

## CHARACTERISTICS OF DEMOGRAPHICAL DYNAMICS IN THE RURAL SPACE OF CONSTANȚA COUNTY

### CARACTERISTICILE DINAMICII DEMOGRAFICE ÎN SPAȚIUL RURAL DIN JUDEȚUL CONSTANȚA

Narcizia ȘTEFAN-TODICĂ<sup>1</sup>

**Abstract:** This paper is meant to analyse the natural dynamics of Constanta county in the rural space between 1992-2011. This study is based on the necessity of highlighting the changes in the natural dynamic of the rural population as a result of a gathering of economic, political, social, natural and cultural factors that took place between the studied interval. The analysed rural territory consist of 58 communes that differ from one another from socio-economic point of view, aspect that determines several demographical patterns. A series of indicators (birth rate, mortality rate, natural increase and vitality index) were considered and correlated using data from the censuses of population and the statistical records of the territorial administrative units (communes) in order to reflect the quantitative and qualitative changes in demographic dynamics in rural space analysed.

**Key-words:** *rural space, demographic dynamics, rural population, natality, mortality*

**Cuvinte-cheie:** *spațiu rural, dinamică demografică, populație rurală, natalitate, mortalitate*

#### I. INTRODUCTION

The demographic dynamics is the result of the interaction between the economic development and the social structure (Ceaușescu, 2011).

The changes that interfered in the politic and economic plan at the beginning of the '90s, determined a series of effects in the social plan (e.g. change in the demographical behavior of population, disruptions in the distribution of the population by age groups, decreasing of birth rate) (Iordache&Tănase, 2007). In the analysis of natural dynamics, some elements must be taken into consideration such as demographic risk as a dangerous social phenomenon for a people (especially for female people such as population ageing, fertility decrease, unemployment, maternal death) and for society as a whole (Iordache et al., 2009).

The recorded changes after 1990 at the level of all demographic indicators, affected the evolution of rural population and marked the Romania's entrance in a new transitional stage, which has different characteristics from those of the preceding period (Dumitrache, 2003; Crenshaw et al., 2000; Van de Kaa, 2002; Caldwell, 2008 quoted by Mihalache, 2010; Stașac&Bucur, 2010; Zamfir et al., 2011).

---

<sup>1</sup> University of Bucharest, Faculty of Geography, narcizia\_stefan@yahoo.com

The purpose of this article is to analyse the natural dynamics of the rural population from Constanta county in the time period 1992-2011. The population of Constanța county has registered a long evolution influenced by economic, political and social factors. Throughout time, the above factors along with the natural ones, had also a strong influence on the territorial distribution of the population (Ștefan-Todică, 2014). Thus, from ancient times, the majority of the population is set in the areas across the coastline, where they have access to water, communication lines, across the Danube or in the west side of the county. The central part of the county, located at a great distance from the main hydrographic arteries, always had a smaller population concentration.

## **II. DATA AND METHODS**

In order to elaborate this study, primary statistical data related to the natural dynamics were collected and processed, for the time period 1992-2011. The primary statistical data were obtained from the National Institute of Statistics.

Subsequently, the data have been interpreted, highlighting the factors that have underlined the natural dynamic of the analysed rural space. Later the statistical investigation was used in order to reflect the principal tendencies registered in the rural area under study.

Map representations have been used, to show the evolution tendencies of the demographical indicators.

## **III. RESULTS AND DISCUSSIONS**

### **3.1. The birth rate**

Analyzing the birth rate at the level of the rural space from Constanța county, a value variation can be observed from the minimum of 2.54‰ in Grădina commune and to the maximum of 24.12‰ in Dobromir. The medium values are specific to communes located in the central-western and south-eastern sides of the county, areas which offer relatively favorable living conditions (where the excessive continentalism is not present): Lipnița (11.92‰), Amzacea (11.33‰), Dumbrăveni (11.38‰), Peștera (12.67‰), Independența (12.42‰) and others (Fig. 1).

