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## ASPECTS REGARDING THE WORKFORCE RESOURCES IN BIHOR COUNTY

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**Abstract:** The purpose of this paper is to analyze labor resources in Bihor County and to highlight some of aspects that characterize the current condition of this population category. In this respect, the paper reveals that the population is found in a process of demographic aging, with negative implications upon the utilization of workforce. Based on analysis of statistical data provided by the statistical yearbook, the paper result show that the workforce renewal rate in Bihor County is in deficit, respectively 100 individuals turned inactive, are replaced by only 79 individuals, who come under the category of the active population. Furthermore, the fact that the active civilian population represents only 66,9 % of the overall potential active population, emphasizes a relatively feeble use of the workforce. Finally, the paper reveals a significant numeric decrease, during the past years, of the individuals activating within the healthcare and social work departments. Thus, this decrease has a negative consequence upon the health condition of the population.

**Key words:** demographic system, active population, demographic aging, age dependency ratio, working population, activity rate.

**JEL Classification:** J01; J11; J10; J19

### 1. Introduction

The analysis of the demographic structures according to their social-economic characteristics is very important, not only from the demographic point of view, but also because of the fact that it emphasizes the mutual influence between the population and economy, between the population and the surrounding environment.

The realities of the economic and social life draw the attention to the outstanding role of the human resources within the economic growth. As Constantin Grigorescu points out in his study, "Population and Economy", "It is noteworthy the fact that the quality level of the workforce resources, is linked to the action of all the immaterial factors of the economic growth, the qualities of human resources contribute to the growth rate of production and efficiency, not only through the

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agency of education, but also by allocating resources and volume of knowledge.” (Grigorescu, 1977, pp. 45)

It must be pointed out, that several studies regarding the size and qualitative level of the workforce resources, within the context of the role of the local authorities in leading and organizing the economic and social life, concerning territorial supplying, become objective and necessary requirements.

## 2. Literature review

The attention granted to the workforce issues is also proven by the fact that in March 2010, the European Union launches the “2020 - European Strategy”, which analyses the reaching of a workforce occupancy rate of 75 % until the year of 2020, in the case of the population between the ages of 20 and 60. However, this strategy allows the member states of the European Union, to adapt their strategy according to the distinctive characteristics of each state.

The issue of the workforce resources, regarded at from multiple aspects, represented the preoccupation of many researchers, both on national and international levels. Therefore, Stefan Constantinescu, in his study entitled, “Social Economy and Workforce Occupancy: The suppliers of professional training and services for stimulating occupancy” emphasizes, among other things, that “the social economic organizations contribute indirectly to the increase of the workforce occupancy rate, by improving the employment chances of the workers, especially of those presenting a high risk for being excluded from the labor market” (Constantinescu, 2013, pp.13).

We may also find aspects regarding workforce occupancy in the study entitled, “Labour Market Perspectives in Romania, within the Context of the 2020 - European Strategy”, by Albu Lucian Liviu, Petre Caraiani, Marioara Iordan (Albu et al., 2012). The authors emphasize that “nowadays, the labour market is confronted with the effects of several major issues coming, ordinarily from other fields than the economy. The aging of the population is a demographic phenomenon, just as gender discrimination, or discrimination among other population categories, is a social phenomenon. The dysfunctions emerging on the labor market, ordinarily intertwine, correlate with one another and may generate unpredictable effects” (Albu et al, 2012, pp.12).

An approach of the workforce occupancy on a global level, integrated within the general context of the worldwide economic crisis, is presented in the study entitled, “A Global Workforce Occupancy Plan”, by Angelos Angelopoulos (Angelopoulos, 1987). The author, referring to the modern man, points out, among other things, that “the integral workforce occupancy, social security, adequate wages, which may allow a sufficient income for covering his and his family’s needs – and all these by the unconditioned respectfulness of his liberties and of the human rights -

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are not simple tasks, but obligations of the government.” (Angelopoulos, 1987, pp.28)

### 3. Research methods and analysis

In order to decipher the issues related to the workforce resources in Bihor County, a methodology specific to social-economic resources had been used (the analysis and synthesis, comparison, graphic representation) based on a rich statistical data material.

Such a type of study requires, mainly, the research of the population’s structure according to age and gender, of the active and potentially active population, of the working population and of the unemployed one, as well as the distribution on activity sectors of the working population.

