

**SOME GEOGRAPHICAL FACTORS ECONOMIC DEVELOPMENT OF RURAL AREAS  
IN THE MUNICIPALITY OF EXAMPLE ANDRIJEVICA (MONTENEGRO)**

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**ABSTRACT**

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*This paper analyzes the economic and geographical factors of rural settlements of Andrijevica. Isolated traffic and geographical position adversely affect the economic and social development of rural settlements. Natural features indicate that rural areas of Andrijevica economy do not comply with all the natural conditions. Incompatibility between the available natural and current conditions of the rural economy determine by the overall socio-economic factors of development. The percentage decrease in rural population in the municipality Andrijevica period 1948-2003 amounted to - 49.44%. The main characteristic of the modern development of rural settlements are give industrialization and urbanization processes. Age groups, due to migration and the reduction of fertility change and take on unfavorable characteristics, reduces the proportion of younger and older increases the proportion of the population. In both cases, the disturbed age structure has a reverse effect on the movement of the population (the size of reproductive contingent), but also to all other structures of the population (the size of contingent employment, population, compulsory school contingent, contingent dependent population ratio). Rating natural conditions aimed at separation of homogenous territorial units with some degree of benefits and limitations types of economic development.*

**KEY WORDS**

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*Andrijevica; Rural settlements; Population; Genetic soil types; Rural development; Participation; Reclamation; Temperature; Relative humidity; Activities.*

The case studies in this paper feature the modern development of the rural population of Andrijevica. Natural indigenous strengths and very favorable conditions for colonization (relief and hydrographic openness and permeability, fertile land, abundant water, temperate-continental climate, diverse plant life) have long attracted to the population in these areas. Fundamental changes occur in the second half of the twentieth century and in accordance with the changed policy of socio-economic development, which is opposite the orientation of the population in the traditional agricultural activities, stimulated the economy industrialization and urbanization of society. The process of land reclamation and transfer of the workforce in non-agricultural activities accelerated the depopulation of rural areas, demographic aging and feminization of the village. Negative selection has led to a very unfavorable economic structure of the population, from the standpoint of labor and productive capacity. In addition, these uncontrolled demographic processes are not adequate

measures followed by other necessary changes in the rural economy, which has been proven that the qualitative properties of optimal population and favorable economic structure, now a component in guiding the transformation of space, the decisive factor in the differentiation and polarization of the environment.

The aim is to show fundamental changes in the total number and spatial distribution of the rural population of Andrijevica in the period 1948 to 2003, and to analyze the tendencies of social and economic factors of development in 2003. The purpose of the research is to determine the extent analyzed and displayed differentiated processes of social and economic development in rural areas are a factor of Andrijevica total disruption of social and economic development of the area. Rating natural conditions showed that the rural economy of Andrijevica does not comply with all the natural conditions.

## METHODOLOGY

The core of the methodological procedure used in this study makes geographic (spatial) method and included the rural village of Andrijevića. for collection of data related to basic demographic and socio-geographic factors of development, we used a statistical method. Comparative method allowed us to social and economic development factors we look at the comparison of the population of rural settlements of Andrijevića. Permeated through the entire text of the method and integrity, thanks to which we were able to identify, define and assess possible limitations of economic development. The scientific explanation of terms, two methods applied as follows: analytical and synthetic. Analytical methods considered some of the dimensions of research subjects, a synthetic whole, the relations between the subject and proposed measures that derive there from.

## GEOGRAPHY POSITION

Andrijevića is municipality located in the northeastern part of Montenegro. It covers an area of 340 km<sup>2</sup>. In this area according to the census in 2003, lived in rural areas were 4,592 residents, or 14.1 inhabitants in/km<sup>2</sup>. Otherwise, the total population in the municipality is 5785 or 20, 4 in/km<sup>2</sup>. Andrijevića municipality bordered on the north and east with the municipality of Berane, in the southeast of Plav municipality, in the west with the municipality of Podgorica and Kolapšin and in the south with the Republic of Albania.

The municipality has Andrijevića peripheral geographical position, since in this region do not cross the road, with bond functions in the organization of space in the Republic of Montenegro. The backbone network consists of two travel routes. The first is a section of the highway M-9: Kolasin - Mateševo - Andrijevića-Murino - Peć. The second route is a section of the regional road R-2: Berane - Andrijevića. Highway M-9 extends a distance of 31 km and passes through five rural settlements of the Municipality: Gnjili Potok, Sjenožeta, Kralje, Gornje Luge and Ulotina. The regional road R-2 provided through the valley of the River Lim in length of 7.9 km and Berane passes through or near a rural village: Prisoje, Slatina, Trešnjevo and Marsenić Rijeka.

Categorized road network in the municipality Andrijevića has a total length of about 113 km, which represents approximately 1.5% of catego-

rized road network of Montenegro (7368 km). One indicator of development of road network of Andrijevića is the density of road network, which is 39.8 km/100km<sup>2</sup> and is significantly below average compared to the density of road network in Montenegro (53.3 km/km<sup>2</sup>). Isolated traffic and geographical position of Andrijevića adversely affect its economic and social development.

Beginning of the seventies of the twentieth century was a decisive moment. That in this period begin with the construction of roads and infrastructure that is all that life in rural areas makes it not only worthy of a modern man, but also attractive, rural village today of Andrijevića would not provide such depopulation space.

## NATURAL FEATURES OF COURT

Natural terrain features are the basis of existence and progress of each geospatial unit. The distribution of natural resources is a measure of opportunity to develop a specific territory. The natural resources of rural settlements of Andrijevića challenge for understanding the possibilities of development of certain economic activities, particularly agriculture, tourism and construction.

