

## DEMOGRAPHIC CHARACTERISTICS OF THE DISADVANTAGED MINING AREAS IN THE BIHOR COUNTY, ROMANIA

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**Abstract:** The labour capacity of a certain area is highly connected to tourism development, because the population, as part of a functional system, plays an important role in tourism. The paper examines demographic aspects from the disadvantaged mining regions in Bihor County taking into consideration the fact that the economic state of the analysed regions has changed radically after 1990 due to the massive industrial closure of the local and regional economy, the results showing that the mines and industry closure cause demographic changes leading to population loss and causing modifications in the economic and gender structure, finally all these could be turned into an opportunity as the people who no longer work in the industrial production field could be re-qualified for tourism.

**Key words:** demographic characteristics, tourism development, disadvantaged mining areas, Bihor County, Romania

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### INTRODUCTION

The availability of qualified workers in a particular region can have a considerable influence on tourism development (Gunn Clare, 2002). The population can be seen as a reservoir within the tourist demand for services but also as the labour force in the tourism activity, also it will shape the potential tourism offer, representing a dynamic element in increasing the quality of tourism services through training, ethics, skills, psychosocial qualities (Glăvan, 2000). The paper deals with demographic analysis, focused on the disadvantaged mining areas, that will be directed towards the problems that tourism development generated in the population dynamics and evolution, in its structure by age, gender and economic sector. In Romania the legal status for establishing the so called „*disadvantaged mining areas*” was done by the Government Emergency Ordinance No. 24/1998. The Bihor County’s disadvantaged regions (figure 1) were established by authorities in 1999, through the Government Decree no. 194, 195, 196 in the effort of promoting socio-economic development policies in order to improve the situation in these regions severely affected by industrial and mining restructuring in the years that followed 1990. These areas have a lower spatial extension and mining was their economic profile (Benedeck, 2004).

The mining areas of Bihor County faced a series of challenges such as the massive industrial restructuring, the loss of traditional markets, high unemployment and lower living

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standards all these causing various demographic changes, these former industrial regions having a strong impact in the landscape and socio-system (Cocean, 2005).



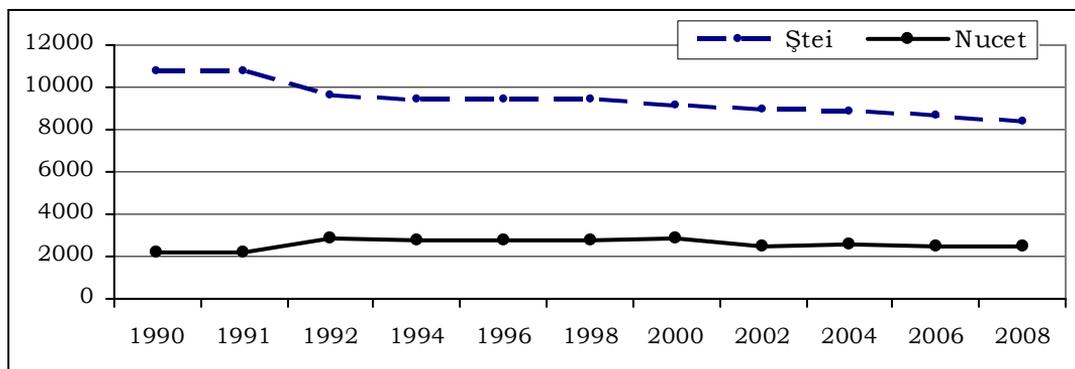
**Figure 1.** The administrative territorial units of Bihor County and the administrative units composing the Disadvantaged Mining Areas

### DATA AND METHODS

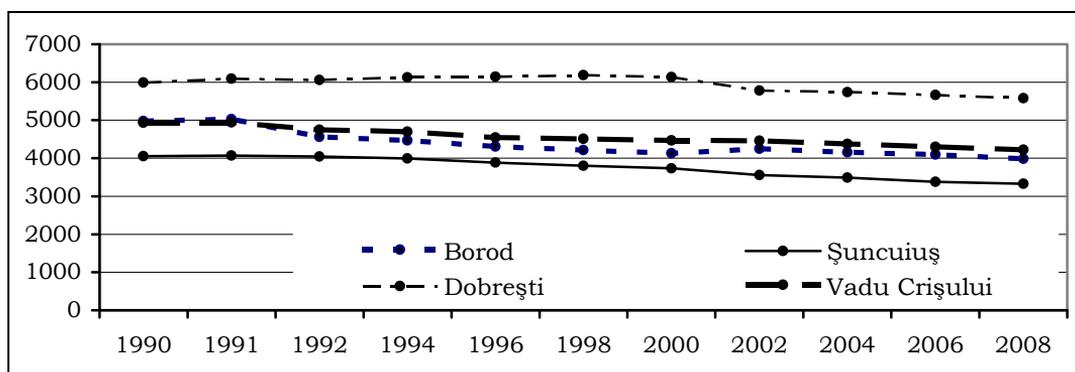
The analysis were carried out in compliance with the administrative units of each disadvantaged areas, as mine closures have significant impacts on the well-being of the community, due to the interdependent connection between local employment, services and infrastructure (Sheldon et al., 2002). In order to highlight the demographic changes that took place in the years that followed 1990 and to quantify this process, several indices were used: the dynamics and evolution of the number of inhabitants, including the rate of increase and decrease in population during 2001 - 2008 and the natural growth in the period 1990 - 2008, as interpreting the demographic behavior in terms of the decrease of the population can provide us with a series of relevant features, further the population structure by gender reveals a demographic structure in which the female - male population ratio has changed during the analyzed period, from predominantly male to predominantly female, the employment structure modifications by sectors, in order to emphasize the fall of the industrial activity and industrial closure, as “the problem of employment is one of the most serious and long lasting consequences of mine closure” (Haney & Shkaratan, 2003), further the facts that the employment structure by groups of occupation was completely changed compared to 1992 and finally the population structure by age, as these elements are in connection to the human potential available for the development and improvement of the tourist sector. The used data was from the last census and the data for the period 1991 - 2008 was offered by Bihor County’s Institute of Statistics. The obtained data was processed and synthesized, the synthesis being based on analysis, the results were used in the right way and as arguments for outlining conclusions. Three field researches to the disadvantaged mining areas were realised, in order to ensure the detailed field observation and to complete the general characterization of these areas.

