SHAPE OF DEMOGRAPHIC RISK FACTORS IN CIUC DEPRESSION

B. HOLIRCĂ[1]

Abstract. Shape of demographic risk factors in Ciuc Depression. The complexity of a system as the population of a given area, involves shaping the evolution process, identify the many interdependent factors which give consistency to the system as a whole. In case of a major geodemographic variables that influence its evolution - given the multifactorial model extrapolation of risks and disasters components include physical, economic, financial and socio-cultural, ie spatial dimension. Risk is the amplification of demographic aging in the third period of transition, is exceeding the point where population decline is stabilizing, according to the theory of the second demographic transition (Crenshaw, Oakey and Cristenson 1999) which is common in European countries. This phenomenon coincides with the degradation of the economic profile and in rural areas of agricultural, leading to unemployment - which Amplifier migration, subsistence agriculture and poverty.

Key-words: risks and vulnerabilities, demographic indicators and human geography, horizon of expectation, official data base and inadvertence af population dates.

1. INTRODUCTION

The risk as a cracteristic of a system can not be defined in precise terms because of the many factors that contribute to generating this phenomenon.

The complexity of a system such as the population from a given area implies, in shaping the process of evolution, the identification of the multitude of factors whose interdependence gives the system consistency in its entirety. In the case of a geodemographic system the main variables influencing its evolution, taking into account the extrapolation of the multifactorial model, the risks and catastrophes include physical, economic, financial and socio-cultural components, namely the spatial dimension

Lately, the research of risk phenomena has became a constant concern from a demographic perspective, so defined the notion of risk demographic "... *a social process (phenomenon) extremely dangerous for the individ and society as a whole. The extreme consequences of demographic risks are materialized in social disasters. Besides the economic and social consequences, the "extreme product" of*

---

[1] holib67@gmail.com

demographic risks is measured in the number of victims, as in the case of natural risks"(V. Surd, 2001).

The manifestations of demographic risk in terms of deterioration in functionality or its components reside in: *divorce, child mortality, subfertility, aging of the population*. Beside these can also be added emigration, economic deterioration, increased social instability.

Rotariu (2004) considers that there can be a demographic risk if the implications of a phenomenon or process that occurs at the population level can be judged in terms of "danger", "risk" etc. "*that is, if possible to find objective and universal criteria for a negative appreciation of possible demographic developments*". Demographic risk is in fact an effect of the evolution of the components of society with repercussions on the demographic system as a whole.

2. DATA AND METHODS

.

In order to highlight some phenomena with implications in the evolution of demographic structures in Ciuc Depression, the theoretical model elaborated by A.J. Lotka was used.

To customize the demographic analysis of the studied area and highlighting the phenomenon of risk, this method was applied showing the distribution of the population in the territorial profile, by the localities comparing the evolution of urban and rural areas.
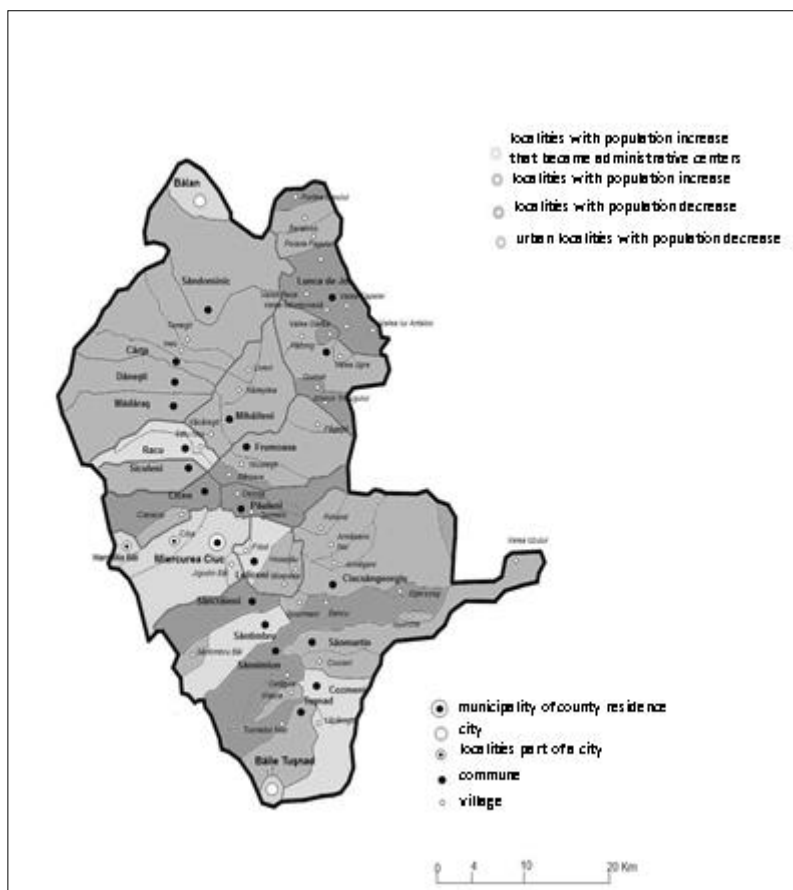
The calculation of human risk indicators was made on the basis of the 2011 cross-section analysis, taking into account the demographic structure by age, gender and the demo-economic situation in the depression area.