In terms of data analysis research methodology was based on statistics provided by the Romanian National Institute of Statistics, namely on the basis of data provided by the Statistical Yearbook of Romania. On the other hand we mention that data analysis concerns the time frame between 2000 and 2014.

Finally, the analysis of the population according to age and gender was carried out on the level of younger (0-19 years), adult (20-64 years) and older (over 64 years) age groups.

### 4. Results / Findings

Regarding the entire population, the analysis of the statistical data of the year of 2014, emphasizes the fact that the younger age population holds 20.7 % of the overall population, the adult age population, 64.5 % and the older age population 15.7 %. Comparing this data to those from the year of 2000, a decrease of the rate of the younger age population with 4.8 % is observed, an increase of the adult age group with 3.7 %, and of the older age group with 1,3 % (Table 1)

**Table 1. The evolution of age group rates during 2000-2014**

Year	Overall population	0-19 years		20-64 years		65 and over	
		No. of population	% of the overall	No. of population	% of the overall	No. of population	% of the overall
2000	620517	158652	25.5	377703	60.8	90162	13.5
2005	595685	142977	24.0	367557	61.7	85151	14.3
2010	592561	129841	21.9	377604	63.7	85116	14.4
2014	620866	128874	20.7	400326	64.5	91666	14.8

Source: Self processing according to the Statistical Yearbook of Romania 2000-2014.

The decrease of the rate of the younger age group and the increase of the rate of the older age group, on one hand, and on the other hand, the relatively high percentage

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(14.8 %) of the older population, emphasizes the presence of a process of demographic aging. In order to clarify the existence of such a process, a longer period of time was considered for examination, a period of 24 years (1990-2014) and a different population group, respectively the younger age group of 0-14 years, an adult age group of 15-59 years, and the older age group of 60 years and over.

As a result of observing the evolution of the younger age group, we notice a decrease, year by year, of its rate from 22.2 %, in 1990, to 15.4 %, in 2014, which means a percentage diminution of 6.8 %. Simultaneously, the rate of the older age group has registered an increase of 4.3 %, respectively from 16.7 % (1990), to 21.0 %, in 2014. (Table 2).

**Table 2. The evolution of age groups rates during 1990-2014**

Year	Overall population	Age groups - % of the overall		
		0-14	15-59	60 and over
1990	660116	22.2	61.1	16.7
1995	631095	20.4	61.5	18.1
2000	620517	18.4	62.6	19.0
2005	595685	16.3	64.6	19.1
2010	592561	15.9	64.2	19.9
2014	620866	15.4	63.6	21.0

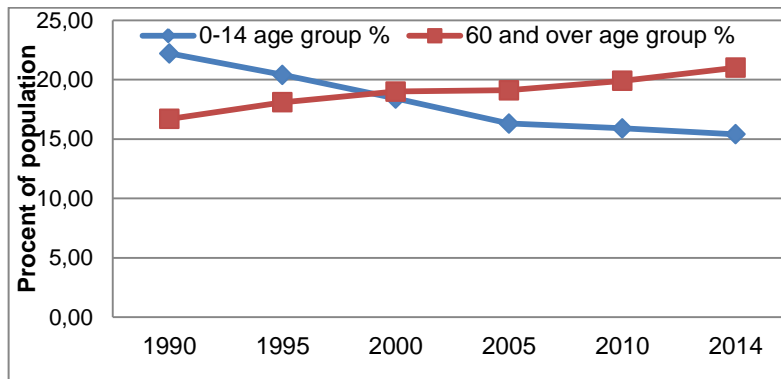
Source: Self processing according to the Statistical Yearbook of Romania 1990-2014.

The analysis of the statistical data reveals that the evolution of the rate of these two groups, beginning with the year of 1990, was registered in a convergent direction, therefore, around the year of 2000, these two intersect each other. After this year, the evolution of the younger age group rate and of the older age group as well, is recorded on a divergent course. While looking from the point of view of the demographic aging, it can be stated that until around the year of 2000, the process of aging is found in a stage of evolution, and hardly after this year, we are dealing with a demographically aged population (Figure 1).

In order to even more clearly emphasize the demographic aging of Bihor County's population, the index of demographic aging has been calculated as well at the level of the years of 1990 and 2014. This calculus shows that in the year of 1990, the rate was of 55.6 %, so that in 2014, this to increase up to 71.1 %. If we keep in mind that a rate of 42 % represents the threshold from where it is considered that a population enters into a demographic aging process, means that Bihor County's population was affected by the demographic aging process as far back as the year of 1990, nowadays finding itself in a first phase of demographic aging.