## DISCUSSIONS AND RESULTS

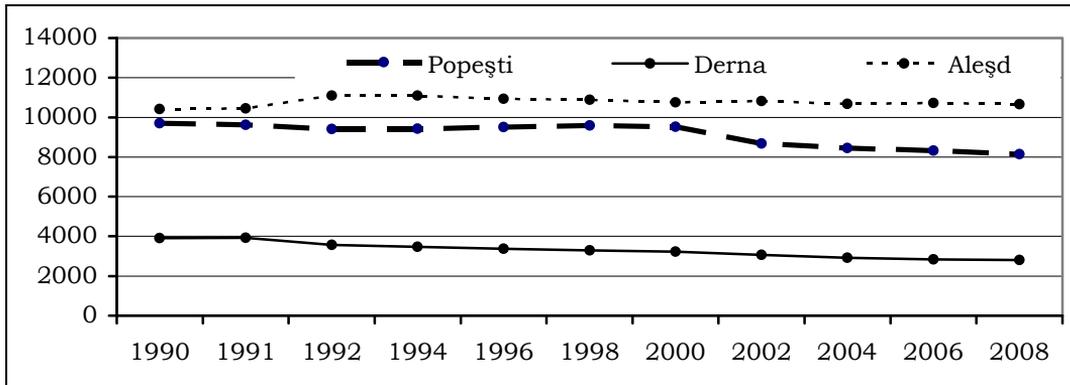
Dynamics and evolution of the number of inhabitants are the first elements to be considered as knowing the number of inhabitants of a territory is the main object of geographical censuses (Ilieş & Staşac, 2000). Analyzing the evolution of the number of inhabitants for the period 1990 - 2008 (figures 2, 3 and 4), we can observe the decrease, the overall trend being of constant reduction of the population from the analyzed area. The reduction phenomenon continues, requiring the assessing of the analyzed areas as regions with increased demographic risk. Mines closure and economic restructuring has led to sharp falls in living standards. Moreover, the unemployment and the free movement of people severely affected the numerical evolution of population in the analyzed areas. The Aleşd and Nucet administrative units represent exceptions, their number of inhabitants reaching 10414 (1990), 10757 (2000), 10654 (2008) in Aleşd and 2171 (1990), 2878 (2000), 2453 (2008) in Nucet (table 1). In these two situations the population working in the mining industry had values considerably lower than in other areas, the chapter regarding structure of population by sector extensively considering these issues. During the analyzed period, a decrease is not registered only in the value of the general number of population but also in the birth rate that becomes negative. After 1990, a remarkable decrease in birth rates and an increase in the mortality rate are registered, leading to the individualization of a negative natural growth (natural deficit). The migration process also becomes a problem because part of the people believe that finding jobs in the European labour market can provide better living conditions, in addition to the fact that the most effective human resource migrates to countries where the use of their own assets can bring them more benefits (Mursa, 2006) .



**Figura 2.** Population dynamics in the Ştei – Nucet Disadvantaged Mining Area (1990 - 2008)  
(Source: National Institute of Statistics, Bihor County Statistical Authority)



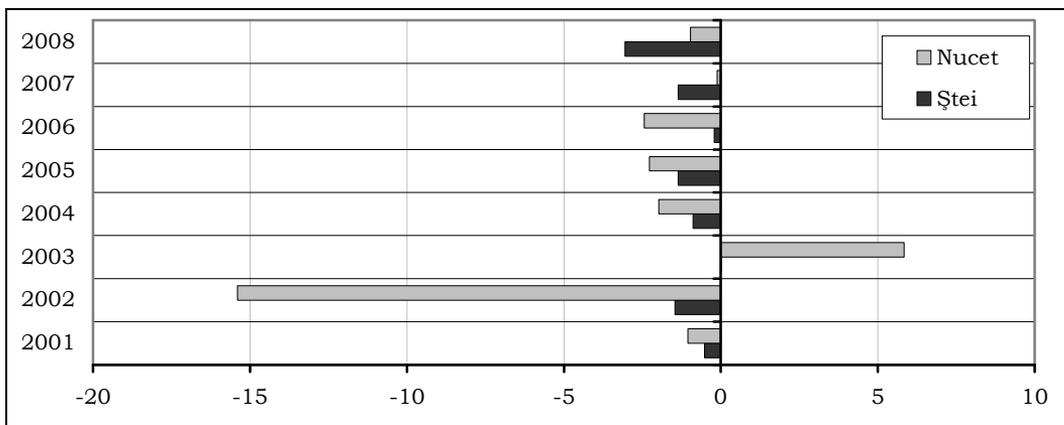
**Figure 3.** Population dynamics in the Borod – Şuncuiuş - Dobreşti - Vadu Crişului Disadvantaged Mining Area (1990 - 2008)  
(Source: National Institute of Statistics, Bihor County Statistical Authority)



**Figure 4.** Population dynamics in the Popești - Derna - Aleșd Disadvantaged Mining Area (1990 - 2008)  
(Source: National Institute of Statistics, Bihor County Statistical Authority)

**Table 1.** Population evolution in the analyzed territorial administrative units (1990 - 2008)  
(Data Source: National Institute of Statistics, Bihor County Statistical Authority)