3. RESULTS AND DISCUTIONS

The analyzed region includes 73 localities (3 urban centers, 16 communal centers with 63 affiliated villages). In the cities there is a decline in demographic structures. After 1990, the largest amplitude of demographic erosion was found in the town of Bălan which lost 46% of its population, followed by Miercurea Ciuc with 17.8% and Băile Tuşnad with 17.8%.

The population decline in the rural environment was registered in the case of 12 administrative centres. The phenomenon of population growth is specific to the localities that have recently become commune centers (Racu, Ciceu, Leliceni Sântimbru, Cozmeni)

Most of the populated localities are located near Miercurea Ciuc and Băile Tuşna (Fig.1). The population growth in these localities is a consequence of the migration phenomenon from urban to rural areas, where the possibilities of obtaining bee kipping products are easier.

Fig. 1. Map with the localities from Ciuc Depression that registered population increase or decrease during 1992-2011

All localities with growth from Ciucul de Jos are located on the traffic axis of lower Ciuc Depression between 600 and 700 m. Among the localities that are not on the main axis of communication, but where the population grew are Bancu and Egerszeg from the Ciucsîngeorgiu administrative unit, as well as Lăzăreşti locality belonging to Cozmeni. Bancu is the closest locality to the main road, and it stretches on the frame from the terrace of Fişag brook and Bancu Mountain, on a piedmont at the foot of which there is an arable area that extends to the Olt terrace, having very good conditions for agriculture. A special case is Egerszeg - belonging to Ciucsangiorgiu commune. In Ciucul de Sus, the localities with growths are in the proximity of Miercurea Ciuc county (Leliceni: with growths in two localities -

169

Fitod and Leliceni; Păuleni: with all the localities Păuleni, Delniţa and Şoimeni, as well as administrative units Ciceu and Racu). Bârzava, the first settlement close to Miercurea Ciuc in Frumoasa commune, registered increases although the other two (Frumoasa and Nicoleşti) as well as the commune as a whole decreased in population.

Rural localities that have registered decreases throughout the transition period belong to Ciucul de Sus (Cârţa - 10.76% of the population, Sândominic 9.41%, Tomeşti 7.4%)

At the level of Dăneşti and Cârţa communes, the main sector in which the population was involved was the secondary one, ie in the manufacturing industry. After its degradation, the main branches and jobs remained in agriculture and services.

The phenomenon of population growth appeared only after 2002, mainly in Ciucul de Jos (Sânsimion) and in some localities in Ciucul de Mijloc (Frumoasa) Urban localities have recorded the largest drops in population. Thus, Miercurea Ciuc had a constant loss of population - 17, 84% between 1992-2011 and 8044 people respectively.