The geo-morphological territory of Andrijevića is the mountainous character. Height difference between the highest (Kom Vasojevički 2461 m) and lowest (at Navotine 700 m) is 1761 m. Thus, forms of relief in height and configuration, exposed slopes, and under the influence of different features of the surface (forests, meadows, litisoli, fields, and orchards), based on diverse natural, and which may be of importance for the development of agriculture and tourism. The most widespread and most important geomorphological travel motif of Andrijevića represents Bjelasica and Komovi. Namely, the municipality Andrijevića, covers parts of Southeast Bjelasica mountain ranges where peaks stand out: Troglav (2072), Jelenak (1887 m), Lisa (1878 m), Pobodenjak (1839 m.), Zminja glava (1733 m), Rudo Brdo (1649 m) and Žoljevica (1510 m). The massif is Bjelasica Trešnjevik over the saddle (1573 m), associated with massive Komovi, where in addition to the municipality Andrijevića Vasojevičkog Coma, are Bavani (2252 m), Štavna (1828 m), Carine (1987 m) and Ogorela glava (1561 m). In the south of the border with the Republic of Albania are Klaja Zabeljit (2130 m), Mojan (2157), Lijina glava (2165 m), Žijova glava (2129 m) and Biograd (2123 m). In the southeastern part of the south-

western municipality of intervention, western and northwestern parts: Visitora with Lipovicom (1882 m), Grebenom (2196 m) and Zeletinom (2126m). To the east of the Municipality is tipped Balj Teferič (1557 m). Mountain ranges split and cut the number of river valleys that

deeply cut into their beds, in places, and building a real cliff. The most important is certainly the Lima valley, which has a significant expansion, in places where the Lim its tributaries flow ([www.andrijevica.me](http://www.andrijevica.me)).



Figure 1– The geographical position of Andrijevica on the map of Montenegro (Source: available from: <http://www.nasme.me>)

Thanks to the geological structure in the municipality are Andrijevica ore metals: lead, zinc, copper, iron and pyrite (Dulipolje, Zabrđe, Sjekirica ...). Of non-metallic mineral deposits, occur in building materials: gravel, sand and decorative stones. Numerous deposits of gravel and sand found in the bed are of the river Lim. Only in Bandović Bridge, the amount of gravel and sand, available for the annual extraction estimated at about 100 to 120,000 m<sup>3</sup>. On the hill Žoljevica, there is slot architecture - building stone. The estimated reserves of gray marble B + C1 category, amount to 2,223,000 m<sup>3</sup>, a reserve

of white and gray-white marble belonging to the C1 category is 60,000 m<sup>3</sup>. When it comes to the exploitation and processing of marble and ornamental stone, it should be noted that there are multiple sites of different architectural building stone and marble, of which the most significant site Trebačka River, Seoce, Piševska River, stream Babovo, Pčelinjak, Žoljevica.

Municipality Andrijevica have moderate continental climate, with some elements of submountainous and mountainous. As the measurement of meteorological elements performed only in Berane and provides a basis for conclusions

about the state of its running climate in the municipality Andrijevića. The mean annual air temperature is 8.0 °C. According to a vertical gradient with the increase of altitude, mean annual air temperature is lower and amounts to 1000 m above 7.0 °C at 1200 m above 6.4 °C at 1400 m above 5.8 °C, at 1600 m n.v. 5.2 °C at 1800 m above sea level is 4.6 °C at 2000 m above 4.0 °C. Absolute maximum temperature in July and is 32.6 °C and an absolute minimum in January is -19.4 °C. The mean annual relative humidity is 67%. In summer, (July and August) monthly mean relative humidity in the afternoon (14h) is below 45%, and in April below 63%. Cloudiness has an average annual value of 9.0 / 10. The minimum average coverage of the sky in July and is 4.4 / 10. Average annual rainfall is around 1152 mm. The least amount of rainfall in September (47 mm) and August (54 mm), while the highest rainfall related to the period from October to December (96 mm to 107 mm). Prevailing winds in the winter months the north-west and north, and in other months of the south wind. North and northwest winds, bringing dry and stable time, perfect for tourism are during the summer and winter. Winds from the south direction diversified in the winter, when making a significant amount of snowfall (Rajović, 2005).

Hydrographic features and profiles a variety of important water resources, as well as natural wealth. In terms of hydrographic municipality Andrijevića, belongs to a highly developed hydrographic network. In this sense, in the municipality, there are obvious power potential of the Lim River and its tributaries (Piševskom, Šekularska river, which originates from Zlorečica Perucica and Kutski River, which originates from Kraštica Rajovi river, Trebačka ...). Besides these, there are numerous smaller streams, especially in rural settlements: Gnjili Potok, Kralje, Ulotina, Gornje Luge, Zabrdje, and Trešnjevo. It is height position of rural settlements, with emphasis on the aspect valorization importance of water management and groundwater. In other words, the use of groundwater for water supply of rural heritage is of crucial importance. Thus, from the source "Krkori" located in the area of rural settlements Kutina, water supplies in addition to urban and rural settlements Andrijevića: Đuliće, Bojoviće, Seoce, Božiće, Prisoja, Šlatina, Zabrdje and Trešnjevo. Water as natural resources, have a range of options from the standpoint of - of hydro potential, market valuation and ecology. The economic use, protection and rational approach to water resources, can have

very positive effects in the future development of rural settlements of Andrijevića.

In the area of Andrijevića represented between the two types of two types of land cover lines and automorphic to hydromorphic soil and its variations. The first class includes land automorphic undeveloped and underdeveloped land (A - S profiles): litorisols, regosols and colluvial deposits. For the second class (A - S profile) automorphic soil characteristic is continuously developed and conspicuous morphological humus horizon. This class consists of four types: mountain soil, land on marl, limestone and dolomite, rankers and vertisols. The third class consists of land automorphic land (A - (V) - S) and (A - (V) - R) profile is characterized by the appearance of the horizon (V), which sits on the loose substrate or on a compact system. Within this class is representing by three types of land: eutric camisols, district cambisol and calc-camisols. The fourth class consists of eluvia soil - soil illuvials (A - E - V - S, or A-E - V - R) profile: luvisol, podsol and brown podsol soil. As a special class of automorphic anthropogenic land set aside the land that, the treatment has changed its original status. Second row (row B) is hydromorphic soil: epigley, hypogley, alluvial soil and peat. The first category consists of land epigley hydromorphic soil, represented pseudogley and stagnogley. The second class of hydromorphic soils are represented by land: hipogley, enegley, semigley and amfigley land. The third class consists of hydromorphic soil fluvisol, hums fluvisol. Fluvisol is the most important agricultural production value and type of soil is mostly prevalent along the river valleys. Hums fluvisol as independent genetic type of soil has a profile (A-S-G). The fourth class of hydromorphic soil makes one type of land - lowland required. Relief formed in depressions in which water constantly stagnates above the ground. It is located about Bukumirskog lakes (Rajović, 2011).