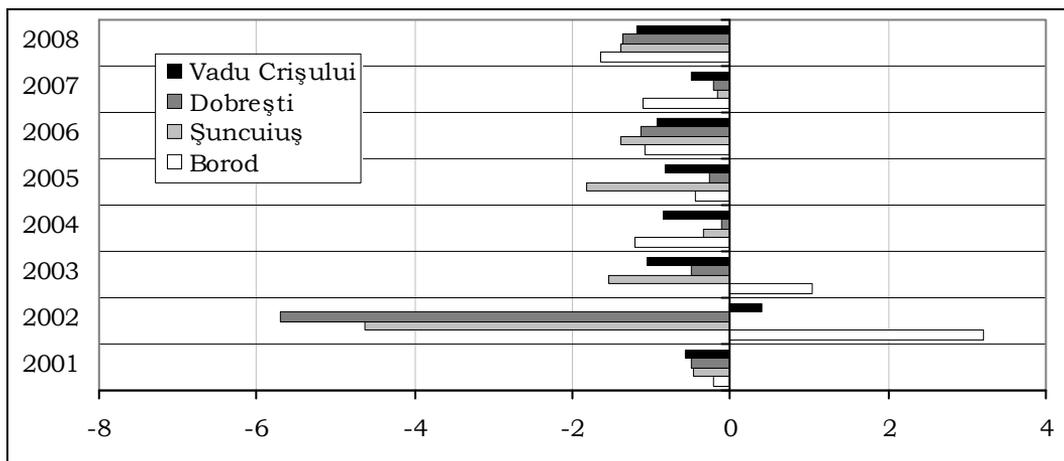
TAU \ Year	1990	1992	1996	2000	2004	2008
<b>Ștei</b>	10752	9619	9436	9108	8848	8339
<b>Nucet</b>	2171	2839	2776	2877	2567	2453
<b>Borod</b>	4977	4566	4310	4128	4157	3983
<b>Șuncuiuș</b>	4052	4044	3885	3735	3485	3324
<b>Dobrești</b>	5996	6057	6145	6138	5743	5575
<b>Vadu Crișului</b>	4938	4750	4547	4466	4373	4226
<b>Popești</b>	9702	9410	9513	9515	8449	8147
<b>Derna</b>	3914	3574	3377	3227	2921	2810
<b>Aleșd</b>	10414	11091	10932	10757	10677	10654



**Figure 5.** Rate of increase / decrease in population compared to the previous year during 2001 - 2008 (%) at Ștei and Nucet  
(Source: National Institute of Statistics, Bihor County Statistical Authority)

**Table 2.** The increase of population compared to the previous year during 2001 - 2008 at Ștei-Nucet  
(Data Source: National Institute of Statistics, Bihor County Statistical Authority)

TAU \ Year	2001	2002	2003	2004	2005	2006	2007	2008
ȘTEI	-48	-133	3	-79	-119	-19	-117	-255
NUCET	-30	-382	153	-51	-57	-60	-3	-24

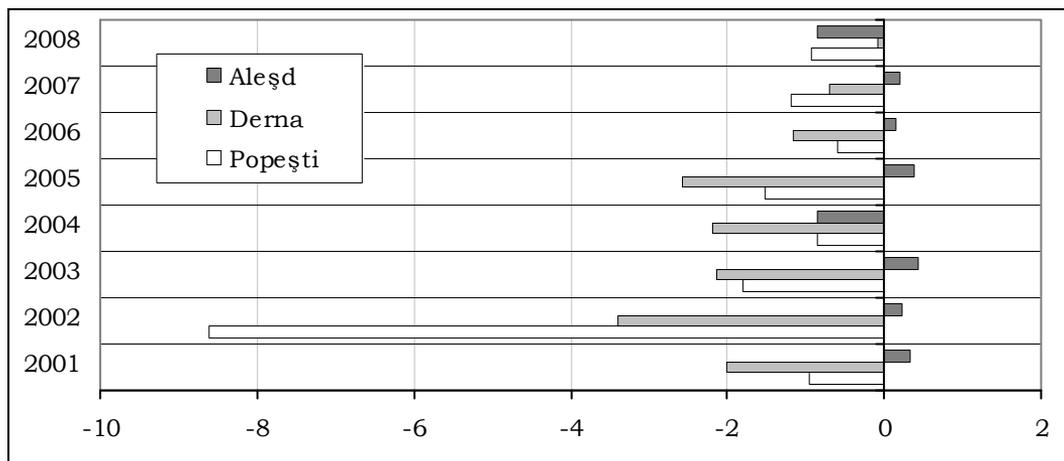


**Figura 6.** Rate of increase / decrease in population compared to the previous year during 2001 - 2008 (%) at Vadu Crișului-Borod-Șuncuiuș-Dobrești  
(Source: National Institute of Statistics, Bihor County Statistical Authority)

**Table 3.** The increase of population compared to the previous year during 2001 - 2008 at Vadu Crișului-Borod-Șuncuiuș-Dobrești

(Data Source: National Institute of Statistics, Bihor County Statistical Authority)

TAU	Year	2001	2002	2003	2004	2005	2006	2007	2008
	Borod	-9	132	-44	-50	-19	-45	-45	-65
Șuncuiuș	-18	-166	-54	-12	-62	-47	-6	-46	
Dobrești	-31	-329	-29	-6	-15	-65	-12	-76	
Vadu Crișului	-26	18	-47	-38	-36	-40	-21	-50	



