STUDY CONCERNING THE CORRELATION BETWEEN THE EDUCATION SYSTEM PERFORMANCES AND THE UNEMPLOYMENT AMONG THE YOUNG PEOPLE IN THE NORTH-EAST REGION OF ROMANIA

Iulian CONDRATOV
Stefan cel Mare University of Suceava, 720229, Romania
iulianc@seap.usv.ro

Abstract
Within any economic system the performances of the labor market largely depend on the correlation of the education offer and the initial professional preparation with the demands of the labor market. Through this research we have aimed to identify the specific role that the education system had on the variation of macroeconomic indicators which describe the employment situation of young people in the labor market from the North-East Region of Romania, for the period 2007-2013.
In this research we have used statistic data provided by the National Institute of Statistics of Romania among which we have selected a series of relevant variables regarding the characterization of education system performances in the North-East Region. Their influence on the variation of the unemployment rate and the employment rate concerning the young people in the North-East Region was studied using the method of the statistics regression, undergoing a filtration using the Stepwise procedure, implemented within the informatics program SPSS.

I. INTRODUCTION

The transition from school to active life represents a difficult process for the young people; however we could observe the fact that there are significant differences among European countries. (Pastore, Luca 2015).The transition from school to the integration of young generation in the work force market represents one of the most critical and pressing problems of work force market functionality, with a significant economic and social impact. It must be also mentioned that sometimes youngmen begin their activity in disregarded areas, inferior to their qualification and other times they even penetrate the unproductive work circuit, fact that isolates them from the society.

Within any economic system the performances of the labor market largely depend on the correlation of the education offer and the initial professional preparation with the demands of the labor market

Concerning this aspect, one part of the specialty literature indicates the fact that the unemployment rate among young people weakly qualified tends to be bigger than the unemployment rate among the population having a superior qualification

Other authors try to analyse the work market evolution taking into consideration the last decades, especially in Europe, from the perspective of the super-qualification. This outlook indicates the fact that the number of qualificated jobs didn't increase proportionally with the number of educated workers, and the workers with a high qualification must accept the jobs for which they are super-qualified, or they must face the unemployment problem. They are in competition with the low qualified workers , and in an imperfect work market, the employees prefer more the qualified workers, even for a position with minimal qualifiacation demands, fact that leads to the massive unemployment among the workers low qualified (Duncan și Hoffman, 1981).

According to the International Labor Organisation (ILO, 2011) the unemployment among youngmen is related to the age when the youngmen leave the educational system, respectively the microeconomic conditions and the business environment. When the age the youngmen leave the obligatory educational system does not coincide with the age youngmen can sign a work contract, this lack of correlation leads to the increase of the unemployment rate among youngmen.

Concerning the unemployment analysis on age groups, it could be noticed that young population under 25 years old represents the most affected group of population.

Although the North-East Region is the biggest region of development form Romania regarding the number of the inhabitants and the owned area, it is classified on the last position reported to the development level.

According to the North-East Regional Development Plan 2014-2020, the aims concerning the actions for supporting the youth's integration on the work market for the year 2022 are:

- ✓ The unemployment rate among young men (15-24 years) will be of maximum 8% at regional level and of maximum 15% in the urban environment.
- ✓ The percent of the young men who don't have an employment, who aren't registered in an educational institution and who don't follow a professional formation course -8% (age group 15-24) and 10% (age group 18-24 years).

In some countries, like Germany, the young people have the same chances to find a job as well as the adults, on the other hand in the Mediterranean countries the young people's chances are smaller the adults'. This disadvantage of young people is explained by the experience disparity, in other words the difference of experience in the labor field of young people towards the adults (Pastore 2015).

In the study entitled Empiric findings of the analysis in the dynamics of the youth unemployment in the North-East Region - Romania - European Union (Hapenciuc, Condratov, 2014) we have highlighted, on the basis of the statistics data provided by Eurostat, the fact that the evolution, in the period 2007-2013, of the report the rate of unemployment among youth (15-24 years) / the rate of unemployment among adults (more than 24 years), was different in the three territorial units.

If at the level of the European Union, the value of the report is kept relatively constant, average 2,5, during the period 2007-2013, at the level of Romania, respectively, of the North-East Region, there can be observed important changes between the two categories during the same period. At the level of Romania, the difference between the two population categories from the unemployment perspective was registered in 2008 when the unemployment rate among young men was 4 times bigger than the one among young generation. At the level of North-East Region, the minimum difference was registered in 2011, when the unemployment rate among young men under 24 years was of only 2, 7 times bigger than the level of indicator registered for the more than 24 years population category. Also, at the level of this derived indicator, it can be seen a major difference of the dynamic registered in the 3 territorial unities compared during the reference period 2007-2013.

According to Hammer (2003) and Pastore (2015) the national educational systems differ in terms of their perspective to reduce the unemployment of young people. Thus, we can identify the following orientations:

-Rigid vs. Flexible

-Dual vs. Sequential

The rigid educational system does not allow to the students to pass from a curriculum to another, also, it is necessary to spend a longer period for the graduation. The sequential education system is the one within which a person must firstly graduate the education cycle and then he is able to look for a job.