For a detailed study, the analysed period was divided into two sub-phases:

The sub-phase which refers to the time period 1992-2002 is characterized by the predominance of the medium and high value of birth rate (over 10‰) except 3 communes: Ostrov (7.47‰), Agigea (9.16‰) and Tortoman (9.16‰). Thus, the highest values of birth rate in this sub-phase are characteristic to Dobromir (27.18‰), Poarta Albă (20.84‰), Siliștea (19.54‰), Comana (16.51‰) communes, based on an economic climate based on agriculture (except Poarta Albă commune which has a economical profile based on transportation and on agro-livestock production; it is a centre of harbour functions).

A special case can be seen in Dobromir commune whose isolation (situated at 10 km away from the national road) had an impact on the severe poorness of the population (most of the community members have houses made out of clay and are

unemployed). Moreover, the active population does not afford to commute to other localities in search for work. Also, because of the isolation and the lack of financial support from the parents, children cannot go to school in other localities. In two of the compound villages (namely Dobromir Vale and Văleni) over 90% of the total population is represented by Turks (considered Gypsy Turks) which have a demographic pattern characterized by a high birth rate favored by the fact that they start a family at a very young age (girls are forced to marry at 13-14 years old).

It is well known that there is a direct connection between poverty and high birth rate. The birth rate is still growing in Dobromir commune, thus from a total number of 3,000 inhabitants, 1,000 are children.

The other communes that had recorded high birth rates, have a agriculture based economy or have a mixed profile (e.g. Poarta Albă), factor that positively influenced the demographic behavior of the inhabitants.

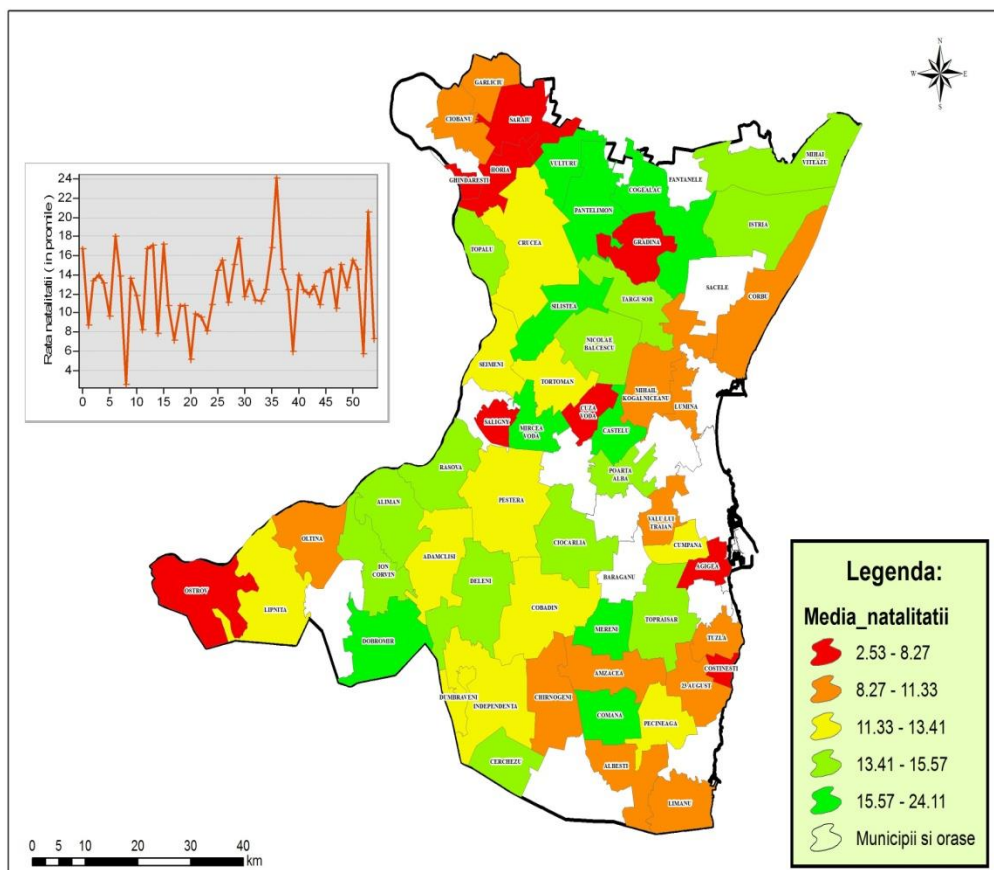
The birth rate (which is situated between 11‰ and 15.57‰) is specific to the communes that are situated mainly in the northern side of the county, and also in the southern part, due to their localization area, where the living conditions are relatively favorable: Deleni (16.54‰), Cherchezu (13.73‰), Adamclisi (11.70‰), Crucea (13.49‰), Târğușor (11.64‰).