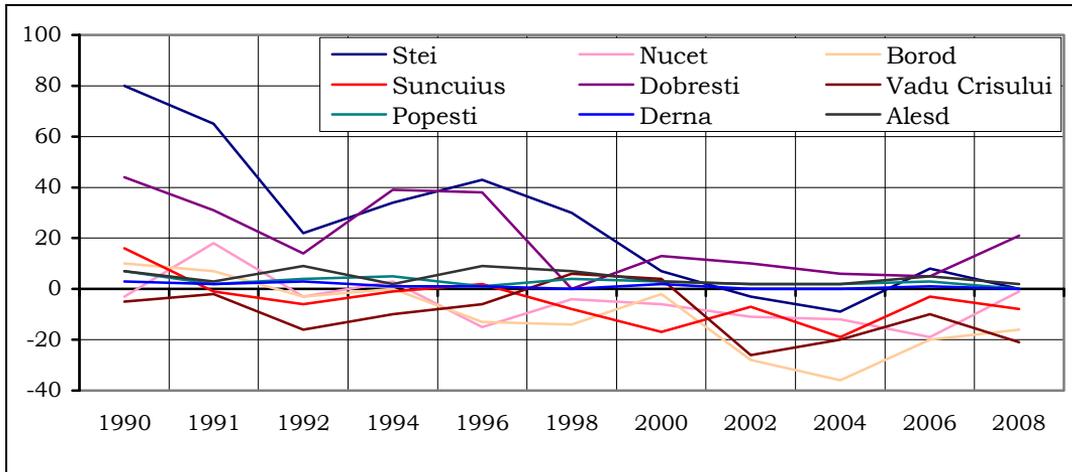
**Figura 7.** Rate of increase / decrease in population compared to the previous year during 2001 - 2008 (%) at Popești-Derna-Aleșd  
(Source: National Institute of Statistics, Bihor County Statistical Authority)

In order to highlight the demographic decline, the rates of increase and decrease in population compared to the previous year during 2001 - 2008 were analysed. In most cases, the rate of decrease in population registers maximum values in 2002, at Nucet -15.4% (figure 5), at Dobrești -5.9% (figure 6), at Popești -8.62% (figure 7).

**Tabel 4.** The increase of population compared to the previous year during 2001 - 2008 at Popești-Derna-Aleșd

(Data Source: National Institute of Statistics, Bihor County Statistical Authority)

TAU \ Anul	2001	2002	2003	2004	2005	2006	2007	2008
Popești	-90	-748	-155	-73	-127	-50	-98	-77
Derna	-64	-104	-64	-64	-74	-33	-20	-2
Aleșd	35	24	48	-91	42	16	21	-92



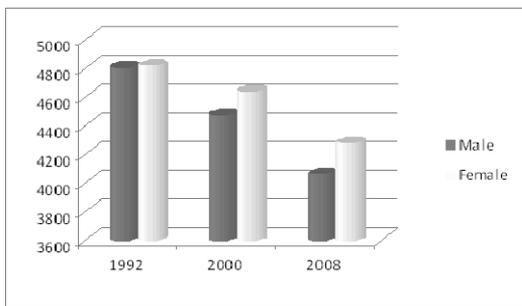
**Figura 8.** The natural population growth between 1990 - 2008 (%)

(Source: National Institute of Statistics, Bihor County Statistical Authority)

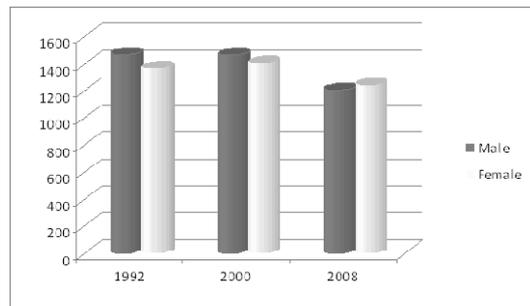
During this period, in most of the studied areas, the value of the birth rate is situated below the mortality rate value, the latter having a constant evolution. Thus, in 1990, a positive growth ratio was registered in the Ștei (80 persons) and Dobrești (44 persons), while a negative one was registered in Nucet (-3) and Borod (-5). The population keeps decreasing, so that in 2000 the natural growth values are diminished considerably (-17 in Șuncuiș and 13 in Dobrești). In 2008, the values are even lower, the extreme values being registered in Vadu Crișului (-21) and Dobrești (21).

