbook ..., 2014). There is an equal number of Croatian counties that are smaller and larger than Bjelovar-Bilogora County. According to the last census in 2011, the county had 119,764 residents, which composed 2.8% of the total Croatian population (Statistical yearbook ..., 2014). The population density was 45.4 inhabitants per km², which is below the average Croatian population density (75.7 inhabitants per km²). That indicates a more complex demographic situation and series of processes in Bjelovar-Bilogora County which have been predisposed by several factors.

Figure 1: Location of Bjelovar-Bilogora County within Croatia

Slika 1: Položaj bjelovarsko-bilogorske županije u okviru Hrvatske



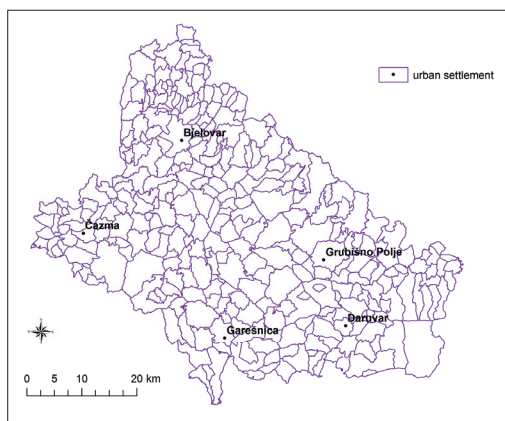
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The county is divided into 23 local administrative units: five administrative towns and 18 municipalities with a total of 323 settlements (according to the 2011 census), of these, five settlements are considered urban: Bjelovar (the county seat), Čazma, Daruvar, Garešnica and Grubišno Polje (The model for the differentiation ..., 2011). According to the same source, all other settlements are considered rural and transitional. That includes villages and other urbanised settlements in rural areas. For this work all 318 such settlements will be considered rural¹.

¹ In Croatia, there are problems regarding the definition of urban settlements. There is only an administrative definition that determines administrative towns and their areas. In that way 128 towns are determined. However, a lot of non-urban settlements are often listed into an area of the administrative town which results in a rapid and fictive growth of the urban population. Therefore in this paper we used the *Model of differentiation between urban, rural and transitional settlements in the Republic of Croatia*, which was published in 2011 by the Croatian Bureau of Statistics. The mentioned publication lists only urban settlements and therefore all non-urban settlements are considered as rural in this paper.

Figure 2: Urban settlements in Bjelovar-Bilogora County

Slika 2: Urbana naselja v bjelovarsko-bilogorski županiji



2 GEOGRAPHICAL LOCATION AND TRAFFIC ISOLATION OF BJELOVAR-BILOGORA COUNTY

The researched area is part of Central Croatia and is separated from the rest of Central Croatia by the hills of Bilogora to the north, the western slopes of Papuk Mountain (more precisely by its ridges Lisina, Ljutoče and Ravna gora) in the east and the hills of Moslavačka gora on the southern border of the county. Towards the west the county faces the slopes of Kalnik Mountain, and the southernmost area faces the Sava River valley, which connects the county hydrologically. The area of the county as a whole is part of a wider geographical unit called the Lonja-Ilova Basin, which includes the areas of Križevci and Pakrac. The basin has the altitude between 120 m and 150 m above sea level and is intersected by numerous watercourses; the longest are the rivers Česma and Ilova. In this lowland area, the southeastern border has a higher elevation due to tectonics. According to the relief, Bjelovar-Bilogora County is spatially divided in a mountainous and hilly border area and much bigger lowland area in the centre of the county. That division has had a significant impact on socio-economic processes – the natural conditions in this relatively humid basin were extremely favourable for the development of agriculture, hence the long agricultural tradition of the county. According to the 2001 census, the agricultural population in Bjelovar-Bilogora County totalled 20.7%, which represented the largest percentage among the Croatian counties.² The valuable agricultural area has encouraged intensive agricultural exploitation and the immigration of an agrarian population that until the mid-20th century settled, spontaneously or planned (colonisation), mostly from agriculturally overpopulated regions (Vresk, 1988). The dominant role of

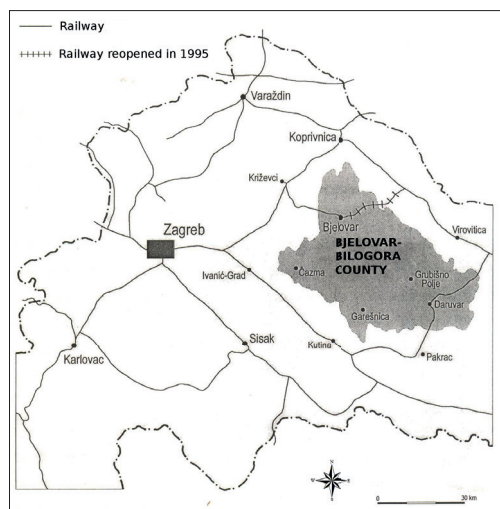
² The data from the 2001 census were used because at the time of writing data from the 2011 census had not been published yet.

agriculture in the economy lasted into the early 1990s what greatly influenced the physiognomy of geographical landscapes that had typical agricultural characteristics.