The communes situated in the metropolitan area of Constanța municipality, and also the ones along the coast are characterised by small birth rate (with values between 2.53‰ și 11‰): Costinești (2.64‰), Agigea (9.16‰), Corbu (10.31‰), Tuzla (10.33‰), Limanu (11‰).

In the sub-phase 2002-2011, three types of variations in the evolution of birth rate can be observed:

- ✓ communes that have birth rate growth: Chirnogeni (12.10‰), Costinești (9.07‰), Deleni (13.82‰), Dobromir (25‰), Dumbrăveni (16.30‰), Horia (13.45‰);
- ✓ communes that have approximately the same growth in birth rate as in the previous sub-phase: 23 August (10.58‰), Ciobanu (10.55‰), Ciocârlia (11.80‰), Cogealac (18.65‰), Cumpăna (11.92‰);
- ✓ communes that have record a decrease of the birth rate: Albești (8.75‰), Aliman (12.44‰), Cerchezu (13.40‰), Corbu (9.67‰), Limanu (9.41‰), Grădina (7.62‰) etc.

The value variation of the birth rate in this sub-phase was determined by the evolution of the economic and social indicators, which highlighted the dysfunctionalities in the less developed communes.



**Fig. 1. Medium birth rate at the level of the rural area of Constanța county (1992-2011)**  
(Data Source: National Institute of Statistics)

### 3.2. The mortality rate

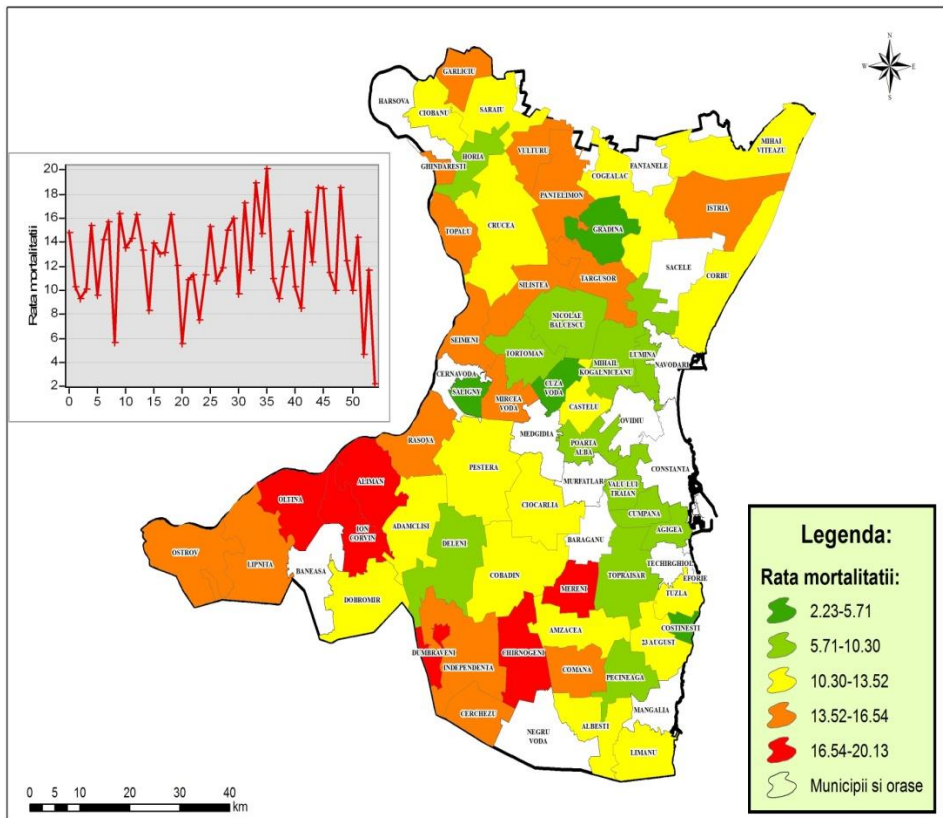
Mortality rate, the second important component of natural movement, reflects the total number of deaths that occur on a specific population in a determined time period (usually one calendar year).