**Population structure by gender**

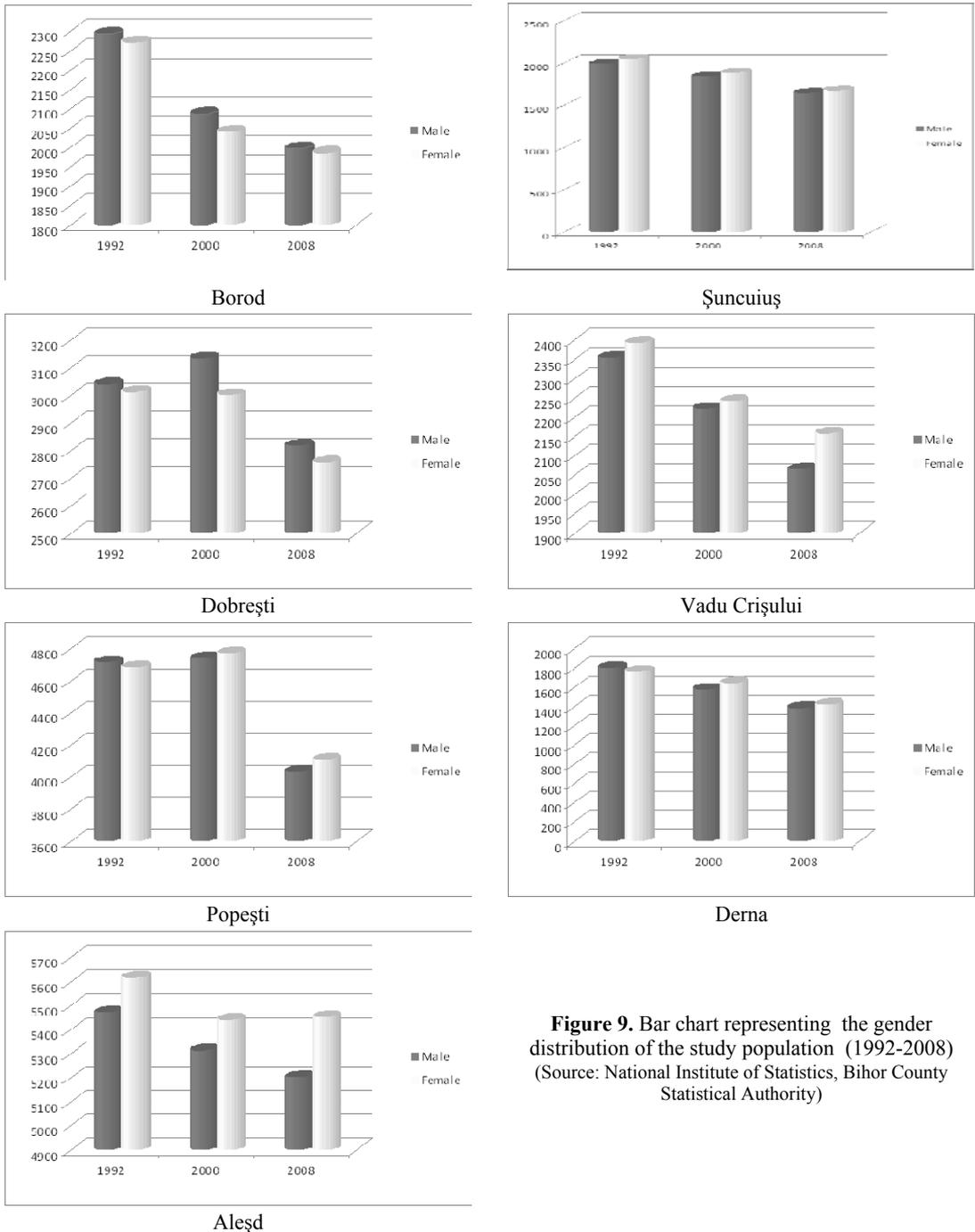
The population data from 1992, 2002 and 2008 reveals a demographic structure in which female population - male population ratio has changed during the analyzed period, from predominantly male to predominantly female. The population structure by gender and age groups is an essential characteristic in the demographic structure analysis (Ilieș & Stașac, 2000).



Ștei



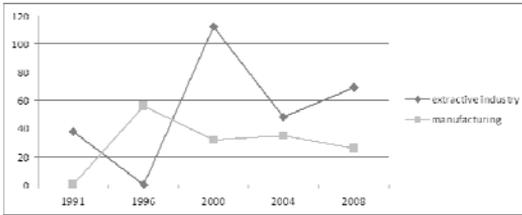
Nucet



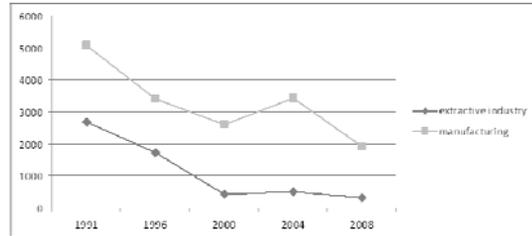
**Figure 9.** Bar chart representing the gender distribution of the study population (1992-2008) (Source: National Institute of Statistics, Bihor County Statistical Authority)

Thus, in 1992, the TAUs deeply rooted in mining activities recorded a population of male dominance in most cases (Nucet 1471 men and 1368 women, Borod 2294 men and 2272 women, Dobrești 3043 men and 3014 women, Popești 4722 men and 4688 women, Derna 1807 men and 1767 women) (figure 9).

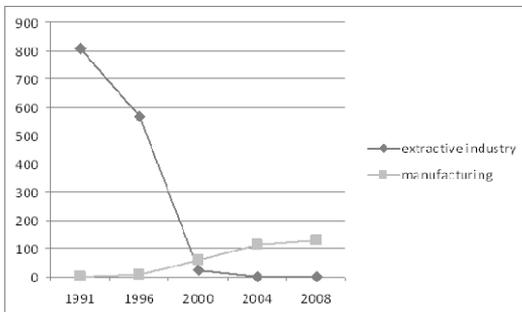
The social and economic changes, the industrial restructuring, the reorientation of the labour force, they all affected this area causing changes in the structure of the population. Thus, the values in 2000 switch to 4471 men and 4637 women in Ștei, 1467 men and 1410 women in Nucet, 2087 men and 2081 women in Borod, 1847 men and 1888 women in Șuncuiuș, 3135 men and 3003 women in Dobrești, 2223 men and 2243 women in Vadu Crișului, 4742 men and 4773 women in Popești, 1581 men and 1646 women in Derna and 5315 men and 5442 women in Aleșd. Changing this ratio is determined by the orientation of mining labour towards other activities.