Despite the relatively favourable physio-geographical location, several factors have hindered the development of the central and nodal functions of Bjelovar. Such situation has caused the relative economic backwardness of the county compared with its potential opportunities, as well as demographic regression, intense deruralisation, deagrarianisation, polarisation, etc. One of the main factors is the poor transportation links. Roads of international and interregional significance bypass the county, and it is widely accepted that a good location in terms of transportation networks, among other factors, causes an increase in the number of inhabitants that, in turn, leads to the concentration of different functions such as job creation, influx of a workforce, etc. (Ilić, 1995). An example of Bjelovar-Bilogora County's poor transportation links is the fact that apart from the Križevci–Bjelovar–Kloštar railway in the northwest, the only other existing railway is Suhopolje–Darugar–Banova Jaruga, located in the eastern (peripheral) part of the county (Figure 3). Furthermore, the very important road, which links the Croatian capital Zagreb and Osijek, the main centre of Eastern Croatia, also just touches the northwest of the county and further attaches to the Podravina corridor. Therefore, the vast area in the central part of the county remains outside the main traffic routes and is inadequately connected by local road networks. It is acknowledged that traffic routes directly affect the formation of urban systems (Vresk, 1993). Rail traffic triggers a concentration of population in towns, while road traffic causes population dispersion and contributes to the spread of urban functions. Considering those facts, it is understandable why Bjelovar-Bilogora County is the least urbanised region in Central Croatia.

Figure 3: The rail network in Central Croatia

Slika 3: Železniško omrežje na srednjem Hrvatskem



Source/Vir: Pokos, N. (2000a)

The lack of transportation networks in this area is the result of both Hungarian and Yugoslav economic policies. In 1870, the Hungarians built the Gyékényes–Koprivnica–Zagreb railway that completely bypasses Bjelovar-Bilogora County. Hungarian interests also influenced how the first railway (built in 1885) is passing the county in transverse direction (Barcs–Virovitica–Daruvar). It was not until 1894 that Bjelovar was connected with the Koprivnica–Zagreb³ railway via Križevci. In 1900, Bjelovar was connected to the Podravina traffic corridor via Kloštar, in 1912 Garešnica and with Grubišno Polje a year later. After World War Two, the Grubišno Polje–Bastaji railway was completed. With the completion of this railway Bjelovar and Daruvar were connected and only the Čazma area remained unconnected.⁴ During the 1960s, at the time of building the Garešnica–Banova Jaruga railway which should have connected the whole railway system around Bjelovar with the Sava Valley railway, the development of road transport took place which led to the suspension of railway building in some parts of the Croatian rail network. Rail traffic was suspended across the entire area between Bjelovar, Garešnica, Grubišno Polje, Bastaji and Kloštar. In the former Yugoslavia, most railways terminated in the Bjelovar region (Dugački, 1974). In 1995, the Bjelovar–Kloštar railway was reopened, however, due to its non-rentability the railway management thinks of closing it down again. The described railway transportation system left Bjelovar with only one ‘dead-end track’, which is one of the most important factors of its slower development and its failing to develop into a proper regional centre. In a period of intense industrialisation in the 1960s and the ever increasing commuting to work centres primarily by rail (Feletar, 1977⁵; Vresk, 1979), the interior of the county remained unconnected by railways which is why numerous people were forced to resettle in the larger cities or their suburbs. The construction of the Sava road (today called European corridor X) after World War Two, which together with the completed railway (in the same direction) became the primary Yugoslav traffic corridor, increased Bjelovar-Bilogora County’s isolation. For example, in South Moslavina which is located along the Sava route, the gravitational influence of Zagreb has increased and the region has become an area of demographic and economic concentration. Construction of the Kutina petrochemical complex also contributed to these processes. Conversely, the Northern Moslavina area, which is the part of Bjelovar-Bilogora County, was marked by intensive depopulation, deruralisation and other unfavourable demographic processes.

3 DYNAMICS AND CHANGE IN THE TOTAL RURAL POPULATION, 1961–2011

Table 1 shows the dynamics of the rural population in Bjelovar-Bilogora County between 1961 and 2011. For the total population, according to each census, a number for the

3 The influence of the Hungarian traffic policy is visible in the fact that the Bjelovar–Zagreb railway does not go the shortest way. At Sveti Ivan Žabno it turns towards Križevci and goes northward which increases the distance by 10 km.

4 The Bjelovar–Čazma railway was never built because it was impossible to build a junction at Ivanić Grad due to the swampy area along the Sava River (Hečimović, 1979).

5 The author states that in 1970 an equal number of commuters was coming to Koprivnica by railway as by car and bus. In 1977, that ratio was four times greater in favour of cars and buses.

settlements given by the Croatian Bureau of Statistics is considered (Naselja i stanovništvo Republike Hrvatske 1857.–2011.; Popis stanovništva 2011) although to obtain the total population in 2001 and 2011 censuses a different methodology was used than in earlier censuses.⁶ The population was highest in 1961, after that, from one census to the next the population fell what resulted in a total population reduction of 47.2% in a 50-year period. In all intercensal periods, the annual rate of population decline was at least 1%. This rate was the highest in the period 1961–1971 (–1.5%), which was, besides the already mentioned isolation from transportation networks, mostly caused by the intense industrialisation process and development of the service sector which both had polycentric characteristics. This process of expansion did not surpass the level of municipal centres, and those centres therefore attracted people from the surrounding rural areas (Vresk, 1989; Feletar, 1994).⁷ Municipal centres have become the focal points for common social and economic development in the municipalities. During 30 years period (1961–1991), the monocentrism of the municipal centre was dominant in territorial and administrative development (on a municipal level) (Malić, Stiperski, 1993). During this period the massive migration of its citizens towards Zagreb and abroad began due to the opening of the former Yugoslav borders. This process of urban concentration of secondary and tertiary economic sectors and resettlement in cities with their subsequent negative effects on the demographic dynamics of the county's rural settlements is best illustrated by the fact that between 1961 and 2011 the proportion of the rural population decreased from 82.7% to 61.1%. In 2011, 38.9% of the total population of the county lived in the five urban settlements. Regarding Table 1 it is important to say that the lowest population decline (–9.3%) in the period 1981–1991 was most likely a result of the increased number of people listed as abroad in 1991 what caused fictively slightly reduced depopulation than in other periods.