During the period between 1992-2002, the medium mortality rate varied from 2.23 ‰ (the minimum value recorded in Cuza Vodă commune) and 20.16‰ (the maximum value in Mereni commune). Medium values were recorded mostly in the central-southern, south-eastern and north part of the county with values between 10.30‰ and 13.52‰: Ciobanu (13.5‰), Saraiu (13.19‰), Crucea (13.52‰), Dobromir (11.02‰), Cobadin (11.95‰) (Fig. 2).

In the first sub-phase, the picture of mortality rate in the rural part of Constanța, shows notable value variations at commune level, which can be explained by the heterogeneousness of the analysed territory, from a socio-economic point of view.

A number of 8 communes stand out, by having a very high mortality rate (over 16‰) (Fig. 2): Dumbrăveni (26,36‰) Pantelimon (21.28‰), Ion Corvin (19.31‰), Istria (19.6‰), Chirnogeni (18.17‰), Topalu (17.19‰) and others. These are characterized by a low socio-economic development, fact that shows in the reduced number of local medical services for the population (the lack of medical centers), and also difficulties in receiving medical services provided by specialised centers that are in nearby cities, due to the long distance from the transportation network.

The category of medium mortality rate values, include administrative-territorial units located inside of Dobrogea Plateau, most of which being characterised by a reduced accessibility, thus the population being deprived of good medical services: Dobromir (15.53‰), Amzacea (12.88‰), Cogealac (12.1‰), Ciocârlia (11.5‰), Peștera (13.32‰), Saraiu (13.11‰).



**Fig. 2 Medium mortality rate at the level of the rural area of Constanța county (1992-2011)**  
(Data Source: National Institute of Statistics)

The third category of communes is the one that has a low mortality rate (under 10‰), these being mostly situated on the shore area (Agiea 7.56%,

Cumpăna 8.76‰, Lumina 10‰, Costinești 4.2‰) or in the metropolitan area of Constanta municipality (Castelu 8.53‰, Mihai Kogălniceanu 8.35‰, Cuza Vodă 5.6‰). These communes are characterized by a high level of development and a good connectivity to transport networks, the latter providing the population easy access to medical services.

During the interval 2002-2011 an increase in the mortality rate can be seen for some communes from Constanta county (e.g. 23 August from 9.47‰ in 2002 to 12.58‰ in 2011, Adamclisi from 9.05‰ to 12‰, Albești from 9.71‰ to 14.29‰, Crucea from 9.31‰ to 18.68‰, Deleni from 5.52‰ to 10.89‰). The second pattern reflects a constant tendency in the mortality rate between 2002-2011 (e.g. Agigea 7.29‰, Amzacea 11.6‰, Cumpăna 8.27‰, Horia 12.6‰).

The third category of communes is characterised by a decrease in the mortality rate: Aliman from 25.95‰ in 2002 to 13.13‰ in 2012, Castelu from 14.06‰ to 12.56‰, Cerchezu from 20.41‰ to 12.87‰, Cogealac from 17.06‰ to 10.91‰ Mereni from 30.29‰ to 17.51‰.