For the appearance of the landscape of Andrijevića, is of particular importance biogeography characteristics. Flora consists of forest and grass vegetation. In the lower parts of trees are represented hydrophilic willow, poplar, alder, hornbeam, oak, oak, beech, birch, maple. The belt of beech is most common in the form of four regions: mountain beech (at lower altitudes), mountain beech forest at height 1000 - 1300 m above sea level, sub alpine beech forest at altitudes greater than 1800 m spruce dominated by forests. With some of the mountain, high mountain forests stretch, molike and white bark pine.

Above this band is representing by white space and black pine. Some forest stands and makes the dwarf pine, whose propagation exceeds 2000 m, and juniper pine, which ends above 2200 m. The share of forests in total area of Andrijevića is 13912.80 ha. Regarding the breeding categories, dominated by commercial forests. Of the total area, the forest industry are waste 7687.02 ha, and 258.05 ha of forest low. Forests for other purposes and barren forestland are covering an area of 5806.23 ha. The total density is 3,284,660 m<sup>3</sup>. Annual growth forests estimated to be 44,817 m<sup>3</sup>. Taking into account the habitat conditions and photos sociological composition, grass cover of Andrijevića can be divide into the damp valley meadows habitats, mountain (mountain) meadows and pastures mainly related to the belt of oak forests and mountain pastures that reach the highest peaks of the mountains. Flora of forests and pastures enriched with various kinds of herbs and edible fungi. Most of them occupy a high place in folk medicine, pharmaceutical production, which is very important for the tourism development. Herbs rich in its diversity, physiological and pharmacological action, and a healthy quantity of raw materials, offers unimagined possibilities in the development of health and educational tourism. The most important species of medicinal plants from the commercial aspects are yarrow, thistle, birch, hawthorn, horsetail, cranberry, gentian, wild thyme, omen, blueberries, mint, blackberry, raspberry, dandelion, thyme, and nettle. Of forest products: hawthorn, juniper, strawberry, cornelian cherries, blackberries, raspberries, blueberries, saffron, rose hip, and mushrooms: porcini, black trumpet mushrooms and Blagva. However, the most important product makes blueberries, which reaches its annual purchase of about 100 tons. Thanks to the widespread forests, pastures and meadows are diverse landscapes and picturesque, which provides significant environmental and tourism values and makes an attractive area of Andrijevića. Meadows and pastures covered with succulent grass and mountain meadow flowers, so that together with forests, providing a unique landscape-decorative value. The belt of forests is particularly interesting as living space varied wildlife, birds, fish and insects that are. Is the pearl of the unique natural beauty and a spoilt nature? From the aspect of tourism resources and has considerable potential for developing different types of tourism such as hunting, fishing, adventure, adrenaline (Rajović, 2010).

## RURAL AREAS AND TERRITORY

The administrative territorial structure of Andrijevića comprises 24 rural settlements, and 25 cadastral municipalities (340 km<sup>2</sup>), with 23 settlements with their attar make a category Rural Geospatial, but the cadastral municipality of Slatina and Slatina II belongs to a village-Prisoje, while one village and cadastral municipalities-Andrijevića belongs urban environment. Within the cadastral municipality Andrijevića mentioned in addition to urban and two rural villages - Andželati and Božiče. In addition, the latest statistical classification of settlements of 2011, changes made in the number of places in the municipality Andrijevića, so that the town received a new name Andželati Sućeska - Andželate, and while there is a new rural settlement Navotina.

Atari rural territory is different and is in the range of 3.45 km<sup>2</sup> (C.M. Bojovići) to 42.25 km<sup>2</sup> (C.M. Jošanica). According to the size of the territory can be divided into three groups: up to 10 km<sup>2</sup> (Kralje, Trepča I, Trepča II, Trešnjevo I, Slatina, Sjenožeta, Zabrđe I, Upper Luge, Gnjili Potok, Bojoviće), of 10 km<sup>2</sup> to 20 km<sup>2</sup> (Andrijevića, Gracanica, Dulipolje, Djulici, Košutići, Kuti, Marsenić Rijeka, Oblo Brdo, Seoca, Slatina II, Trešnjevo II, Ulotina) and more than 20 km<sup>2</sup> (Cecune, Jošanica and Zabrđe II). These groups differ in a number of relevant spatial and demographic characteristics. Therefore, in 2003, the first group of up to 10 km<sup>2</sup> covering an area of 64.74 km<sup>2</sup> and includes 10 rural territory (C.M.) in which he lived in 55.41% of the total rural population of Andrijevića. Another group of 10 km<sup>2</sup> to 20 km<sup>2</sup>, comprised of 12 rural settlements (C.M.) with an area of 171.48 km<sup>2</sup> and lived in this territory is 39.39% of the rural population. And in the third-largest with more than 20 km<sup>2</sup> and an area of 103.78 km and the number of 3 rural settlements (C.M.) lived 5.2% of rural population in relation to the total rural population of Andrijevića (Table 1).

«If the current negative trends in the development of the rural population continue in the future, and socio-economic facts point to this conclusion, one can expect a significant distortion of spatial and demographic balance between the groups of rural territory and population distribution of the municipal territory» (Stamenković and Tošić, 1998).