Table 1. Dynamics of rural population change in Bjelovar-Bilogora County

Preglednica 1: Dinamika spreminjanja podeželskega prebivalstva v bjelovarsko-bilogorski županiji

Census year	Total population	Index 1961=100	Chain index	Share in county population (%)	Rate of average annual change (%)
1961	138,577	100	–	82.7	–
1971	119,495	86.2	86.2	75.7	–1.5
1981	103,858	74.9	86.9	69.4	–1.4
1991	94,148	67.9	90.7	65.4	–1.0
2001	83,843	60.5	89.1	63.0	–1.2
2011	73,226	52.8	87.3	61.1	–1.4

Sources/Vira: Naselja i stanovništvo Republike Hrvatske 1857.–2001.; Popis stanovništva 2011. 1. Stanovništvo prema starosti i spolu po naseljima. Zagreb, Državni zavod za statistiku

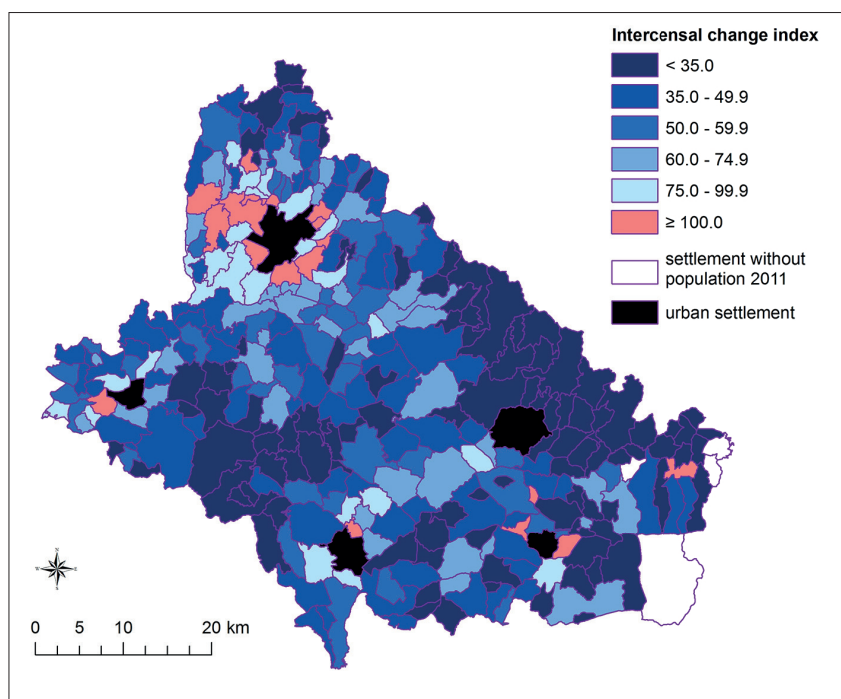
6 More about census methodologies can be found in Pokos (2003), Gelo, Akrap, Čipin (2005) and in methodological explanations of the 2011 census (Popis stanovništva, kućanstava i stanova 2011. godine. Metodološka objašnjenja).

7 According to the previous administrative division (1971–1992), there were five settlements with the status of municipal centres (Bjelovar, Čazma, Daruvar, Garešnica and Grubišno Polje). They are considered as urban in this paper.

4 CHANGES IN THE NUMBER OF RURAL SETTLEMENTS 1961–2011

Of the 318 rural settlements, Figure 4 only shows changes in population for 316 settlements between 1961 and 2011. Because of unspecified changes in the settlement borders, the data for the Trojstveni Markovac and Zvijerci settlements could not be considered as relevant. In fact, both settlements are neighbouring settlements of the county centre of Bjelovar, and, until 1991, had continuous population increases (Trojstveni Markovac from 1948, and Zvijerci from 1931). Between 1991 and 2001 the population of Trojstveni Markovac decreased from 2101 to 1280 and the Zvijerci population from 525 to 62 inhabitants. Since it is unlikely that a larger-scale emigration took place between those two years, it is possible that some parts of those settlements were attached to the Bjelovar settlement between 1991 and 2001, without any public notification of the mentioned changes.⁸

Figure 4: Population change in rural settlements in Bjelovar-Bilogora County (1961–2011)
Slika 4: Spreminjanje prebivalstva v podeželskih naseljih bjelovarsko-bilogorske županije (1961–2011)



⁸ Unlike some settlements in the county which experienced a large-scale emigration between 1991 and 2001 due to emigration of Serbs, this is not the case with the above-mentioned two settlements. In 1991 only 8% of the total population of Trojstveni Markovac was Serbs and only 4.4% of the population of Zvijerci.