Demographic structures are evident in the third phase of the overlapping demographic transition over the transition of the social economic system, where the demo-economic component has a leading role. The main negative effects are the declining in birth rate from 11% to 8% in 1997 as a result of the contraction of the economic horizon, followed by a steady increase to almost 12%. Increased mortality (from 5.46% to 7.37% in 2006, but without the natural increase being negative). The decrease in socio-economic structures was drastic, with 46% in 2006 compared to 1990, which has amplified the phenomenon of migration both to rural areas or suburban areas and abroad. The main economic profile of the city was industrial and the degradation of this branch could not be compensated by the tertiary economy.
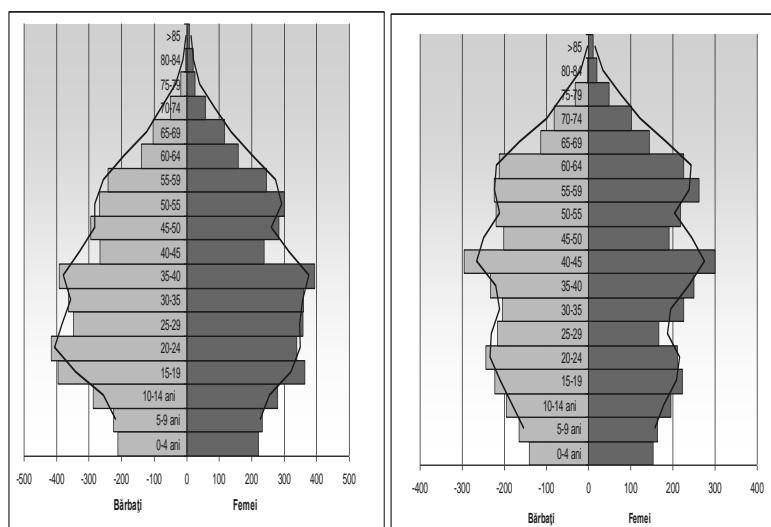
Some component localities have had drastic decreases precisely due to the degradation of the economic profile. It is Harghita Băi, at an altitude of 1350 m, former centre of extractive industry, which between 1992-2002 presented a population decrease of 24%, but its profile has been tertialized and it is currently a tourist and balneoclimateric center. The occurrence of a touristic locality on the eastern part of the Harghita volcano massif was due to the presence of numerous solfatarian moffetes with carbonated waters. Originally its name was Ciceu, gravitating around Csiba and Siculeni.

In opposition to Harghita Băi, Csiba belongs to Miercurea Ciuc from 1966, its population growing as a phenomenon specific to the transition that is manifested by moving the population from the centre to the suburbs. The phenomenon is also interesting from the perspective of the development of localities in the proximity of the city.

Bălan is the city where the demographic degradation is the most significant, with a loss of 46% of the population between 1992 and 2011. The main factor of this phenomenon was the economic one - the disappearance of the extractive industry. If in the case of Miercurea Ciuc there were growing periods since 2000, Bălan has declined continuously from a maximum of 15.41% in 1992 to a minimum of 9.76% in 2005.

Although at the level of the other localities of the depression and at the national level, during 1990-1993 there was a decrease of the birth rate, there was an increase in Bălan during this time. The sharp decrease in population occurred after 2002 (25.79%).

The comparison of the age pyramid between 2006 and 2011 shows that the main decline in demographic structures occurred in the male population, the age group of 20-24 years, ie the main component of the economic sub-population (Fig. 2).

Fig.2. The pyramid of ages for the population from Bălan city (2006-2011).

Significant decreases were observed in the other age groups up to the age of 40-45 years, including in the female subpopulation.

Although a certain tertialization of the city's economic profile is visible, the distance of the locality from the main North – South route of communication has contributed to the diminution of demographic structures.

Băile Tuşnad - the smallest town in Romania, had a population loss of 17.4%, about the same percentage as Mierurea Ciuc. The main sector of activity before the change of the political social system was the tertiary one, the city having a tradition of tourism since the beginning of the century. Its location on the main

communication route linking Miercurea Ciuc with the big cities of Braşov and Bucharest respectively favoured the development of this economic branch. An important part of keeping the occupied population was also the increase in the number of employees in agriculture and the maintenance of those in the industry.

The birth rate had a relatively constant evolution, with minimum thresholds in 1993, 1999 and 2002 - as well as on a national level, in 2006 being higher than in 1990 (15.91 ‰ versus 13.21 ‰). The mortality rate was lower than that of birth rates - from 11.2 ‰ in 1990 to 11.19 ‰ in 2006, with a maximum threshold of 14.08 ‰ in 1997 and 14.73 ‰ in 2005. The decrease in population is due to both the aging of the population as well as the migration phenomenon. Maintaining the main demo-economic characteristics has meant that the process of diminishing the demographic structures is not so extensive, and there are also aspects of the increase in birth rates.