General population density is one of the basic demographic characteristics that indicate the spatial distribution of the population. It ranges from 2.7 in/ km<sup>2</sup> (C.M.Kuti) to 37.1 in / km<sup>2</sup>

(C.M.Bojoviće). We did not take into account the C.M. Andrijevica (139 in / km<sup>2</sup>) because we do not have official data - demarcation between urban and rural settlements Andrijevica-Andzelata and Božiće. The settlements belonging to a group

of geo rarely populated rural settlements (population density of the observed general geo space is 17.0 in / km<sup>2</sup>), or the territory of the observed total of 25 C.M. in 12 of them, population density ranges from 2 to 15 in / km<sup>2</sup> (Table 2).

Table 1 – Groups of rural settlements on the surface of Andrijevica and share in total rural geo space (km<sup>2</sup>) and population in 2003

Largest settlements	Number of settlements and Cadastral Municipality	Area Cadastral Municipality	%	Population	%
Up to 10 km <sup>2</sup>	10	64,74	19,04	2.544	55,41
From 10 km <sup>2</sup> to 20 km <sup>2</sup>	12	171,48	50,44	1.809	39,39
More than 20 km <sup>2</sup>	3	103,78	30,52	239	5,2

Table 2 – Basic information about the rural territory (C.M.) in km<sup>2</sup> and population density in 2003

Cadastral Municipality	Number of settlements	Cadastral Municipality area in km <sup>2</sup>	Population	Density
Andrijevica	3	10,45	1.457	139
Bojovići	1	3,45	128	37,1
Gnjili Potok	1	8,83	111	12,6
Gornje Luge	1	9,75	150	15,4
Gračanica	1	19,03	307	16,1
Dulipolje	1	15,29	134	8,8
Đulići	1	12,14	130	10,5
Zabrđe I	1	4,15	302	8,7
Zabrđe II	-	30,46	-	-
Jošanica	1	45,25	162	3,6
Košutići	1	10,64	143	13,4
Kuti	1	14,89	49	3,3
Marsenić Rijeka	1	13,20	353	26,7
Oblo Brdo	1	10,52	69	6,6
Seoca	1	16,74	117	7,0
Sjenožeta	1	6,30	95	15,1
Slatina I	1	6,70	753	36,5
Slatina II	-	14,29	-	-
Trešnjevo I	1	7,31	539	24,6
Trešnjevo II	-	14,59	-	-
Trepča I	1	4,32	238	20,08
Trepča II	-	7,12	-	-
Ulotina	1	19,70	243	12,3
Kralje	1	6,81	228	33,5
Cecumi	1	28,07	77	2,7
In total	24	340	5.785	17,0

From the established density, we can conclude, that this distribution of the rural population had its causes in the economic underdevelopment of rural settlements of Andrijevica. The basis for their diversion is adequate rural policy, rural planning and special projects planned revitalization of rural settlements and territories.

The rural village of Andrijevica differs and demographic size, i.e. Municipalities in geo space can extract following a group of place: a very small village (population 100), a small village (100 - 300 inhabitants), lower middle of the village (300 - 500 inhabitants) and medium-sized settlements (more than 500 inhabitants).

According to statistics from the 1948 census is: a very small village (population 100) - there was; a small village (100-300 inhabitants) - 6 with 944 inhabitants; lower middle of the village (300-500 people) - 14 with 5722 inhabitants and settlements and medium (higher than 500 inhabitants) - 3 with 2321 inhabitants.

According to statistics from the 1971 census is: a very small village (population 100) - there was; a small village (100-300 people) - 10 with 2080 inhabitants, smaller settlements medium (300-500 people) - 11 with 4437 inhabitants and settlements; medium (higher than 500 inhabitants) - 2 with 1455 inhabitants.

According to statistics from the 2003 census, are: a very small village (population 100) - 4 with 290 inhabitants; small villages (100-300 people) - 14 with 2048 inhabitants; lower middle of the village (from 300-500 inhabitants) - 3 with 962 inhabitants and settlements; medium (higher than 500 inhabitants) - 2 with 1292 inhabitants (Table 3).

The rural village of Andrijeвица the total rural population in the analyzed period, indicate the following changes:

– in 1948 and in 1971 we had a very small village (population 100), while in 2003 we record - four such settlements;

– small town (population of 100-300) in 1948, we have 6, 1971 - 10, in 2003 - 14;

– the 1948 our research records recorded less high places (from 300-500 people) -14, 1971 - 11, 2003-3 and medium settlements (more than 500 people) 1948 to 3, 1971 - 2, 2003 - 2.

Table 3 – Changes in the structure of rural settlements by demographic size of the municipality Andrijeвица

Demographic size of rural settlements	1948		1971		2003	
	Number	%	Number	%	Number	%
The very small	-	-	-	-	4	6,31
Small	6	10,50	10	26,09	14	44,60
Less medium	14	63,67	11	55,66	3	20,95
Central	3	25,83	2	18,25	2	28,14

The essential and characteristic changes in the structure of rural settlements of Andrijeвица largest demographic groups and their participation in the total population of the rural population are:

– Crease the number of very small rural settlements,

– Increase the number of small rural settlements,

– Decrease in the number of secondary towns and smaller decline in the number of rural secondary settlements in relation to 1948,

– Increase the participation of the rural population in small rural settlements in the total rural population,

– Reducing participation of rural people in less secondary settlement in 1971 and a drastic decline in 2003 and

– Declining share of rural population with secondary settlement in the total rural population

– The decline in participation of the rural population with secondary settlement in the total rural population

Beginning of the seventies of the twentieth century was a decisive moment. That in this period to start with small businesses, building roads, faster electrification of rural settlements, rural settlements today of Andrijeвица, might not provide the usual picture of much of the rural settlements of our country, and we believe that we treat underdeveloped.