Between 1961 and 2011 four settlements (Bastajski Brđani, Donji Borki, Stara Krivaja and Velika Klisa) lost their entire populations. The settlements are located in the extreme eastern part of the county where the majority of the population in 1991 was Serbs who left those settlements in the autumn of 1991.⁹ One-hundred and five settlements experienced a reduction in population of more than 65%. In this group, besides several settlements in the east of the county and around 30 settlements on the southeastern slopes of Bilogora from where many Serbs emigrated in 1991, there were several other settlements on the slopes of Moslavačka gora and on the northwestern slopes of Bilogora where there were no military actions. In these areas the depopulation had been present for a long time. The population was more than halved in 193 settlements (61.1% of rural settlements). Among the other settlements experiencing population decrease only the settlements near urban areas and along the Garešnica–Grubišno Polje road had slightly more favourable circumstances. Of particular concern was the vast central part, between the suburbs of Bjelovar and the other urban centres of Čazma, Garešnica, Daruvar and Grubišno Polje with practically no settlements with increasing populations.¹⁰

Population growth in that period was recorded in only 18 settlements, i.e. 5.7% of all settlements. These settlements are mostly located near Bjelovar (12 settlements), two settlements are near Čazma and Garešnica while three are located close to Daruvar. The only settlement with a population growth that is not close to any town was Đulovac. This settlement is located on the slopes of Papuk Mountain and is the seat of Đulovac municipality. The population growth of this settlement was a result of the immigration of Croats from Kosovo in 1992, what significantly changed the settlement's ethnic structure.¹¹ According to these data, it can be concluded that the settlements experiencing the greatest and fastest depopulation were in remote areas and poorly connected to urban centres. The young and mobile population found it impossible to survive in the isolation. This population is hence forced to emigrate to towns or cities (Njegač, 1993). Conversely, the settlements closer to and well connected with cities, especially Bjelovar, the largest city in the county, experienced better demographic indicators such as population growth, stagnation or a smaller population decline.

5 NATURAL DYNAMICS OF THE RURAL POPULATION 1964–2012

To understand the intense process of depopulation and population ageing, which is the main subject of the research, it is necessary to discuss briefly the natural population

9 In the autumn of 1991, the eastern part of Bjelovar-Bilogora County, more precisely, the western slopes of Papuk Mountain and the southeastern slopes of Bilogora Mountain were occupied by the rebel Serbs and Yugoslav People's Army. The Croatian Army liberated those areas in the autumn and winter of 1991 in military actions *Otkos-10* (Swath-10) and *Orkan '91* (Hurricane-91). Following these operations, many Serbs left this area.

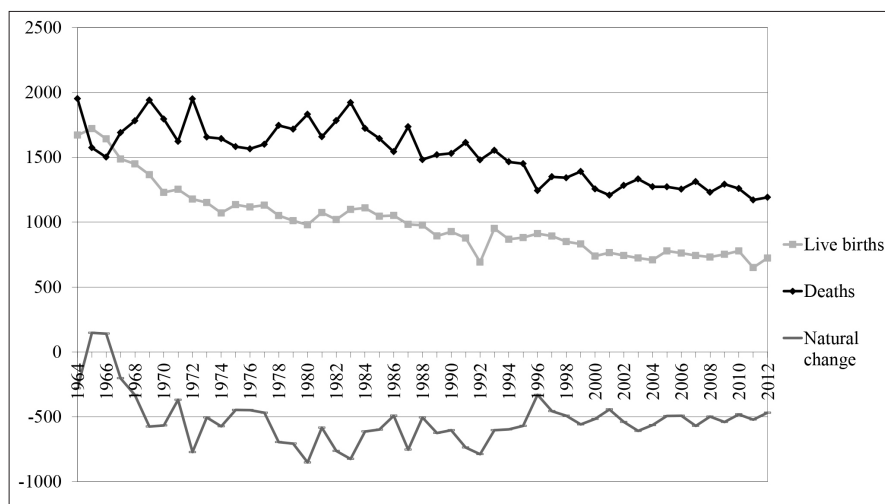
10 In this 'pentangle' a population increase was only noted in two suburbs of Bjelovar, two suburbs of Daruvar and one suburb of Čazma.

11 In 1991, the majority population of Đulovac was Croat (44.1%), while 40.2% was Serb. In 2001 that ratio changed significantly. Croats had an absolute majority of 91.3%, while the proportion of Serbs was 5.6%.

dynamics as one of the main factors accelerating this process. Study of natural population dynamics emerged in 1964. That year marked the beginning of tracking the number of births and deaths at settlement level in Croatia. This work only takes into account the births of mothers with permanent residence in Croatia and the deaths of those who were resident in Croatia.¹² Such methodology has been officially recognised since 1998. Croatia experienced total population decline after both world wars, but natural decline was first recorded in 1991, after which it has been constant until today. The rural population of Bjelovar-Bilogora County has been in continuous natural depopulation since 1967 (Figure 5).

Figure 5: Natural population change in the rural settlements of Bjelovar-Bilogora County (1964–2012) (absolute numbers)

Slika 5: Naravno spreminjanje prebivalstva v podeželskih naseljih bjelovarsko-bilogorske županije (1964–2012) (absolutne številke)



Sources/Vira: *Prirodno kretanje stanovništva Republike Hrvatske: tablogrami po naseljima*. RZS Zagreb i interna baza DZS

During the entire period 1964–2011, the rural population of Bjelovar-Bilogora County had a very negative natural population change. In that period the number of deaths exceeded the number of births by 24,747 (Table 2). Between 1964 and 1970, the natural population decrease was by far the smallest in absolute terms what is understandable because this period was three years shorter than the other ones. However, the natural decline was the smallest in the relative amount because the natural decline of the population was at its beginning, and in 1965 and 1966 a natural population growth was noted.