Centralized demographic and human indicators highlight an aging process already in place in all localities, with administrative units where the risks are more prominent. (Table 1)

Table 1. Demographic and human indicators specific to demographic risks from Ciuc Depression (2011)

CIUCUL DE SUS	no. popu-lation	Density/center (loc/Km²)	feminisation index	feminisation index below 60 years	feminisation index ovet 60 years	Aging index	Dependence index
Balan	5864	4463,05	103,79	97	124,15	68,06	669,4
Sandominic	6048	1878,26	103,2	93,1	140,61	95,49	807,2
Tomeşti	2553	1329,83	98,95	87,6	126,04	104,54	908,9
Carţa	2688	1035,16	103,07	95,2	136,99	118,9	887,8
Danesti	2291	1161,18	109,21	97	147,97	126,03	913,2
Mădăraş	2190	1391,8	102,08	93,1	127,16	112,52	842,6
CIUCUL DE MIJLOC							
Lunca de Sus	3202	697,38	98,45	87,5	124,91	75,86	846.2
Lunca de Jos	5265	642,19	96,63	88,4	116,85	65,16	848,7
Mihaileni	2632	497,02	96,41	90,4	114,33	113,4	877,8
Frumoasa	3633	961,37	99,36	89,4	112,5	93,71	880,5
Racu	1587	335,5	97,83	95,9	122,99	98,16	886,2
Siculeni	2711	591,47	101,46	92,9	125,27	105,23	806,5
Ciceu	2671	1236,57	104,68	94.8	125,29	97,84	798

Păuleni	1822	705	102,77	96	118,42	94,97	870,3
Miercurea Ciuc	37980	1921,7	106,94	102,83	128,25	87,96	645,2
Leliceni	2002	629,36	99,7	96	116,93	84,19	805.9
CIUCUL DE JOS							
Sancrăieni	2502	1078,45	99,75	90,6	120,83	97,82	875,3
Ciucsangeorgiu	4751	721,62	96,58	90,9	123,17	96,76	1005,4
Santimbru	2047	506,31	96,28	89,7	120,87	93,15	867
Sanmartin	2308	982	96,66	89,6	115,89	66,91	956,2
Sansimion	3429	862,21	101,52	95,6	135,4	71,35	895,5
Cozmeni	2089	447,14	102,13	94,2	128,98	66,28	915,8
Tusnad	2117	1123,67	98,46	84,5	125,57	91,99	923,8
Baile Tusnad	1617	1321,51	113,46	108,8	130,86	113,8	860,5

All localities have an aging index of over 52%, which shows that the population at the level of the entire depression is in this phase of the demographic transition. Moreover, some indices are valued at over 100%, especially in sub-units of Ciucul de Sus, where the decrease in population was a continuous process, with higher values in rural areas (Sândominic, Cârţa, Tomeşti and Madăraş). Also in these localities the feminisation index over 60 years is the highest in the entire depression, which shows a process of male supramortality (Sîndominic, Cârţa, Dăneşti). The high values of the dependence index (over 800 ‰) indicate the fact that a high number of people is maintained by the active population.

In the town of Bălan, the feminisation rate below 60 years has high values due to the migration process of the young population and the economic profile in which tertiary is not so consistent

In Ciucul de Mijloc, demographic human indicators highlight an aging process advanced especially at the level of Mihăileni and Siculeni (113.40% and 105.23%). Localities with a close index are Racu and Ciceu, located north of Miercurea Ciuc in the proximity of Siculeni, on the main communication route in the direction of Ciucului de Sus.

The city of Miercurea Ciuc has the lowest dependence index, being the most economically developed in the area and with the highest density on the hearth. The feminisation index of the occupied population is over 100%, - the highest in the depression, and the feminisation of women over 60 years is 128.25%, indicating a preponderance of the female population, including the adult population, which predicts a pronounced aging process.

In Ciucul de Jos, where the population growth was found, the aging indicators are below 100%, the smallest being in Sântimbru and Sânmartin, instead they have the highest indices of dependency in this geographical subunit. The city with the highest index of aging is the town of Băile Tuşnad, but the dependence index is the lowest (860,5 ‰). The feminisation ratios of the total population are over 100%, which shows an aging process that will develop and because the feminisation index in the population over 60 years is 130.86 in Baile Tusnad, among the largest in the depression, there is a male supramortality. An indices of high dependency have Ciucsângeorgiu, and there is also a process of aging, but the economy is an exclusive one based on the tertiary sector and agriculture is subsistence.