It can be said that the rural area of Constanța county is one of the counties with a relatively high mortality rate at a national level, one cause being the considerable increase of old population. Moreover, it is worth mentioning that the rural area of Constanța county is also characterized by low values of life expectancy at the national level.

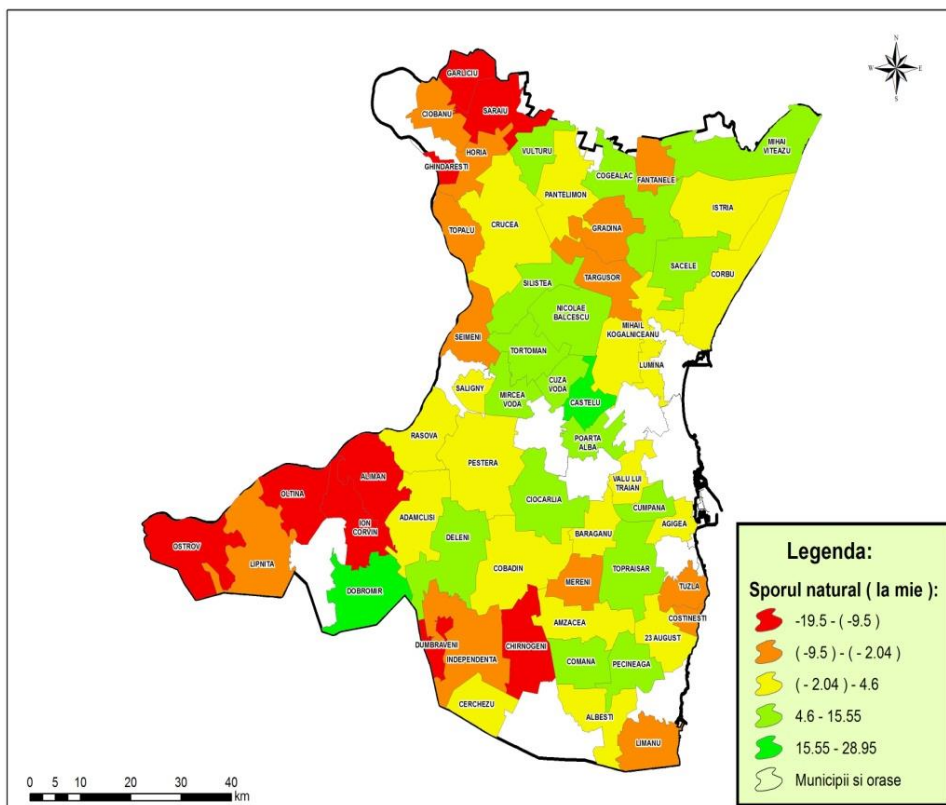
Also, the disadvantageous economic and social evolution of some communes of the county, seems to be strongly influenced by the mortality rate level.

### **3.3. The natural balance**

The analysis of the evolution of natural balance, displays in a synthetically manner the dynamic of natural movement of the rural population from Constanta county, evolution marked by the birth and mortality trajectories under the influence of economical and natural factors.

Thus, during 1992-2011, three types of natural balance evolution can be seen in the rural space of Constanța county (Fig. 3):

a. negative trend, marked by high mortality values which imply negative values of natural balance (with values between -19.5‰ and -2.4‰), identified in the cases of communes with aging population or in those situated in the central part of Dobrogea Plateau, which are isolated due to the distant placement from transportation networks: the communes from Oltina Plateau: Ostrov (-18.91‰), Oltina (-15.15‰), Aliman (-9.96‰), Ion Corvin (-5.1‰), Lipnița (-5.86‰); communes from the southern part of the county: Dumbrăveni (-16.40), Chirnogeni (-19.50‰), Independența (-5.01‰); communes from the northern part of the county: Saraiu (-10.30‰), Gârliciu (-9.63‰), Fântânele (-5.68‰); the communes with lower mortality rates can be found, resulting in a lower negative rate of natural balance (between -2.04‰ and 4.6‰): mostly the communes from the south-central part of the county: Rasova (3.47‰), Peștera (2.38‰), Adamclisi (0.42‰).