12 Until 1998, the children born abroad were also counted into live births in Croatia if their mothers had a residence in Croatia. Persons who died abroad and had a residence in Croatia were also included in the count for persons who died in Croatia until 1998.

If we compare these data with data from Table 1, it is evident that the total population number was most reduced between 1961 and 1971, when the natural population dynamic was relatively favourable. Hence the conclusion that the main cause of the depopulation in the 1960s was a negative net migration and intense emigration from rural areas of the county. The 1960s stand out as the beginning of polarised development. That period was marked by strong development of urban-based activities, such as industry and the service sector which were increasingly attractive to rural populations. The active population of reproductive age was mostly responsible for the deruralisation, as well as the rural-urban migration, which negatively influenced demographic trends in rural settlements even more. The fact that during the 1980s absolute natural decline was significantly worse than in the first decade of the 21st century can be misleading because the relative numbers (rates) show that in the last intercensal period natural decline was more significant than in previous decades due to constant decline of the total rural population. Since the beginning of the 1970s until today, rural areas of the county have an annual natural population decline of more than 500 inhabitants.

The main cause of the natural population decline is a secular decrease in the regional birth rate that even before the 1970s tended to have a low birth rate system or one-child policy, otherwise known as the ‘white plague’. Data from the early 20th century show that parts of the county already had a relatively low-level birth rate in Croatian terms.¹³ The reason for lower birth rates (fertility) is not a greater proportion of unmarried females, but the intended limiting of the number of children to maintain possession of land through one successor (Gelo, 1987). In the example of Moslavina (at that time including the districts of Čazma, Garešnica and Kutina), Salač (1940) listed the causes of the decline in births noted in this area from the mid-19th century.¹⁴ He stated that birth rates, which in the district of Garešnica fell from 36.2 to 17.9‰ in the period 1904–1940, and migration of the younger population towards smaller and bigger towns, were the most important factors underlying the low natural population growth.

13 In the period 1901–1910, the only districts in Croatia with the natality rate below 30‰ were Bjelovar, Dugo Selo and Sisak, while districts Čazma and Garešnica had a natality rate of 30 to 35‰. A slightly higher natality rate was noted in the Grubišno Polje district (40 to 45‰), while the Daruvar district had a rate over 45‰ (Vuletić, 1964).

14 The author noted five causes of birth drop (planned birth control): 1. The unfavourable religious and moral situation of the population; 2. An understanding and mentality that is against families with numerous children; 3. The early marriage of females; 4. The decline of households and division of land; 5. The constant and systematic propaganda for limiting the number of children (Salač, 1940, p. 63). It is in a way, contradictory statement that the early marriage of female children was prompted by parental wish to join land owned by their children (single children), while on the other hand, he stated that the number of marriages dropped because of marriage in older age. Early marriage is certainly not an underlying reason for limiting the number of children.

Table 2: Natural population change in rural settlements in Bjelovar-Bilogora County
Preglednica 2: Naravno spreminjanje prebivalstva v podeželskih naseljih bjelovarsko-bilogorske županije

Period	Live births	Deaths	Natural change	Rate of average annual change (‰)
1964–1970	10,565	12,234	–1,669	–1.7
1971–1980	11,078	16,914	–5,836	–5.2
1981–1990	10,181	16,541	–6,360	–6.4
1991–2000	8,496	14,146	–5,650	–6.3
2001–2010	7,485	12,717	–5,232	–6.7
Total	47,805	72,552	–24,747	–5.3

Sources/Vira: Prirodno kretanje stanovništva Republike Hrvatske: tablogrami po naseljima. RZS Zagreb i interna baza DZS.

If we compare these data with Table 1 it is clear that the total population had its biggest drop between 1961 and 1971 when the natural population dynamic was relatively favourable. From this, it can be concluded that the main cause of the depopulation in the 1960s was a negative net migration and intense emigration from rural areas of the county. The 1960s stand out as the beginning of growing polarised development due to stronger locating industries and other activities in the cities, which were thus increasingly attractive to the rural population. In the process of deruralisation and rural-urban migration, the active population of reproductive age had the biggest role, increasing the negative demographic trends of the rural settlements. Specific factors behind this accelerated decrease in natality since the 1950s for the entire Croatian territory, which can also be applied to this area, are listed by Wertheimer-Baletić (1996, p. 130):

- Long-term emigration of younger people, which with minor oscillations takes the entire 20th century, and its direct and indirect demographic effects;
- Direct and indirect loss of manpower in the two world wars, especially World War Two, and their effects on the structure of the population by age and sex;
- Model of industrialisation with emphasis on heavy industry and industrial concentration in large urban agglomerations which enhanced the exodus from the countryside and from agriculture;
- Agricultural policy, which did not exist in any of the possible variants (there were no systematic measures to encourage birth nor economic measures that would discourage hiring or going abroad).

6 AGE STRUCTURE OF THE RURAL POPULATION 1961–2011

Among the numerous population structures, structure by age is considered the most important in demographic literature and theory. This structure is very significant for past, current and especially future demographic trends because it describes the future trends for fertility and economic activity (Wertheimer-Baletić, 1999). Any disturbances in the

interrelationship between large and functional age groups may in the long term cause significant difficulties in the natural, and in the overall population trends. Such disturbances also affect economic development, which, among other things, depends on the supply and composition of the workforce. Labour shortages, caused by a reduction in the young and working population contingents, will slow down economic growth and cause new immigration. Together with migration and 'external' or irregular population development conditions (such as wars), the development of the age structure of the population is most affected by natality (birth rate) and mortality. The level of natality/fertility directly determines the influx of the population into childhood and youth and later into fertile, and working-age populations. Low natality rates and a negative natural population change are disturbing factors in population development because they stimulate and accelerate population ageing.