The density in the city centre is the lowest in the depression because the settlements are spread over a mountainous surface and at the highest altitude,

From the analysis of the demographic indicators presented in Table 1 it is noted that the demographic risk in the Ciuc Depression consists in the amplification of the demographic aging process in the third period of the transition, ie the overcoming of the point where the population regress stabilizes, according to the theory of the second demographic transitions (Crenshaw, Oakey and Cristenson 1999), phenomenon encountered in European states (Florentin Flavius Mihalachec, 2010). This phenomenon overlaps with the marked deterioration of the economic profile, and in the rural area of the agricultural sector, which leads to unemployment - which has boosted emigration, subsistence agriculture and poverty. The lack of concrete official data as well as the evolution of economic indicators in rural areas of the depression highlights the generalization of the subsistence farming practice.

CONCLUSIONS

Of the geographical sub-units, the demographic risk is most pronounced in Ciucul de Sus, followed by Ciucul de Mijloc, where the aging process is more evident in rural areas. A relative increase of the population in rural areas, especially at Ciucului de Jos, is part of the rural urban migration process, where birth rates are growing.

Demographic erosion and aging in Ciucul de Sus is due to several factors with an impact on demographic structures, namely:

- the aging of the population both as a natural process and as a result of labour migration, especially in the urban environment, in the town of Bălan, following the migration of the population between 25-35 years, due to the drastic reduction of the extractive industry. Migration has led to a drastic decrease in birth rates.

- Improving the population aging process at rural level; in some localities there are values of indicators that signal a male supramortality (Sândominic, Dăneşti, Cârţa.)

- the degradation of the economic profile of the rural environment of the processing industry (Dăneşti Cârţa, Sândominic) and the generalization of the subsistence agriculture.

At the level of the Ciucul de Mijloc, the aging process has the highest values in Siculeni and Ciceu, ie in northern Miercurea Ciuc, in an area with specific relief - Ciucului de Sus, the settlements being located in the meadow and the terraces of Olt River, but on the main route of communication. A high aging indicator appears in the Mihăileni locality, which is not on the main means of communication and is at a high altitude compared to the average of the depression at 738 m. The population development in some localities such as Bârzava, Frumoasa and Leliceni is due to their transformation into periurban localities . However, some localities in Leliceni - becoming administrative units such as Misentea and Hosasău, as well as Nicoleşti and Făgeţel belonging to Frumoasa, know a phenomenon of advanced demographic decline. Hosasau is currently a city without inhabitants.

The population growth is also due to the industry that is still operating at Miercurea Ciuc level.

Ciucul de Jos has seen population growth and aging indicators over 100% in Băile Tusnad. In the other localities, specific feminization indices of over 60 years are high, but those of economic dependency and aging are the smallest. The population growth was due to Sâncrăieni, becoming periurban.

The smallest city in Romania, Băile Tuşnad has managed to develop its economic, tertiary profile.

Within the depression, Ciucul de Jos is the area least exposed to the demographic risk of aging.

REFERENCES

1. Livvi Bacci M, (2007) *Scurtă istorie a populaţiei mondiale*, Balckwell Publishing, Oxford.
2. Holircă, B, (2009), *Elemente de risc demografic in Depresiunea Ciuc în perioada de tranzitie 1990-2006*, în volumul Geografia în contextual dezvoltării contemporane. Strategii de dezvoltare teritorială, Edit. Presa Universitară Clujeană Cluj Napoca.
3. Mihalache, F. (2010), *Schimbarea profilului demografic şi ocupaţional al populaţiei rurale 1990- 2009*, Revista „Calitatea Vieţii" nr. 1-2.
4. Ranca, I, (1997) *Românii din scaunele secuieşti* vol II, Edit. Pax Historica, Târgu Mureş.
5. Rotariu, T.,, Dumănescu L., Hărăgus M. (2017), *Demografia României în perioada postbelică, 1948-2015,* Edit. Polirom

6. Surd, V. (2001), *Geodemografie*, Edit. Presa Universitară Clujeană, Cluj-Napoca.
7. Surd V. (2008), *Riscuri demografice în Munţii Apuseni* Edit. Presa Universitară Clujeană.
8. *** Baza de date TEMPO al Institutului Naţional de Statistică (INS).
9. *** *(*2002), în *Riscuri şi catastrofe,* Edit. Casa Cărţii de Ştiinţă, Cluj-Napoca., editor V. Sorocovschi, Cluj-Napoca
10. *** *(*2008), în *Riscuri şi catastrofe,* Edit. Casa Cărţii de Ştiinţă, Cluj-Napoca., editor V. Sorocovschi, Cluj-Napoca
11. *** Rezultatele Recensământului Populaţiei şi Locuinţelor 2011
12. http://www.recensamantromania.ro/rezultate-2