### SOCIO-ECONOMIC FACTORS

The emergence of depopulation of rural settlements of Andrijeвица is consequence of the reduction in their total population. For example,

reducing the total population in 1971 compared to the 1948 had 19 rural settlements, or 82.61% in 2003 22 rural villages, or 95.65% compared to 1971. The percentage decrease in rural population in the period 1948-2003 in the municipality amounted to Andrijeвица - 49.44%. Therefore, until 60 years ago in rural areas of Andrijeвица there is human life in full force, but today that same space, a territory that is empty. Remain in them, almost exclusively elderly households whose life expectancy is low.

The Society's programs of demographic and economic development are not sufficiently respected geographical conditions specific constellation of factors and territorial development in rural areas of Andrijeвица. Development problems and irrational economic system, kept all technical and scientific narratives, with no possibility of any concrete action implemented. The rural economy has been blocked and moved to the logic of their powerlessness. Then, and it seems now, we were not able to rise above statement. Therefore, the conclusion that it is necessary to develop specific demographic-economic strategy for innovative regional policy of rural settlements, adapted to the hilly and mountainous areas (Grčić, 1991).

In population, issues, in addition to the rural exodus and the concentration of population in urban settlements, came to the fore the negative natural increase. The birth rate in 2003 shows that for every 1,000 residents born children in the municipality 11.1 Andrijeвица. Therefore, in terms of territorial distribution in birth rate, we can draw the following conclusions:

1. The birth rate would be more likely, that there is a higher standard of living, better condi-

tions of employment, housing, education, child-care and

2. Those rural areas are no longer an inexhaustible source of labor force and population.

The mortality rate shows that for every 1,000 inhabitants in 2003 in the municipality Andrijevića 15.7 people died. From which it follows that the municipality Andrijevića 2003 had a negative population growth - 4.6 ‰.

Population growth is a result of the relationship of natural movement and migration processes. If the rural areas of Andrijevića would be migration of the population, then the growth rate and natural increase were the same, that there would be a territorial population balance. "However, this situation actually does not exist anywhere" (Ilić, 1973). There is not in the municipality Andrijevića. Therefore, the municipality has a very complex Andrijevića demographic components related to population growth and to observe, that these components between territo-

rially distributed unevenly causing demographic imbalance, unstable economic conditions. These facts, and uneven economic development, compared to other municipalities in Montenegro, causing significant migration movements. These processes are 70 of the last century were intense.

«Therefore, their amounts in the general public are often taken as an important proof of the vitality of our socio-economic system. However, in our opinion, the right score can be obtained, if the process put in objective framework, or, if you locate a time, geographical and socio-economic» (Ilić, 1973). How long and to which level of population growth Municipalities should fall very hard to say because we do not have the necessary indicators of economic development in the future. However, if the population growth rate is still declining, Andrijevića municipalities in the coming time may get into a lot of difficult economic situation, due to demographic aging and decreasing population of working contingent.

Table 4 – Basic demographic factors of development of rural settlements in Municipality Andrijevića (%), 2003\*

Index of population growth in 2003/48	-49,44
Number of births per 1000 inhabitants	11,1
Number of deaths per 1000 inhabitants	15,7
Natural growth	-4,6
Participation of the rural population of 0 -19 years in the total rural	26,83
Participation of the rural population of 20 -39 years in the total rural	26,76
Participation of the rural population of 40 -59 years in the total rural	23,15
Participation of the rural population of 60 or more years in the total rural	23,26
Index of aging	0,86
Participation of women in the total rural population rural	49,65
Participation of the male rural population in the total rural	50,35
The rate of femininity	986,2
The rate of masculinity	1014,0
Participation of rural people without any qualifications in the total rural aged 15 and over	6,82
Participation of rural people with incomplete primary education in the total rural aged 15 and over	13,37
Participation of the rural population have completed primary education in the total rural aged 15 and over	29,77
Participation of rural population with completed secondary education in the total rural aged 15 and over	42,27
Participation of rural population with completed higher education (at least two - three years) in the total rural aged 15 and over	4,14
Participation of rural population with completed higher education in the total rural aged 15 and over	3,16

\* Source: Statistical Office of Montenegro, Census population, calculations by authors.

Age groups, due to migration and the reduction of fertility change and take on unfavorable characteristics - reduced the proportion of younger and older increases the proportion of the population. In both cases, disturbed age structure has an impact on the return movement of the population (the size of reproductive contingent), but also to all other structures of the population (the size of contingent employment, population, mandatory school contingent, the ratio of dependent population), which are essential for the develop-

ment of population and economic activity and rural settlements of Andrijevića.

According to the age of the population can be divided into young (0-19 years), middle-younger (20-39 years), middle-elderly (40-59 years) and old (60 years and over). In the rural village of Andrijevića, there are a small proportion of young people (26.83%), the share of generation of 20-39 years is 26.76%, an older generation or a group of 40-59 years ranges from



23.15% in-group of 60 or more years of participation of the rural population is 23.26%.

The aging index indicates the proportion of population aged 60 and over, according to the population under 20 years. If its value is less than 0.40 the population is still young, and if the population of greater than 0.40 showing signs of aging. Index of aging rural population of Andrijevića 2003 was 0.86. Therefore, the rural population of Andrijevića is in the process of demographic aging, which manifests itself increase the share of the old and the older adult at the expense of the young. The above characteristics of the population heavily influence by migration flows. Since the rural settlements emigration, emigration contingent labor and fertile narrow the younger age groups, reducing the birth rate, in this respect and slow down the influx of new generations of working contingent.

Gender structure is part of the male and female population in total population. At the level of Andrijevića rural settlements, there is a phenomenon that more males (50.35%) than female population (49.65%). Masculinity rate shows the number of men per 1000 women. According to the census of 2003, the rate of masculinity in rural areas of Andrijevića was 1014.0%. The rate of femininity shows the number of women per 1000 men and it was 986.2. This may be due to emigration or immigration of male female population. Since, the narrower are confines of economic development, employment of women workers go far more slowly than men because of the structure of economic activity, which requires

more male labor force. Taking for example, in the municipality Andrijevića, there are favorable conditions for development of textile industry and handicrafts, which would be the most engaged female workforce, this production can significantly affect the greater employment of women. The involvement of female labor force in the economy, it would make more additional character that would ensure existential security of women in society and family.