Table 3: Age structure of the rural population in Bjelovar-Bilogora County (1961–2011)
Preglednica 3: Starostna struktura podeželskega prebivalstva bjelovarsko-bilogorske županije (1961–2011)

Year*	≤19		20–59		≥60		Ageing index
	Total number	%	Total number	%	Total number	%	
1961	41,671	30.1	76,766	55.4	19,781	14.3	47.5
1971	34,164	28.6	62,025	51.9	22,914	19.2	67.1
1981	25,536	24.6	56,666	54.6	20,583	19.8	80.6
1991	21,802	23.2	49,267	52.3	21,968	23.3	100.8
2001	20,239	24.1	41,949	50.0	21,360	25.5	105.5
2011	16,306	22.3	38,659	52.8	18,261	24.9	112.0

* The difference in the total population from 1961 to 2001 refers to a population of unknown age. In the 2011 census persons of unknown age are not shown.

Sources/Viri: Popis stanovništva 1961. Knjiga XI: Pol i starost. Rezultati za naselja. Beograd, Savezni zavod za statistiku, 1965; Popis stanovništva i stanova 1971. Stanovništvo: Pol i starost. Knjiga VII – I deo. Rezultati po naseljima i opštinama. Beograd, Savezni zavod za statistiku, 1973; Popis stanovništva 1981. Tabele po naseljima. Zagreb, Republički zavod za statistiku, 1982; Popis stanovništva 1991. Stanovništvo prema spolu i starosti po naseljima. Dokumentacija 882. Zagreb, Državni zavod za statistiku, 1994; Popis stanovništva 2001. Stanovništvo prema spolu i starosti po naseljima. Zagreb, Državni zavod za statistiku, Statističko izvješće 1167, 2003; Popis stanovništva 2011. I. Stanovništvo prema starosti i spolu po naseljima. Zagreb, Državni zavod za statistiku.

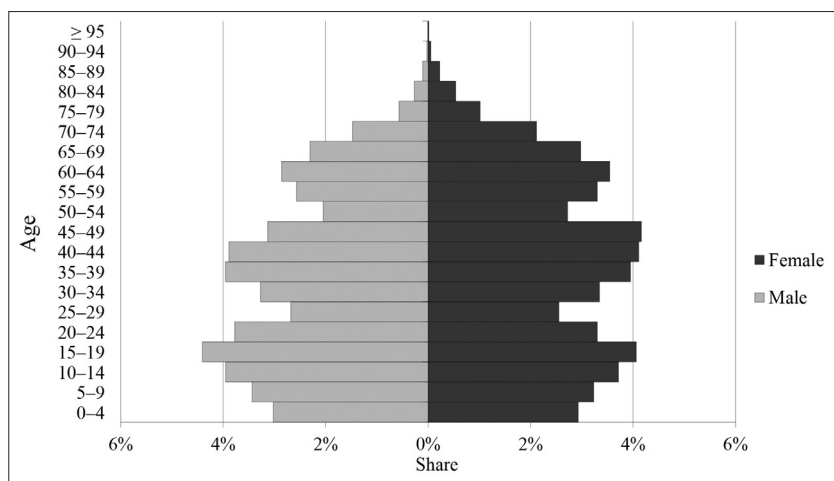
As already stated, the population of the county, due to the long-term reduction in birth rate, was characterised by a natural population decline (the number of deaths was higher than the number of live births). In such conditions, population ageing is an unavoidable process. In the period between 1961 and 2011, there were three indicators of that process: a decline in the youth coefficient (from 30.1 to 22.3), an increase in the old-age coefficient (from 14.3 to 24.9) and an increase in the ageing index (from 47.5 to 112). It is the latter indicator that shows a high degree of demographic ageing, which was present way back in 1961 (in demographic literature, an ageing index of 40 is considered as the value at which demographic ageing starts). The ageing index also shows that since 1991 the rural population of

Bjelovar-Bilogora County has had more old than young people. The first instance when the elderly of Croatia outnumbered the youngs was in 2011. The ageing process is also seen in changes in the major age groups. Between 1961 and 2011, the number of young people (19 years and younger) decreased by 60.9%, the number of mature individuals (20 to 59 years of age) by 49.6%, while the number of elderly (60 years and older) decreased by only 7.7%. In the same period, a reduction in the total population of 47.2% was seen.

Figures 6 and 7 show the age and gender pyramid for the rural population of Bjelovar-Bilogora County. The oldest data available are for 1971. It was not possible to show the gender and age pyramid for 1961 because there was no data by gender for five-year age categories for that year. In 1971, the narrowed child base or lack of children up to 15 years of age was noticed due to decreased fertility after the compensation period for higher natality after World War Two, which lasted in Croatia until 1955 (Gelo, Akrap, Čipin, 2005). In addition to that, the reduced generations 50–54 and 25–29 years can be seen. The former generation (50–54) suffered most casualties in World War Two while they were still in their twenties. This loss was significantly greater in the male population due to their greater participation in military operations. The generation aged 25–29 was born during World War Two when the birth rate was lower; at the time of the 1971 census they were mainly the children of the aforementioned less numerous 50–54 generation.