**Fig. 3. The natural balance in the rural area of Constanța county (1992-2011)**  
 (Data Source: National Institute of Statistics)

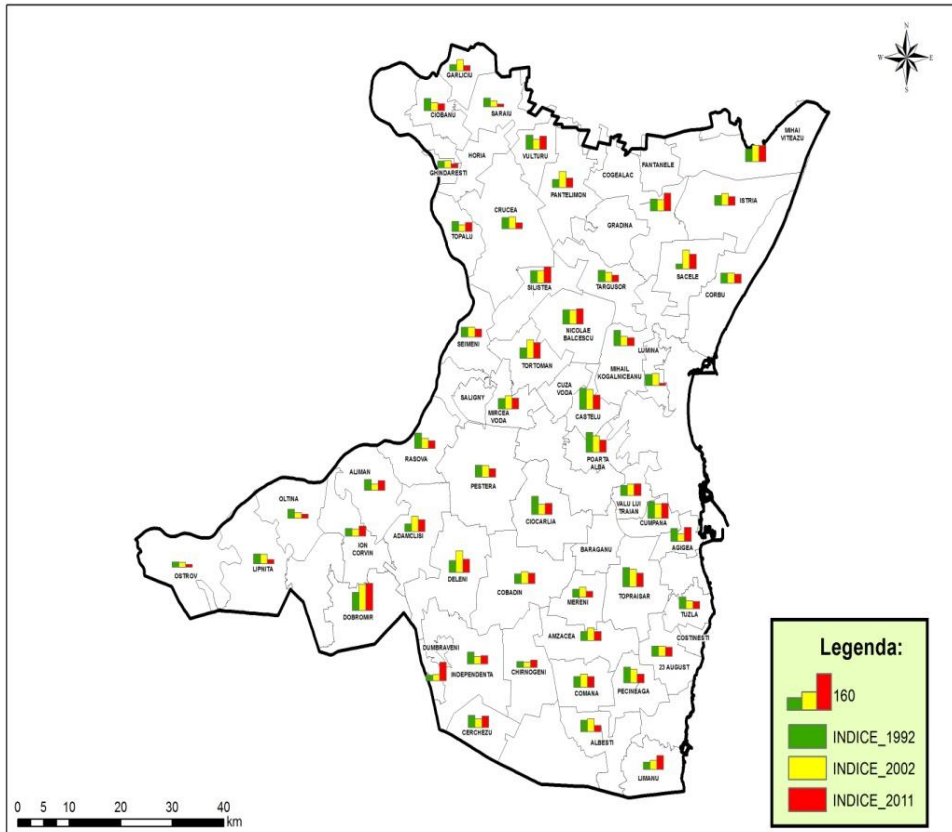
b) a slow increasing tendency of the natural balance (values between 4.6‰ and 15.55‰) influenced by the medium values of birth and mortality: mostly in communes from the northern part of the county: Mihai Viteazu (10.80‰), Cogealac (6.02‰), Siliștea (7.37‰), Cuza Vodă (5.02‰) and also some communes that are included in the metropolitan area of Constanta municipality: Poarta Albă (15.55‰), Cuza Vodă (5.02‰);

c) an increasing evolution of the natural balance that is due to a high birth rate: Dobromir 28.95‰ (one of the poorest communes from the county, characterized by high birth rate), Castelu 23.39‰ (commune which has an increase in birth rate as a result of the improvement in medical assistance).

### 3.4. The vitality index (Pearl Index)

This indicator is the result of the ratio between the number of alive new borns and the number of deceased listed as percentage in a given period of time (one year) (Vert, 2001). The use of the vitality index is that of estimating the influence of births and deaths upon a population.