Educational level is an important indicator of the educational structure of the population. However, in rural areas of Andrijevića, education of the population is not satisfactory. Given that the share of rural population without any qualifications is 6.82% with incomplete primary education was 13.37% with a degree in elementary education was 29.77%, with secondary education 42.27%, 4.14% higher (lasting two to three years, after completing secondary education) and high 3.16% of total rural population aged 15 and over.

This educational structure of the rural population of Andrijevića is unfavorable for any modernization of the economy. Her eases and overcome the requirement for rehabilitation and sustainable development. Based on these data, it cannot judge the poor rural population of interest Andrijevića to be educated or to educate their children. The cause of the relatively small number of rural population with higher education is certainly in poor material resources, but the fact that much after completing secondary education leaving the municipality, due to the inability to get a job in it.

Table 5 – Basic economic and geographical factors of rural settlements in Municipality Andrijevića (%), 2003\*

Participation of the rural agricultural population in the total rural	10,06
Active participation of the rural population in the total rural	38,69
Dependent part of the rural population in the total rural	41,85
Participation of rural population with personal income in total rural	19,16
Participation of rural women's contingent labor in the total rural	24,77
Participation of rural male contingent labor in the total rural	34,04
Utilization of rural female labor contingent	22,19
Utilization of the male contingent of rural employment	44,83
Active participation of the rural population who are employed in agriculture	16,67
Participation of rural non-agricultural population in the total rural	89,94
Active participation of the rural population works in the industry and mining	23,01
Active participation of the rural population works in the construction industry	2,76
Active participation of the rural population works in the traffic	6,85
Active participation of the rural population works in the trade and catering	11,45
Active participation of the rural population works in the craft	2,04
Active participation of the rural population works in the social services sector	30,37
Active participation of the rural population works in the outside activities and the unknown	6,85

\* Source: Statistical Office of Montenegro, Census population, calculations by authors.

Economic-geographical factors point to the development of social and economic life of the

rural population. Examined in several ways - through the proportion of agricultural and non-

agricultural, active and dependent, active rural population by sectors. Agricultural and rural non-agricultural population in proportion to each other indicate the level of land reclamation. The share of agriculture in the total rural population in the municipality Andrijevica is 10.06% and 89.94% of non-agricultural. «The rural population is increasingly non-agricultural occupations leading to the socio-economic preslojavalno is a traditional agricultural area has changed, especially along the main traffic routes» (Grčić, 1994).

Consider some indicators of economic activity of rural population - the degree of utilization of contingent work, the overall activity rate and the coefficient of economic dependence. They give a realistic picture of actual economic activity of rural population.

– The degree of utilization of contingent work shows the relationship of demographic potential that is of working age and active rural population. It is calculated as  $R_k = (R : Pr) * 100$ , where R - active rural men (15 - 64 years) and rural women (15 - 59 years) population, Pr - male and female total rural population, the same age (working contingent). This ratio for the rural settlements of Andrijevica male is 34.04%, 24.77% female.

– The general rate of activity shows the number of active per 100 rural inhabitants. Calculated as  $R = (R : R) * 100$ , where R - the total active population, R - the total rural population of the municipality. For rural areas is 21.30%. The general rate of activity of the male population (the total male) was 31.10% and female (in the overall female) 11.36%.

– Economic dependency ratio indicates the proportion of dependents and persons with personal income, according to the active rural population. It is obtained by the formula  $F_c = (P_i + P_1) / R_a$ , where  $P_i$  - dependent rural population,  $P_1$  - active rural population. The rural population of 100 active in 2003 in rural areas of Andrijevica there were 293.9 dependents and persons with personal income.

Share dependent rural population in the total amount of Andrijevica 42.94%. Number of dependents per 100 inhabitants is active 203. This much dependent participation of the rural population is a consequence of aging, i.e. declining share of young rural population and increase of rural population with personal income. The share of rural population with personal income is 19.66%.

Structure by sectors of the rural population is a reflection primarily of industrial development. In fact, agriculture in 2003 was absorbed

16.67% of the active rural population in the municipality Andrijevica. The secondary sector activities, individually speaking, are quite uneven. Of all the secondary development, activities had the most intensive industries. From the division of the active rural population by type of activity shows that the active rural population employed in industry amounted to 23.01%. Spaces of industrialization and urbanization in the municipality Andrijevica have a specific character. This follows from the fact that the concentration of industry in its existence largely agreed network with a hierarchy of settlements. The largest concentration is in the urban area Andrijevica. It is associated with the extent main traffic and market position. Our research noted little evidence of active participation of rural population employed in handicrafts 3.48. In construction, the number of active employees of rural residents stood at 3.48%. The overall socio-economic development of the complex has a direct bearing on the level of development of tertiary activities. Thus, the active participation of rural people in traffic is 6.85%. It is much more active participation of rural population employed in trade and catering and to share is 11.45%. According to data given shows a relatively high proportion of the rural population in the social services sector 26.89% because of polycentric network of education and health in the municipality Andrijevica. Namely, the high position given these contingent educators (teachers, teachers, doctors) who perform professional duties in rural areas, and this entails increased administrative and other workers and non-economic activities. In the group of outside activities involved 3.06% of the rural population, and 5.83% unknown group.

Without going deeper into the theoretical considerations, based on economic and geographic factors for development of rural settlements of Andrijevica, we can conclude that due to specific geographical conditions, there was a structural deformation and territorial disparities, which led to polarization between, the capitol building and its hinterland, and between urban and rural settlements Andrijevica settlements.

## **GEOGRAPHICAL ZONING OF RURAL TERRITORY**

Rating natural conditions aimed at separation of homogenous territorial units with some degree of benefits and limitations types of economic development. Based on traffic position geographical, natural features of the ground, it is possible in the

municipality Andrijevića, separate areas with different economic advantages for profitable production. However, one should bear in mind that some components of natural resources and change in a small area (changing slope, exposure, genetic types and soil productivity).