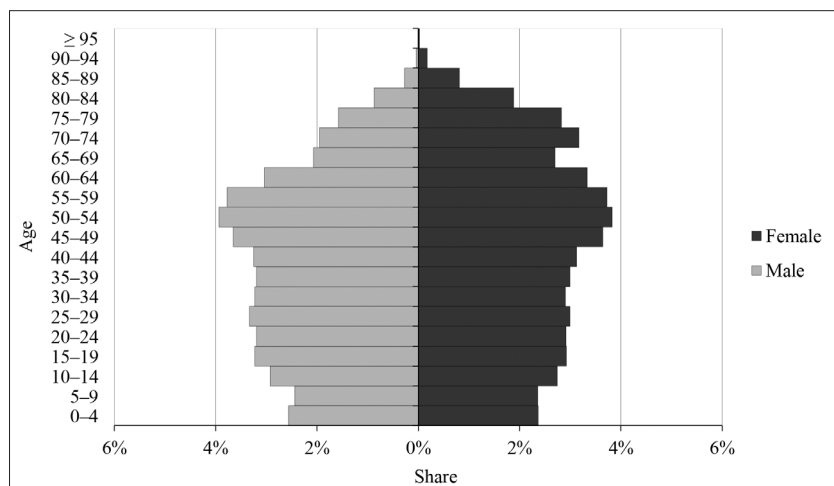
The age and sex pyramid in 2011 does not resemble a pyramid any more. It has a shape of an urn with a very narrow base (children) and the largest generational categories being 50–54 and 55–59 years. Those generations were born during the ‘baby boom’ period after World War Two.

Figure 6: Age and sex structure of the rural population in Bjelovar-Bilogora County (1971)
Slika 6: Starostna in spolna struktura podeželskega prebivalstva bjelovarsko-bilogorske županije (1971)



Source/Vir: Popis stanovništva i stanova 1971. Stanovništvo: Pol i starost. Knjiga VII – I deo. Rezultati po naseljima i opštinama. Beograd, Savezni zavod za statistiku, 1973

Figure 7: Age and sex structure of the rural population in Bjelovar-Bilogora County (2011)
Slika 7: Starostna i spolna struktura podeželskega prebivalstva bjelovarsko-bilogorske županije (2011)



Source/Vir: *Popis stanovništva 2011. 1. Stanovništvo prema starosti i spolu po naseljima*. Zagreb, Državni zavod za statistiku

In both years, but especially in 2011, there is a disproportionate female population in older age groups. This is a result of the intensive process of ageing, and the generally accepted fact that in developed countries, women have a longer life span.

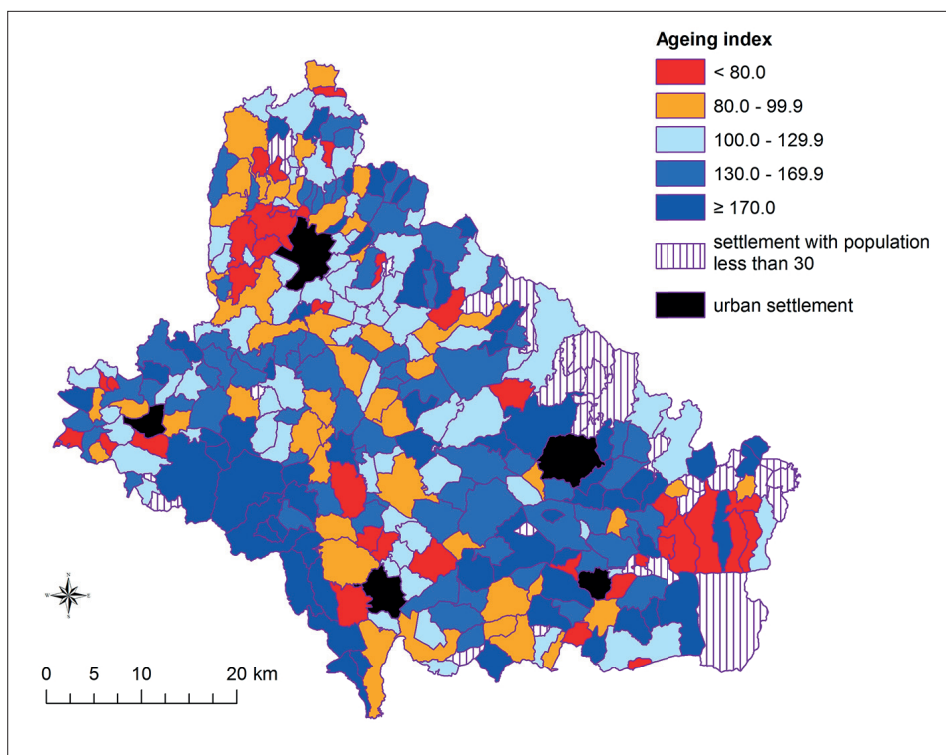
7 AGE STRUCTURE OF THE POPULATION IN RURAL SETTLEMENTS IN 2011

Figure 8 shows the rural settlements with the corresponding category from the 2011 ageing index (excluding the 31 settlements with fewer than 30 residents that could cause statistical randomness and greatly hinder conclusions¹⁵). Only 80 settlements (25.1% of the total number of settlements) in 2011 still had more young than old people (Figure 8), mostly the settlements near urban centres. Several of those settlements are located on the slopes of Papuk Mountain and have experienced the immigration of Croats from Kosovo in last 20 years (Pokos, 2000b).