In 1992 the highest values of the index, over 100% (condition that reflects the population increase tendency) are recorded in 28 communes characterized by a high birth rate: Castelu (203%), Poarta Albă (190%), Cumpăna (158.82%), Dobromir (175%), Ciocârlia (173%), Pecineaga (148%), Mihail Kogălniceanu (148.10%), Rasova (146%) (Fig. 4).



**Fig. 4. The vitality index (Pearl) (1992-2011)**  
(Data Source: National Institute of Statistics)

The communes which recorded the values of 100% of the vitality index have shown a stagnation in the evolution of population: Corbu and Tortoman.

Twenty one communes from Constanța county had values of the vitality index below 100, fact which reflects a decreasing tendency of the rural population: Chirnogeni (59.2%), Ostrov (50.6%), Săcele (48.57%), Pantelimon (78.95%).

Other 18 communes from Constanța county have recorded an increase of the values of the vitality index during the whole period, this reflecting an upward trend of the population, mostly due to the high birth rates: Dobromir (from 252.38% in 2002 to 262.07% in 2011), Dumbrăveni (from 60% in 2002 to 180% in 2011), Siliștea (from 118.18% in 2002 to 153.33% in 2011), Tortoman (from 178.95% in 2002 to 150% in 2011).



#### IV. CONCLUSIONS

The rural population from Constanța county underwent changes in its dynamic, mainly as a result of the effects of the economic and social factors.

Three demographical patterns can be observed: communes that have a decreasing tendency, these being characterized by an old population or communes from inside Dobrogea Plateau which have less favorable living conditions: these are located at a considerable distance from the transportation network, resulting in their isolation; a low population increase (the vast majority of communes from the metropolitan area of Constanța municipality and from the coast area) with favourable living conditions and characterized by a good infrastructure; communes with an ascending dynamic, in which the main characteristic of the population is the procreative demographic behavior.

#### REFERENCES

- CEAUȘESCU ANCA (2011), *Geodemographic characteristics regarding the population from the Southern Oltenia*, Annals of the University of Craiova, Geography Series, 14, p. 111-116
- DRĂGHICI C.C., PEPTENATU D., PINTILII R.D., MERCIU FLORENTINA CRISTINA, CERCLEUX LORETA (2011), *Characteristics of demographical dynamics in areas of urban influence. Case Study: influence area of Râmnicu Vâlcea city*, Annals of the University of Oradea, Series Geography, 2, p. 303-312
- DUMITRACHE LILIANA (2003), *Dynamics of general mortality of the population of Romania during the transition period, in the European context*, Annals of the University of Valahia, Geographic Series, Tom 3, p. 322-330
- IORDACHE COSTELA, TĂNASE SILVIA (2007), *Considerations regarding the birth rate, fertility and nuptial rate of young population in Romania*, Annals of the University of Craiova, Geography Series, 10, p. 92-99
- IORDACHE COSTELA, VÂLCEA CRISTIANA, MARA CRISTINA, LICURICI MIHAELA (2009), *Demographic risks among the female population in Romania*, Annals of the University of Craiova, Geography Series, 12, p. 101-110
- VERT C. (2001), *Geography of population. Theory and methodology*, Edit. Mirton, Timișoara
- MIHALACHE F. (2013), *Economic activity in rural areas and population employment details*, Revista Transilvană de Științe Administrative, 1 (32), p. 66-82
- STAȘAC M., BUCUR L. (2010), *Geo-demographical changes in rural space of Oradea Metropolitan Area*, Annals of the University of Oradea, Geography Series, 2, p. 223-332
- ȘTEFAN-TODICĂ NARCIZIA (2014), *Evolution of the rural settlements in Constanța county*, Geographer review, 5, p. 18-25
- ZAMFIR DANIELA, BRAGHINĂ C., TĂLÂNGĂ C. (2011), *Demographic and economic vulnerabilities within the suburban area of Târgu Jiu*, Annals of the University of Oradea, Geography Series, 2, p. 286-293
- \*\*\* (1990-2011), Serial data, National Institute of Statistics