Taking into account the natural conditions of the Upper zoning Polimlja (Rajović, 2005), basic planning criteria of rural territory (Simonović and Ribar, 1993), the use-value of the combination of favorable and limiting factors, we can distinguish three relatively homogeneous areas for the development of rural economy.

**I AREA** - includes valley Andrijevića and high mountain regions of low relief up to 1100 m above sea level, and in this the area located 11 rural settlements (Božiče, Gornje Luge, Dulipolje, Zabrđe, Jošanica, Kralje, Prisoja, Marsenić Rijeka, Trepča, Trešnjevo and Ulotina). Within the area can be distinguished wholes of a lower hierarchical level: the area river alluvial plains, river terraces, lake sediments Andrijevića basin that has the most favorable conditions for intensive agricultural production, summer tourism, and construction and transport development. Within the area can be distinguished wholes of a lower hierarchical level:

– *Area under the alluvial plains of rivers, river terraces, lake sediments basin Andrijevića*, which has the most favorable conditions for intensive agricultural production, summer tourism, construction and transport development. These are areas with a slope of up to 3° and underexposed exposures. Length of growing season with  $T_d \geq 10^\circ\text{C}$  over 150 days and the sum of active temperature  $T_d \geq 10^\circ\text{C}$  are over 2100 °C, allow the cultivation of various plants vegetable crops. However, low values of relative humidity during April (62%) increases the risk of spring frost and dew, and make these areas less favorable for fruit production. Adverse climatic characteristics are associated with a small amount of rainfall during July and August. In summer, (July and August) monthly mean relative humidity in the afternoon (14 h) is below 45%. This low value of saturation of air is with water vapor, a very negative impact on agricultural crops. Large amplitude fluctuations of groundwater in alluvial deposits and the growing use of these waters makes it difficult for irrigation during the summer period. Therefore, the further back from the riverbed increases the depth of underground aquifers and less irrigation. Summer low flow, lack of access to coast, distance from the riverbed, are reducing the possibility of using river water for irrigation. For the alluvial flat alluvial are rivers connected with the land, which was the

most important aspect of the production for possible cultivation of most crops. The river terraces as the dominant soil types of various production values, there are eutric camisoles, vertisols, pseudogley and amphigley. According to the natural advantages river alluvial plains and river terraces are suitable for intensive agriculture, particularly crop production. This sub area is very important for the class trip, a certain summer tourist season and has characteristics of a distinct seasonal occurrence due to climate, or rather the air temperature. Average air temperature in the area during July and August is around 18°C, and mean air temperature over 20°C, it cannot taken as an absolute rule. First, the local population acclimated to river water temperature are conditions corresponding to an average value equal to or greater than 15°C. Season bathing tourism and recreation at appropriate points may last from 30 to 90 days. This fact cannot ignored no matter what it is that the temperature conditions of a relatively modest measures conducive to the development of swimming, and therefore dismissed the coastal population and recreational functions. In relation to the recreational use of available resources of the area value assessment can do in terms of benefits of rowing sports, especially kayaking and canoe. The development of these activities strengthened by almost guaranteed a sufficient amount of water flowing in Lima, but the average decline (Murino - Andrijevića overall fall 75 feet, Andrijevića - Berane 85 m). At the same profile is registered and mean annual discharge of water, which meets the kayaking as one of the aspects of sports and recreational activities. Mountain water flows in what one of Lim (Andrijevića the valley) can use for kayaking and canoe. Rowing, sailing, kayaking, walking and hiking tourism are possible on the rivers of this district. Despite favorable conditions for development of agriculture and tourism are this spatial entity characterized by the favorable conditions for development of construction and transport. Any form of development (settlement, infrastructure, industrial facilities, etc.) Indicates the specific is requirements in relation to certain morphometric characteristics. Morphometric requirements for construction, we have defined over from the construction of settlements and roads. The construction of the village is very small gradients (up to 1°) are not optimal, because the removal of atmospheric and water channel requires the formation of slope. However, since this region dominated by gradients of 1 - 3°, unexposed surface, good structure height (height ratio as an indicator of energy efficiency infrastructure, and express

transport accessibility in relation to overcoming height differences) and the construction season lasts about 260 days, we have very good conditions for the construction of settlements and roads. Compared to the corresponding properties of climate, mean annual air temperature around 80-10 ° C, relative humidity below 75% make this area suitable for habitation and livelihood of the population. Eating on development traffic characterized primarily for the winter half year. With regard to mean maximum thickness of snow along the route of the main roads in the valley of Lima does not exceed 50 cm in January when the largest amount of snow and the number of days with snowfall lasting from October to May (when the snow melts already in contact with the ground), this area has good conditions for the flow of road traffic. Considered a whole has the capacity for industrial development because the site Trebačka river are a certain amount of building stone in the bed of the river Lim deposits of gravel and sand.

– *Under the area of high mountain landscapes of low relief and low high-mountain regions up to 1100 m of relief*, characterized by mild forms of relief and side slopes of 6° to 9°, greater depth of land covers (luvisols, vertisols, eutric camisols, districts cambisol, sometimes represented rendzina), relief forms are relatively favorable for agricultural production. The land is suitable for the production of various agricultural crops, orchards, and above 1000 m as is mainly woodland (beech-fir forests, oak woods and forests of black and white pine), pastures and meadows. Bases Balja, the area around the rural settlements in the valley of the river Kralje Kraštica, Trešnjevnik (relief and slope of the form (3°-9°), are favorable for the production of certain fruits and vegetables. They represent the following area: districts cambisol, iatric camisoles, rankers, colluvial soil et al. Dulipolje the settlements around Zlorečica which flows into rivers Peručica and Kutska (slope 3°-6°), good production potential of land (marsh gley soil, eutric camisols, rendzina, districts camisoles, land, meadow), suitable for growing various crops, plants such as alder, field ash, oak, birch, and various types of forests (beech, oak, pine, etc.). Kutski river valley of the river can be seen as favorable for the production of certain crops (barley, oats, and corn) and fruit production, from the mouth to the settlement Zlorečica Cecuni. Further to the source of the geomorphologic features, which make up the system on a particular area are not favorable for agricultural production but mostly there are pastures, meadows and forests. Areas on the left side of Lima from

