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Labor market analysis in the Western Development Region of Romania

(Graduates of the educational system in the Western Development Region of Romania)

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Abstract

In the context of technological changes, the growth of information and the development of knowledge-intensive industries is very difficult to identify the new demands of the labor market. Continuous training is no longer a necessity, but it becomes an obligation to cope with these technological changes and artificial intelligence in any field.

The increase of the population at global level and the reduction of the birth at national level entails the phenomenon of the internal and external migration towards the developed countries, migration that will unbalance the labor market in these countries. In the European Union and in Eastern Europe (developing countries) unemployment increases with the implementation of new "smart-innovative" technologies that greatly influence the demand of the labor market and the educational supply must be adapted and corroborated with the new demands of the labor market.

For this reason, new methods are sought and researched to forecast and identify the future needs of the labor market, which must take into account the following factors: sector, employment, education and training, which may influence the demand and supply of future jobs.

Keywords: labor market, Western Development Region, Romania, graduates, educational system

1.Introduction

In order to design a methodology for the real forecast of the labor market, it is necessary to apply the project of regionalization of Romania (Figure 1 - according to the National Institute of Statistics of Romania), a long-term project that will divide each region according to its economic identity (according to the National Strategy 2014-2020 of the Ministry of Economy).

According to the EU 2020 Strategy, in order to solve the weaknesses in Romania's economic structure, to reduce the differences and barriers of regional development, the objectives of this strategy (the Europe 2020 Strategy) must be applied. Sustainability and "smart growth" of the regional development of Romania is made through organic policies and laws and also by applying measures to increase the level of readiness / competence / competitiveness and the value brought into the economic environment through activities to facilitate the spirit, entrepreneurship, experimentation and communication / expression / application.

Figure 1. The development regions in Romania [1-3,13]

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2.Labor market analysis in the Western Development Region of Romania

The Western Development Region of Romania has important economic advantages compared to the other regions, as well as the pedoclimatic conditions allow a more intense and more efficient agricultural exploitation. Also, due to the infrastructure in terms of transport, investments in the EU are favored, especially in agriculture, growing organic agricultural products for export [4-6].

This region has a developed industry, namely the food industries, electrical machinery and equipment, means for rail freight and passengers, furniture production, auto equipment, heavy machinery construction, clothing, knitting and footwear, extractive, steel, metallurgical, hotels, restaurants, transport, storage, communications [5,6].

The tourism potential is quite developed and due to the fact that this region has a varied relief - plain, hill and mountain.

Even if the time evolution trend of a variable is not a linear one, an approximate trend (which can often provide useful indications) can be expressed by the regression line calculated in an axis system having the years taken in abscissa. The ordinates will be the numerical values of the studied indicator. The angular coefficient of the straight line (m) of the form **y = mx + n** will thus indicate an increasing tendency for positive values and a decreasing tendency for negative values of m respectively.

According to the data presented by the INS, regarding the situation of the number of students who have promoted the baccalaureate [SCL109G], the trend induced by the respective statistical data indicates a slight increase compared to 2010.

Following the data represented graphically we find that the total number of students who passed the baccalaureate examination in 2010 in the four counties of the western region is 8224 and in 2016 their number reached 8445, the evolution trend presenting certain fluctuations and obviously it has a nonlinear character. Referring to the evolution of the number of students promoted and analyzing the angular coefficient of the regression line (17.85), this having a positive value, we can assume a slight upward trend (figure 2).

These aspects may provide a quantitative projection in the future, but this is relative, regarding the number of people who can be engaged in the labor market.

The situation regarding the graduates of higher education [INS-SCL109H], by level of education is shown in Table 1. There is a decreasing trend in the two years for all levels of education. Following the percentage of graduates with a bachelor's degree, we note that this is higher than for the other levels of studies, otherwise a normal phenomenon.

The tendency of percentage increase of the number of students in the bachelor's degree from the total of the three levels of university studies, against the background of a percentage decrease in the case of graduates with a master degree and postgraduate studies respectively of doctoral and postdoctoral programs, indicates a decreasing concern of the students to pursue higher education after completing the bachelor's degree.

School dropout rate [INS-SCL113A] shows values without large numerical variations in primary and secondary education, with values between 0.9% and 2.7%. Higher values are found in high school education, where the dropout rate reaches values between 2.7% and 4.8% with an average of 3.77%. In the case of post-secondary education, they have even higher values, ranging from 3.6% to 12.5%, the average being 8.79%. In this period of time the series also presents a high variability, having a heterogeneous character, the value of the coefficient of variation being 0.34 (Table 2).

Moreover, according to the data presented by the INS, the number of school units in the Western Development Region of Romania indicates a decrease compared to 1996, both at the level of pre-university education and for the higher education units, licensed studies [INS-SCL101B].