¹⁵ For example, the Mali Miletinac settlement with a total population of 22 in 2011 where heavy depopulation was present, had eight inhabitants in the age category of 19 and less, while there were three people aged 60 and over. According to that, the ageing index would be 37.5 which would put this settlement among those with the youngest population in Bjelovar-Bilogora County. On the other hand, the Mala Ciglana settlement had a population of 17 in 2011. In that settlement there was one person in the category 19 and less, while there were eight people in 60 years plus age category. According to that, the ageing index would be 800, which would put this settlement among those with the oldest population.

Figure 8. Ageing index of rural settlements in Bjelovar-Bilogora County (2011)

Slika 8: Indeks staranja podeželskega prebivalstva v bjelovarsko-bilogorski županiji (2011)



In 2011, only six settlements in Bjelovar-Bilogora County had an ageing index equal to or less than 40, which is the threshold between the younger and older population.¹⁶ Those settlements were Mali Bastaji, Koreničani, Puklica, Veliki Bastaji, Grabik and Mali Pašijan. As in Đulovac, the Croats from Kosovo immigrated to Veliki Bastaji in 1992. Forty-four settlements (13.8% of the total) had double the number of old people compared to young. Most of those settlements are located on the slopes of Moslavačka gora (between Čazma and Garešnica) and near Daruvar and Grubišno Polje. Among these settlements it is important to mention Gornja Vrijeska, where there was only one young resident, while there were 21 elderly inhabitants (ageing index 2100), and Bijela with two young and 31 elderly inhabitants (ageing index 1550)¹⁷.

¹⁶ The population ageing starts when the value of the ageing index exceeds 40.

¹⁷ For the comparison, the ageing index in Croatia in 2011 was 115.

8 CONCLUSION

The rural population of Bjelovar-Bilogora County was marked by depopulation in all intercensal periods between 1961 and 2011. During this period, the total population almost halved. Positive demographic dynamics were recorded in only 18 of the 316 settlements. The total population drop between 1961 and 2011 was 65,351. Natural depopulation accounted for about 25,000 people (the exact number is unknown because there were no data for the period 1961–1963) which means that the negative migration balance was about 45,000 inhabitants. The long-term processes of natural and emigration depopulation significantly disturbed the age structure of the population which will have long-term consequences for reproduction and the general socio-economic development of the region. The population will continue to age, increasing mortality rates. The conditions necessary for increasing natality or fertility are not present.

The most difficult situation is in peripheral, hilly parts of the county where many settlements have a minimal number of inhabitants and the number of old people largely exceeds the number of young population. It is also very disadvantageous that in the central part of the county almost all settlements depopulated in the period 1961–2011. The lack of a young, vital population in the lowlands, which is an agriculturally valuable area, will lead many settlements to the brink of extinction. Those settlements are traditionally economically oriented, have very simple social structures and inadequate accessibility by road and rail. In contrast to these settlements with negative demographic dynamics, there is only a small number of settlements with positive demographic dynamics determined by a favourable position, more complex socio-economic structures and higher levels of socio-economic transformation.

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DEPOPULACIJA IN STARANJE PREBIVALSTVA NA PODEŽELSKIH OBMOČJIH BJELOVARSKO-BILOGORSKE ŽUPANIJE (1961–2011)

Povzetek

Bjelovarsko-bilogorska županija leži v osrednjem delu hrvaškega panonsko-subpanonskega prostora. Nadmorska višina v večjem delu županije ne presega 200 m, nekoliko višja je samo v njenih robnih delih. Čeprav ima za hrvaške razmere idealne fizičnogeografske razmere, so za to županijo v zadnjih 50 letih značilna zelo neugodna demografska gibanja, še posebej neugodne so demografske razmere v podeželskem delu županije. Tako se je skupno število prebivalcev podeželskih naselij v županiji med leti 1961 in 2011 zmanjšalo s 138.361 na komaj 73.709 (46,7 %). Posebej značilno je, da se je število prebivalcev v podeželskih naseljih začelo zmanjševati že v 50. letih prejšnjega stoletja, še intenzivnejše upadanje pa je bilo med letoma 1961 in 1971, ko se je število prebivalcev zmanjšalo za 13,6 %. Tudi v vseh poznejših obdobjih med popisi prebivalstva je zabeleženo upadanje števila prebivalcev, vendar nekoliko počasnejše.

Podatke o naravnem gibanju prebivalstva po naseljih lahko spremljamo šele od leta 1964 in tako pridemo do podatka, da se je v podeželskih naseljih županije že v tem začetnem letu (1964) število prebivalcev zmanjšalo za 276 (2,1 %), kar pomeni, da se je na nivoju celotne Hrvaške ravno tu najprej začel proces naravne depopulacije. Do leta 2011 se je naravno upadanje števila prebivalcev pospešilo na 6,1 %, oziroma, tega leta se je rodilo 451 živorojenih otrok manj kot je umrlo prebivalcev.

Neprestano 50-letno naravno upadanje prebivalstva je poleg negativne migracijske bilance razlog intenzivnega staranja prebivalstva podeželskih naselij v županiji. Indeks staranja se je med letoma 1961 in 2011 povečal s 47,5 na 112,2, tako da je imelo leta 2011 le še nekaj naselij več mladih kot starejših prebivalcev. Z nadaljevanjem takšnih neugodnih demografskih trendov bo v naslednjih desetletjih prišlo še do nadaljnjega staranja prebivalstva in stopnjevanja naravne depopulacije.

(Prevedel K. Natek)