the expansion of Luge (inclination of 3 ° - 6 °) with the land (eutric camisols, colluvial soil, vertisols, amphigley land) are suitable for the production of vegetable crops, cultivation of meadows and forests. Landscapes on the right side of Lima, which include about Piščevske River (slope 6 ° - 9, and 12 °) with the dominant land and districts and eutric cambisols, are relatively favorable for agricultural production. Average air temperature in the vegetation during the area period about 12 ° C, relative humidity is about 68%, and the length of growing season with  $T_d \geq 10$  ° C for 130 days and the sum of active temperatures 1800 ° C allows growing of certain vegetable crops. On this point, the area of tourism is not as attractive for summer and winter holidays are no conditions. An interesting detail can be sulfuric water in the village of Kralje. It can be developed or transitional excursion tourism. From the point of building roads and settlements in this area has the benefits of class III (the vertical belt of northern exposure and adverse). Under the area has opportunities for industrial development, the Stalak and Zabrđe are deposits of lead and zinc.

**II AREA** - linked to the zone from 1100-1700 m above sea level, locally dissected by deep river valleys cut into it is located in 12 rural settlements (Andzelati, Bojovići, Gnjili Potok, Gračanica, Đulići, Košutiće, Kuti, Oblo Brdo, Seoca, Sjenožeta, Slatina, and Cecuni). This spatial unit characterized mainly with severe forms of the relief angle 12°-20°. This region has rolled land cover, with the dominant land: rendzina, podsol, calc-camisoles calcocambisol, calcomenasol, rankers, and in places and districts camisoles suggesting that the predominantly grassland and forest vegetation (forest pine, spruce, beech, oak, fir). This relief unit is suitable for cattle breeding. Length of growing season with  $T_d \geq 10$  ° C from 91 to 130 days, with the sum of active temperature  $T_d \geq 10$  ° C to 1600°C to 2300° C, the mean air temperature in the vegetation period is 9.5°C-12°C. Given that, for each food crop biologically determined minimum, the area near the river valleys (for example, Kutski River, the river Rajova) it is possible to grow certain crops (wheat, barley, oats, peas, beans, and rye), orchards and grasslands (dominated eutric camisols and rendzina). From the standpoint of tourism, this area provides opportunities for the development of health and sports and recreational tourism. Moderately and slightly favorable for the development of winter tourism, which provide spaces: Bjelasica and Komovi. Average amount of precipitation (snow) from 101 cm to 130 cm. Slopes are mostly from

12° - 20° and the altitude belt above 1300 m above sea level considered relatively favorable in terms of alpine lake disciplines. Bukumirsko provides opportunities for the development of picnic and summer tourism. In winter the lake under the ice and can be used as a natural ice rink with the previous detailed inspection. Given the presence of mineral deposits (lead, zinc, iron, pyrite), provides the foundation for industrial development. Construction season is from 230 to 250 days, but for certain work (e.g. work with concrete), this period coincides with the length of the free period without freezing temperatures, ranging from 67 to 117 days. The absolute amount of snow in this region may be greater than 200 cm, which is a serious obstacle to the flow of traffic. In this area, there are numerous mountain pastures. During the winter and summer but here come a large number of climbers from various countries. They are as attractive characteristic of this region and provide a basis for further development of sports, mountain and hunting tourism, as well as the development of ecological tourism.

**III AREA** - includes the high mountain belt above 1700 m as in this region exacerbated by the relief, thermal and land conditions. The slope of the spatial structure of the completely dominant slopes is over 18°, and slopes over 20°. Most land is represented as calkomenasol, litisoli, rendzina and podsol, so this area under forest vegetation and mountain pastures with blueberry and juniper (except where the parent material litisoli). Length of growing season with  $T_d \geq 10^\circ \text{C}$  is less than 90 days, the sum of active temperature  $T_d \geq 10^\circ \text{C}$  for 1100°C and the mean daily temperature is less than 4.9° C, a maximum height of snow is greater than 240 cm in the winter months. That is to say that this area suitable for tourism development, it is for the development of sports and recreation, sports and manifestation, sport hunting, excursion tourism. During the winter, but summer here comes a large number of climbers from various countries. They like the attractive character of this region and provide a basis for further development of sports, hiking and hunting tourism, as well as the development of ecological tourism. It known to stay at this height suitable for athletes healthy people are many patients and normalize the situa-

tion by improving the defensive power of the organism. However, this area is most suitable for the development of ski sports, mountain climbing, mountaineering, etc.

## CONCLUSION

A number of natural characteristics of the terrain determine development and deployment of a modern economy. They have shown that rural economies Andrijevica municipality does not comply with all the natural conditions. Incompatibility between the available natural and current conditions of the rural economy determine by adverse socio-economic factors of development.

Increasingly unfavorable demographic processes characterize development of the total population in the municipality Andrijevica and the population of rural settlements. In this paper, found negative trends of demographic and economic development. Total depopulation, demographic aging, the educational structure of the rural population are imposed as a leading contemporary demographic processes in rural areas of Andrijevica.

The development of demographic structures are essentially marked the contemporary socio-economic processes such as industrialization, urbanization and land reclamation. In other words, the demographic structure of rural settlements is a specific indicator of the trend and intensity of socio-economic processes in the municipality Andrijevica in the period after the Second World War.

Demographic and economic reconstruction and to stop the negative demographic and economic processes are imposed as a key factor in development and strategic and goal of total social reconstruction and future economic development of rural settlements of Andrijevica.

Finally, the economic and geographical problems of Andrijevica rural settlements should viewed realistically, without undue optimism, pessimism and even less. The process of general and qualitative transformation of rural settlements will be relatively very slow and time consuming.

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