A more detailed knowledge regarding demographic aging is covered by the analysis of this phenomenon at the level of the male and female populations: under

this aspect, at the county level, the most advanced degree of demographic aging is recorded by the female population, with a rate of 71 %, in relation to 55.3 %, which is what the male population registers.



**Figure 1. The evolution of the younger and older age group rate during 1990-2014**

Considering that the age structure of the population has implications concerning the evaluation of the productive potential of the economic territorial units, the so called age dependency ratio, a ratio showing the pressure carried out by the unemployed population upon the working population. Therefore, as far as the entire county is concerned, the general age dependency ratio in 2014 was of 55 %, which means that 55 unemployed individuals are supported by 100 working individuals. It is worthy of note that in regard to the year of 1990, when the age dependency ratio recorded 65 %, the pressure upon the working population, at the level of the year of 2014, has become more diminished.

Since the population belonging to the working population plays an important role within the economic and social activity, a research of the structural state from within itself is required, for the evaluation of the demographic aging degree of the workforce. On that account, the potentially working population was divided into three age groups, respectively 15-29, 30-44 and 44-59, for both genders. Afterwards, at the level of the year of 2014, the rate of the established groups has been calculated, of the entire potentially active population, both generally as well as on genders. (Table 3)

The obtained result emphasizes the fact that at the county level, the age structure of the potentially active population may be considered to be a balanced one. However, the quite increased ratio of the older age group (45-59), especially with the female population, indicates a tendency of aging of the workforce.

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As far as the structure based on genders is concerned, the male population holds a ratio of 50.4 %, having a balanced structure, at the level of the analyzed age groups. The female population, with a ratio of 49.6 %, presents an imbalance between the younger age group (15-29) and the older age group (45-59), the difference being that of 2.5 %, in the favor of the last group. This percentage differences signal the fact that the demographic aging process affects the female population in particular.

**Table 3. Age group rate of the working population**

Subpopulation	Age group	Individuals no.	% of the overall
Male	15-29	61585	30.8
	30-44	77071	38.5
	45-59	61117	30.6
<b>Total male</b>		199773	50.4
Female	15-29	58711	29.9
	30-44	74057	37.7
	45-59	63673	32.4
<b>Total female</b>		196441	49.6
Both genders	15-29	120296	30.3
	30-44	151128	38.1
	45-59	124790	31.5
<b>Total both genders</b>		396214	

Source: Self processing according to the Statistical Yearbook of Romania - 2014

In order to outline the contribution of the younger population concerning the potentially active population, the workforce renewal rate has been determined, namely the rate between the 15-29 and 30-44 age subgroups. This rate, of 79 %, shows that the workforce renewal is not entirely assured, respectively, 100 individuals turned unemployed, are replaced by only 79 individuals, turned active. Regarding the genders, the renewal rate shows similar values, respectively 79 %, in the case of women and 80 %, in the case of men.

For a more thorough study of the aspects regarding the workforce resources, the population has been analyzed based on the social and economic characteristics as well. To that effect, the structures of the active civilian population, of the working population and of the unemployed population were also taken into consideration, as well as the distribution of the working population on sectors and branches of activity.

In regard to the active civilian population, the limitations provided by the active legislation were taken into account, respectively between the ages of 16-64, for the male group and ages 16-59, for the female population. In order to highlight it, the

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rate of activity was determined, a rate that points out the ratio of this population category within the overall population. According to the scale of the county's workforce in 2014, the active civilian population, namely the active civilian population plus the unemployed individuals, add up to 276700 individuals. This number applied to the overall population, guarantees an activity ratio of 44.5 %. The male population is more numerous within the active civilian population (147400 individuals) and holds an activity ratio of 23.7 %, and the female one (129300 individuals) presents an activity ratio of 20.8 %.

Another element worthy to be mentioned is the outlining of the active civilian population ratio from within the potentially active population. This last category, where the male population between the ages of 15-64 and the female one, between the ages of 15-59 are enclosed, summed up in the year of 2014, to 413347 individuals. The resulted indicator outlines the fact that out of the overall of the potentially active population, the working population represents 66.9 %, fact that reflects a relatively feeble use of the workforce potential. For sure, the active civilian population does not also include the individuals activating in certain departments that do not have a civilian quality mark, still, however, their percentage is diminished, so that it does not significantly improve the level of the workforce use.