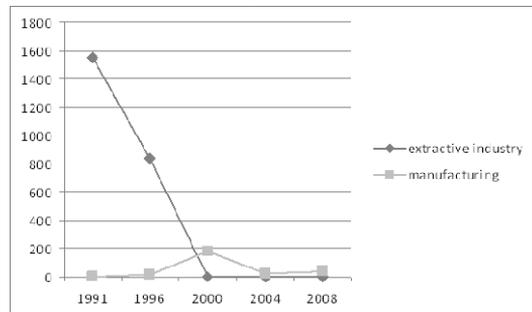
Nucet



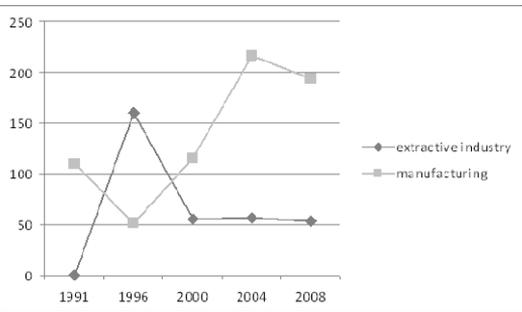
Ștei



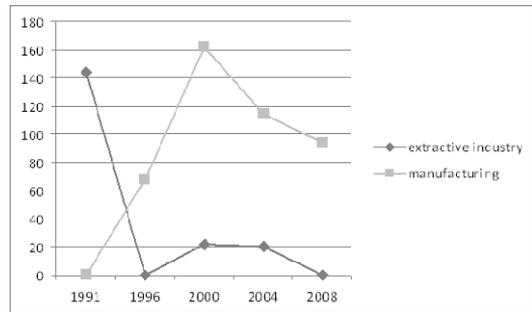
Borod



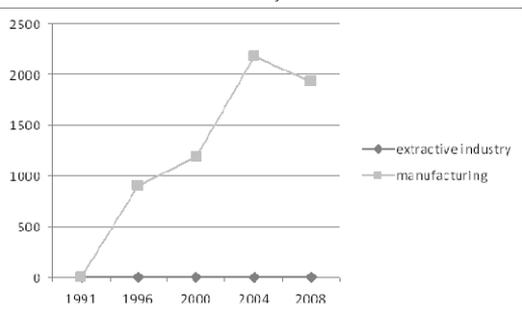
Dobrești



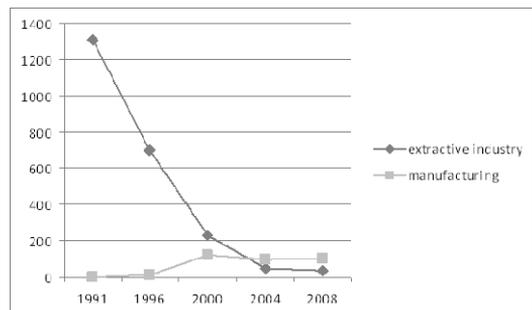
Vadu Crișului



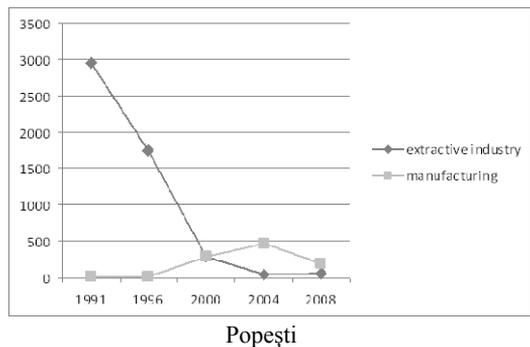
Derna



Aleșd



Șuncuiuș



**Figure 10.** The employment structure dynamics of the extractive industry and manufacturing (1991 - 2008) (Data Source: National Institute of Statistics, Bihor County Statistical Authority)

This trend continued in 2008, the female population being predominant in 7 out of 9 analyzed TAUs, the only exceptions being Borod with 1987 men and 1986 women and Dobrești with 2818 men and 2757 women.

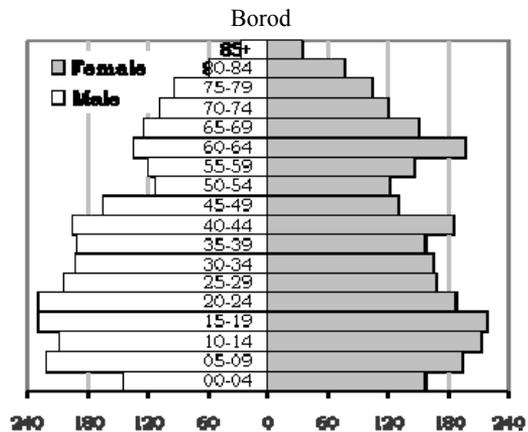
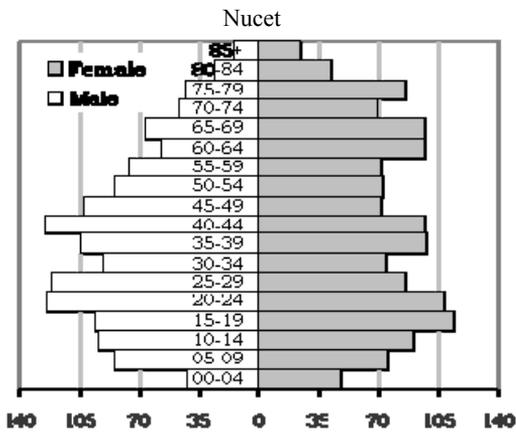
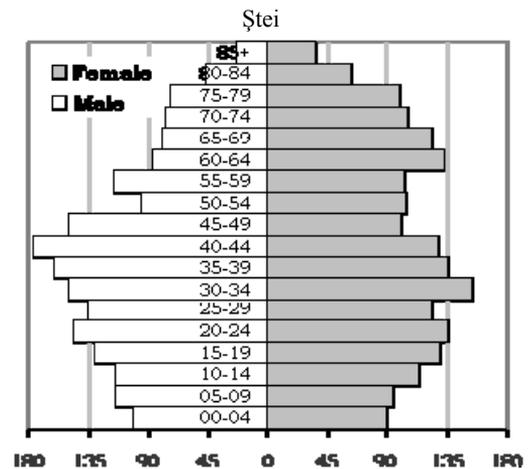
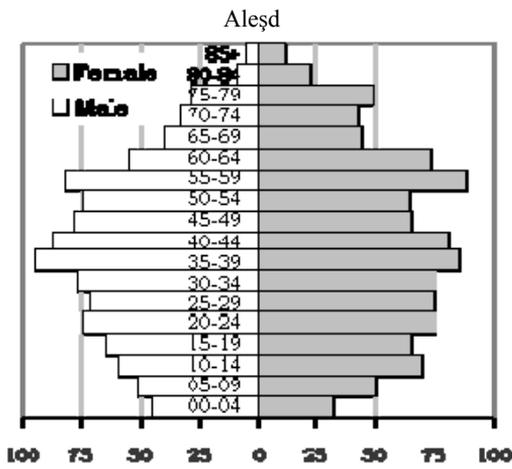
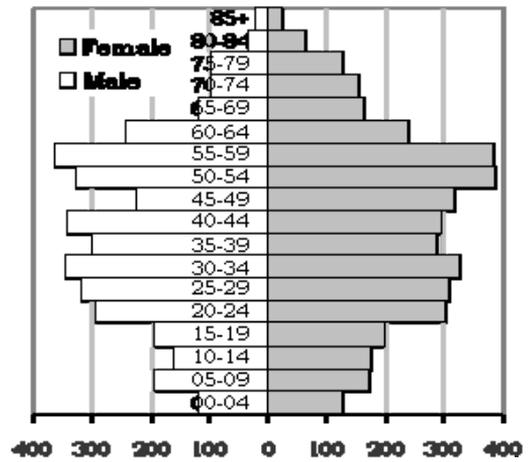
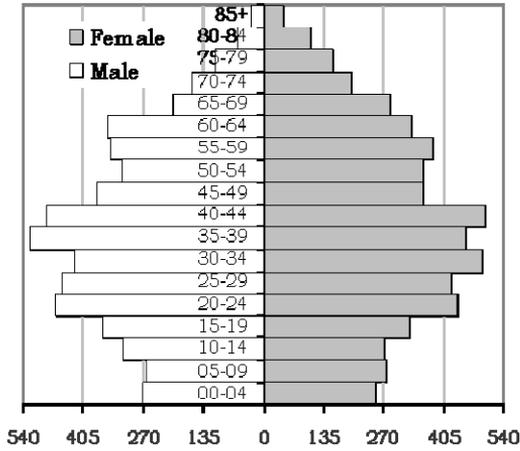
The employment structure by sectors reflects the degree of economic development reached by the respective regions. In 1992, the employed persons in the analyzed TAUs (figure 10) were working mainly in the mining industry. This structure reflects the reality soon before 1990, the population being included, at that time, in those industries that the national economy was focusing on. Due to the region's profile, the employees working in other fields were representing only a small percentage of the total working population. In 2008 the employment structure by groups of occupation was completely changed compared to 1992. The population employed in mining and manufacturing decreased in 16 years, while the population working in the services, commercial and transport field has increased considerably. We can observe a natural reordering of the employed population, according to the changes appeared in the local economy. If in 1992 most of the employed population was working in mining and manufacturing, but in 2008 the proportion of people working in this economic sector dropped dramatically and stopped holding the highest percentage among the other economic sub-branches.