The ratio between the number of people living in the urban area and the number of people living in the rural area was about 1.72 in 1996 and dropped to about 1.70, the data being determined by direct calculation according to the number of people indicated by the INS [INS -POP107A].

If in other regions the phenomenon of rural-urban migration is more evident than in the western region, causing a decrease in the number of rural school units, here the two reports have approximately equal values.

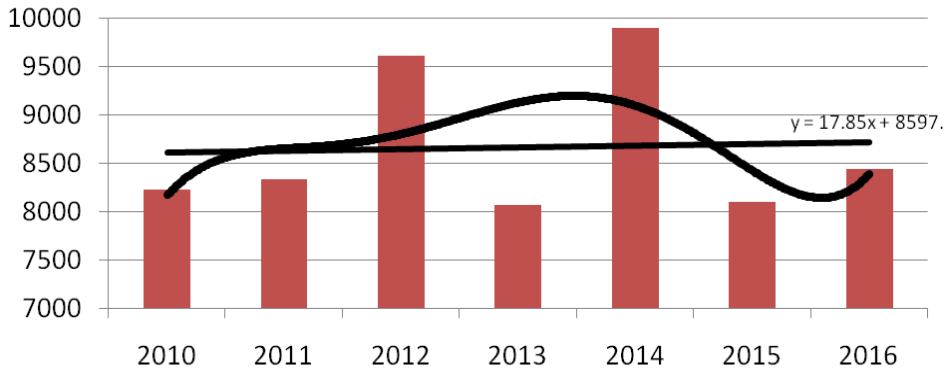

Figure 2. Number of students who passed the baccalaureate exam, West Development Region of Romania (*Source: Processing after INS)

Table 1. Graduates in higher education, Western Development Region of Romania (*Source of initial data: [INS])

Number of persons / year	University education - graduates with diploma (bachelor, master, postgraduate courses, doctorate and postdoctoral programs)	University education - graduates with a bachelor's degree	University education - graduates with diploma - master and postgraduate education	University education - graduates with diploma - doctorate and postdoctoral programs
2014	14744	9583	4835	326
%		**65.00**	**32.79**	**2.21**
2015	12684	8658	3826	200
%		**68.26**	**30.16**	**1.58**
2016	12243	8490	3551	202
%		**69.35**	**29.00**	**1.65**

Table 2. Dropout rate in pre-university education, Western Development Region of Romania (*Source of initial data: [INS])

Percentages /year	Primary education	Gymnasium education	High school and vocational education	Post-secondary education and education for technicians
Average 2010-2016	1.74	2.13	3.77	8.79
Standard deviation	0.50	0.62	0.92	3.02
Coefficient of variation	0.28	0.29	0.24	0.34

Table 3. Pre-university education units (number), for the Western Development Region of Romania

Pre-university education	1996	2018	Trend (%)	Higher education-bachelor's degree	1996	2018	Trend (%)
WEST region	**1721**	**521**	**-69.73**	WEST region	**13**	**11**	**-15.38**
Arad	388	135	-65.21	Arad	2	2	0
%	**22.54**	**25.91**		**%**	**15.38**	**18.18**	
Caras-Severin	359	106	-70.47	Caras-Severin	2	1	-50
%	**20.85**	**20.34**		**%**	**15.38**	**9.09**	
Hunedoara	512	99	-80.66	Hunedoara	1	1	0
%	**29.75**	**19.00**		**%**	**7.69**	**9.09091**	
Timis	462	181	-60.82	Timis	8	7	-12.5
%	**26.84**	**34.74**		**%**	**61.53**	**63.63**	

Most likely, however, the phenomenon that contributes to reducing the number of students is reflected by the tendency of increasing the average age of the population that increases from 36.5 years in 1996 in the western region to 42.1 years in 2018 while the number of persons aged 18 years decreased from 33,192 in 1996 to 19,695 in 2018 [INS-POP107A].

3.Conclusion

A study was conducted on the labor market in the Western Development Region of Romania, in conjunction with the dynamics of pre-university and higher education in the last nine years, for which official statistical data exist. Although there is a tendency to increase the number of students who have graduated the baccalaureate, even with a significant but relatively constant dropout rate, there is a slight decrease of the graduates in the master's cycles and post-doctoral studies. In conjunction with the decrease of the number of school units, especially in the disadvantaged areas, but also of universities in the Western Development Region of Romania, the dynamics of the labor market in this region was evaluated from the point of view of the young labor force.

Compliance with Ethics Requirements. Authors declare that they respect the journal's ethics requirements. Authors declare that they have no conflict of interest and all procedures involving human / or animal subjects (if exist) respect the specific regulation and standards.

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