An important aspect regarding the workforce resources is emphasized by the analysis of the working civilian population. In 2014, the statistical data at the county's level records a number of working civilian population of 266400 individuals. Applying the number of this population to the active civilian population, results that the working civilian population represents 96.2 % of the active civilian population, and the remaining 3.8 %, being represented by the unemployed population. Out of the working civilian population, 53 % is represented by the male population and 46.9 %, by the female population.

The analysis of the working population, divided into departments of activity, represents a real interest as well. Out of this analysis appears the fact that the most numerous population, 31.6 % of the overall, activates within the primary sector (a ratio exceeding the average at country level), 30.9 % within the secondary one (industry and constructions), 26.4 % in commercial services and 11.1 %, in the social work department. Regarding the distribution of the working population, according to gender and the above mentioned criterions, it has been determined that within the primary sector, the female population is the most numerous (54.3 %), while in the secondary and tertiary sectors, the male population is dominant, respectively in the secondary sector, the men have a ratio of 53.8 %, and in the tertiary one, 51.7 %.

The fact that the highest rate of the working population is held by the primary sector is a negative aspect, and shows that in the county, the agriculture is poorly

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developed, with a reduced degree of mechanization. Subsistence agriculture is mostly practiced.

In order to outline the numeric evolution of the working population within the primary sector, the existing situation of the year of 2010 has been analyzed. During this year, the rate of the working population, within the primary sector, was more increased, compared to the year of 2014, respectively of 33 %, a fact that indicates a slight tendency of decrease.

As for the secondary sector, the greatest part of the population activates within the processing industry, respectively 89.8 %, of which 52.6 % are men and 47.4 %, are women. Within the tertiary sector, the highest workforce concentration, of 47.2 %, is registered within the "wholesale and retail trade; fixing vehicles and motorcycles". In this activity department, the male population holds the highest ratio, respectively of 55.4 %.

By following the numeric evolution of the working population, within the tertiary sector, beginning with the year of 2010, it is noticed that in the year of 2014, in certain activities, a decrease of employees emerges. The most significant losses in 2014, are recorded in the department of education, a minus of 3.9 %, and in the healthcare and social work departments, a minus of 21.5 %, up against the year of 2010. These losses of employees have the most negative effects upon the department of education and of the healthcare of the population, and because of this reason it is required to take certain measures of recovery at the level of the county's administration.

The current economic development of the county, including the reduced volume of investments, cannot assure the required number of jobs, in order to absorb the existing workforce.

Under these conditions, unemployment has developed a phenomenon which encloses at the level of the year of 2014, 3.8 % of the working civilian population. Out of the unemployed population, 57.3 % are men and 42.7%, women.

### Conclusions

The research undertaken regarding Bihor County's workforce resources, without proposing an exhaustive approach, emphasizes several phenomena that characterize the current state of this demographic category. As an aspect detaching out of this analysis, it is the fact that the workforce of this county is found in a relatively advanced process of demographic aging, a process largely affecting the female population. Another aspect that is pointed out is that the age dependency ratio improved at the level of the year of 2014, as compared to 2010, respectively the pressure of the unemployed population upon the working one, has decreased from 60 % to 55 %. Then, another result is that the workforce renewal, regarding the entire county is inauspicious, being covered only in a percentage of 79 %. In



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addition, the fact that the working civilian population represents only 66.9 % of the potentially active population reflects a relatively feeble use of workforce.

From an economic perspective, the demographic aging of the population and reducing the rate of regeneration of workforce have a negative impact on the revenues and expenditures from local and national level. In fact if this trend will continue the budget revenues from taxation of labor (the wage tax, health insurance taxes and unemployment) will no longer sustain its budgetary expenditure linked to state obligations towards different social groups (payment of pensions and unemployment benefits, sick pay and maternity leave benefits, the parental allowances, other financial obligations of social nature). Finally, it is worth noting that the demographic aging of the population and mostly the workforce affects and will increasingly affect more, as this trend will continue, economic activities in terms of labor productivity. In the same time, a significant loss of employees is pointed out, in the healthcare and social work departments, with severe consequences in providing for the population's state of health.

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