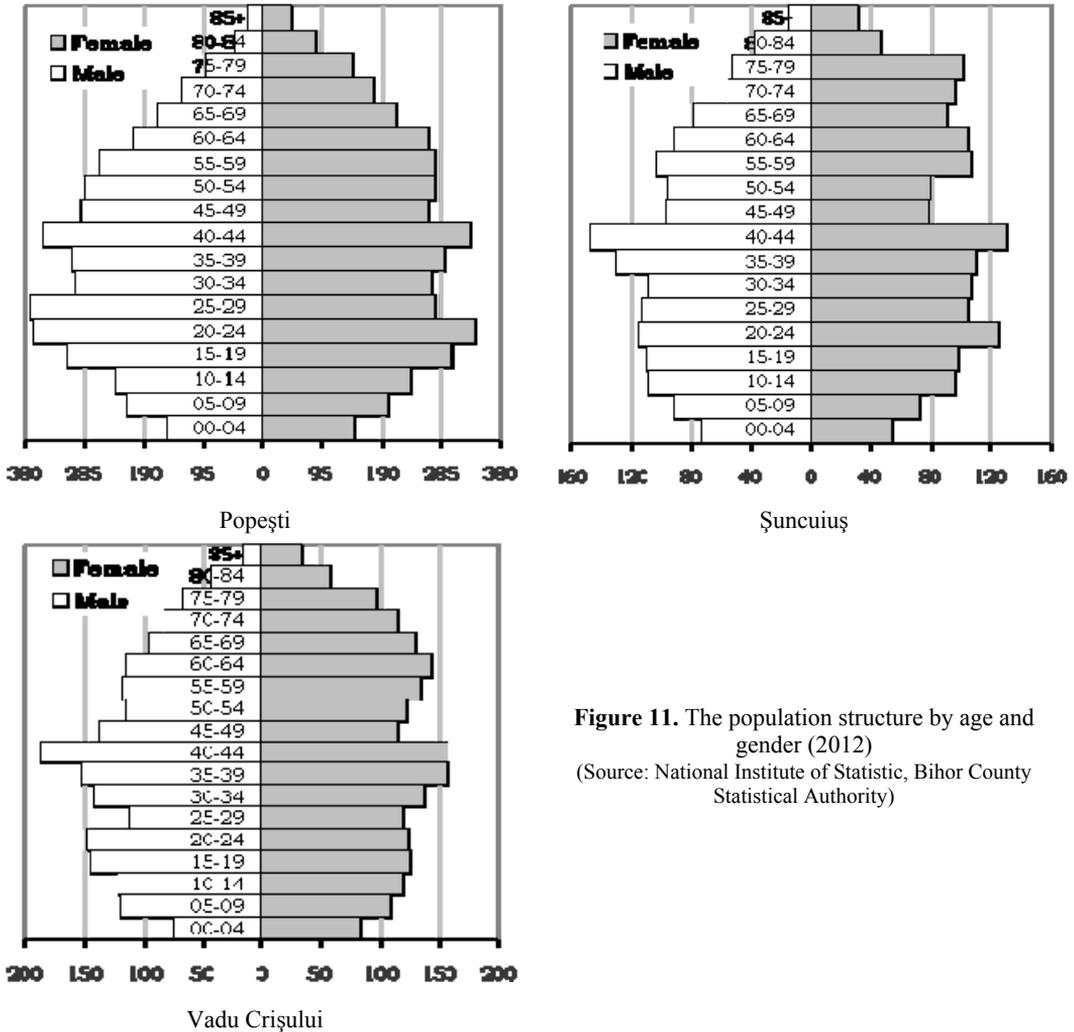
While the percentage of the personnel working in agriculture, mining and extractive industry decreased, the proportion of the personnel hired in the tertiary sector increased. Within this sector, the number of employees working in the commercial field, in tourism (hotels and restaurants) increased. The number of local government employees, the number of employees working in the education system, the number of employees working in the health and social care systems also increased. The radical transformations occurred over the past decades in the economy of these settlements are reflected in their employment structure regarding the main activities developed in the economy of the mining regions.

### Population structure by age

In order to visualize the population distribution by age and gender, the age pyramid is used. It reflects not only the long-term trends of fertility and mortality, but also the short-term effects of the migration, of the demographic policy or of the changes occurred during a century of demographic history (the pyramid includes age groups from 0 to 100 years). The age pyramid can reveal information about the health state of the community members, but it can also be used to analyse the probable evolution of the local human resources and the personnel necessary on the labour market in the near future. In what concerns the population structure by age and gender for 2012 (figure 11), the pyramid reflects a relatively balanced situation between female and male population. In 1992, the largest age group was the young one, with ages between 15-24 years, while in 2012, the largest group was that with ages between 35-39 years in Aleșd, or 40-44 years in Șuncuiuș (figure 11). A decrease in the index value can be noticed, but the reason is given by the decrease in the population group with ages between

0 and 14 years, simultaneously with an increase in the elderly group population. Thus, although the dependency ratio decreased, the changes occurred in demographic structure involve an important impact on the social responsibilities that the working population has towards the two categories.





**Figure 11.** The population structure by age and gender (2012)  
 (Source: National Institute of Statistic, Bihor County Statistical Authority)

An analysis of the age and gender structural pyramid for 2012 reveals the following in what concerns the population existing in the studied TAUs, so during 1990 - 2012, the percentage of the young population decreased due to a low birth and fertility rate. In addition, in what concerns the young population (0-20 years), the percentage of the male population is consistently higher than the female population (more boys are born).

The adult population forms a broken trunk in both pyramids due to fluctuations appeared in birth rate after its forced growth, supported through administrative means, in the period 1965-1989. The elderly group formed a narrow and slightly elongated top of the pyramids, but there is a slight widening of the top of the pyramid for 2012, due to the fact that the percentage of this group increased in 10 years, which shows that the longevity of the population from these localities also increased. The age pyramid for 2012 reveals a dissymmetry of the sexes imposed by a higher proportion of the population aged over 60 years, of which the female one has a clear numerical superiority. The high rate of the male mortality is explained as an effect of the increased stress of the transition that had a stronger impact on men than on women. The pyramid looks irregular due to the different evolution of demographic indicators in 1990 - 2012. The population pyramid for 2012 has evolved unfavourably, by narrowing to the base. In the coming decades we can talk

about an age pyramid turned upside down. Finally, according to the age pyramid for 2012, the age groups in what concerns the adult population are well represented, which means that, in terms of tourism phenomenon, presently there is an available human potential for the development and improvement of local tourist offer.

### CONCLUSION

The results of the study show that closing the mines leads to demographic changes and the closing of the industry, together with the disappearance of the vital jobs, lead to a decrease in population and to changes in the occupational structure of the population. Moreover, the massive industrial restructuring in the disadvantaged mining areas during the years that followed 1990 caused radical demographic changes. The negative natural growth, the migration of the young population and the aging process can have serious consequences for the local labour market. Due to economic restructuring, the personnel removed from the industrial production can be requalified to work in tourism, this representing a development opportunity in the analyzed regions. The availability of various human resource qualifications in the studied area may have a particularly high impact on the tourist system. In conclusion, we can estimate that, at the level of the analysed TAUs, currently exist human resources necessary to provide specific and complementary tourism services, a near future perspective (10 - 15 years) requires an optimal management of these resources, given the trend of reduction and possible migratory movements of younger age groups (under 20 years). Finally, the professional reconversion of labor and new jobs creation for the local community are activities that have to be part of the local sustainable development framework.

### REFERENCES

- Benedeck J. (2004), *Amenajarea teritoriului și dezvoltare regională*, Presa Universitară Clujeană, Cluj-Napoca.
- Cocean P. (2005), *Geografie regională*, Presa Universitară Clujeană, Cluj-Napoca.
- Glăvan V. (2000), *Turismul în România*, Editura Economică, București.
- Gunn Clare A., Turgut V. (2002), *Tourism Planning Basics, Concepts, Cases. The Fourth Edition*, Published by Routledge, Great Britain.
- Haney M., Shkaratan Maria (2003), *Mine Closure and its Impact on the Community Five Years After Mine Closure in Romania, Russia and Ukraine* The World Bank, Policy Research Working Paper, Europe and Central Asia Region Infrastructure and Energy Services Department.
- Ilieș Al., Stașac M. (2000), *Studiul geografic al populației*, Editura Universității din Oradea.
- Mursa, G. (2006), *The investment in the Human Capital. Several considerations concerning Romania*. In the Annals of the "Alexandru Ioan Cuza" University, Tom LII/LIII Economic Sciences.
- Sheldon Ch. G., Strongman J. E., Weber-Fahr Monika (2002), *It's Not Over When It's Over: Mine Closure Around the World, Mining and Development*, published by the World Bank Group's Mining Department" World Bank and International Finance Corporation.
- \*\*\* *Bihor County Institute of Statistics, Bihor County Localities Index (1991-2008)*.
- \*\*\* *Government Emergency Ordinance No. 24/1998*.
- \*\*\* *INSSE, 2002, National Census*.
- \*\*\* *Romanian Government Decrees no. 194, 195, 196/1999*.
- www.bihor.insse.ro

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