Thus, in order to reduce the unemployment among young people and to maximize the possibilities that these ones reduce the experience disparity from adults, it is necessary a combination of the two orientations mentioned before in a dual system able to allow the students to get a general education but, in the same time, to get knowledge through internships.

The European countries treat differently the way to reduce this disparity between young people and adults through the educational system, system which can ensure the transition from school to active life. There are countries that, in order to reduce this disparity as soon as possible, use the principle of dual education (PED), which prefigures that many of the high school students benefit of the same period of time for the general education as well as for the formal education within the internship system. This educational system mentioned before is designed so that it can reduce the experience disparity of young people since school period.

In the Scandinavian countries (Finland, Norway, Sweden) there is a sequential education system whose mission is to offer to the young people a general education, while the labor experience will be obtained after the graduation. Due to some general proactive measures, during the first 4 months of unemployment, the state helps the young people to consolidate their abilities necessary for a good rate of employment.

On the other hand, in countries like Germany, Austria, Switzerland, Denmark, France, the educational system is dual. Its mission is not only to offer to their graduates a general education but also a professional preparation in a job during the school period and to at the end of the school. This involves the fact that, at the end of the school, the young graduates possess the knowledge and the necessary abilities to find a job. Due to this thing, these countries present over the years a reduced rate of unemployment and, also a relatively reduced disadvantage of young people unlike the adults.

The Anglo-Saxon countries (UK, Australia, Ireland, New Zeeland) have a sequential system with very high performance. The labor market flexibility allows making a work contract whose cancellation costs are very low, thing which makes possible the fact that the enterprises employ people very easy, without long terms risks. This thing allows the young people to easily find a job and, thus to consolidate their necessary knowledge to activate on the labor market. In these countries, there is a very low rate of unemployment.

The Mediterranean countries (Spain, Portugal, Greece, and Italy) have an inflexible sequential education system. The lately reforms have tried to make the labor market more flexible. However, most of times, the modalities to find a job are based on the informal relations of people, like family and friends, because the infrastructure afferent to the labor market is very little developed (the public and private employment agencies,

the schools, the universities).In these countries there is a high rate of unemployment and also a relatively high disadvantage of young people towards adults.

A bigger proportion of secondary or tertiary cycle graduates could explain the difference concerning the unemployment rate of young people, because the education system should offer the young people the necessary abilities to face the labor market.

II. RESEARCH METHODOLOGY

So as to the econometric characterization of the way in which the variables afferent to the education system develop their influence on the variation of the variables which describe the situation of the labor market, concerning the young people in the North-East Region, we have used the method of the multifactor linear regression.

The aim of the multiple regression is to point out the relation between a dependent variable (explained, endogenous, resultative) and a mass of independent variables (explicative, factorial, exogenous, predictors)by using the multiple regression we often try to get the answer for one of the questions: "which is the best prediction for …?" , "which is the best predictor for..?" (Clocotici 2014),

The linear models can be expressed by relations such as

$$y = x\ \alpha + \varepsilon$$

Where
- y is a dependent variable (explained, endogenous, resultative),
- x is the vector of the independent variables (explicative, exogenous), with the dimension $1 \times p$,
- α is the vector of the coefficients, with the dimension $p \times 1$, the parameters of the model,
- ε is a variable, interpreted as an error (perturbation, measurement error, etc.)

In other words,

$$y = \alpha_1 x_1 + \alpha_2 x_2 + \ldots + \alpha_p x_p + \varepsilon$$

which expresses the linear relation between y and x.

The processing data was realized using the informatics program SPSS ver. 20. In order to identify the best prediction (model) we used the selection procedure "step by step" (stepwise regression). The procedure starts by including in the model of the independent variable having in view the biggest correlation coefficient with y variable. Within each following step, another variable is analyzed, not included yet in the model through a sequential test F and we can extend the model by including that variable which has a maximal contribution (the critical probability of the F test is the smallest). At a future step of the regression it is allowed the elimination of a variable. A variable eliminated from the model becomes a candidate to be included in the model, and a variable included in the model becomes a candidate for the exclusion. So that the process does not start an infinite cycle, it is obligatory that $P_{IN} \leq P_{OUT}$.

The concept of young person is defined by the United Nations Organisation as representing the person aged between 15 and 24 years. Concerning the unemployment analysis on age groups, it could be noticed that young population under 25 years old represents the most affected group of population.

In order to characterize the situation of the labor market at the level of unemployed people between 15-24 years old we have chosen the following variables:

•The rate of employment at the level of the North-East Region, on the whole, respectively divided taking into consideration the residence area (urban and rural) (Code ER, ER_U, ER_R)

•The unemployment rate BIM at the level of the North-East Region, on the whole, respectively divided taking into consideration the residence area (urban and rural) (Code UR, UR_U, UR_R)

The data is taken from the statistics realised by the National Institute of Statistics of Romania within the Labor Force Survey in Menages (AMIGO).

Table 1 – The evolution of variables which describe the labor market

Year	ER	ER_U	ER_R	UR	UR_U	UR_R
1996	43	22,4	57,6	23,8	47,4	13
1997	43	21,3	58,6	21,3	44	11,8
1998	43	22,1	58,4	17,4	37,1	9,5
1999	42,3	22	57,7	16,7	35,2	9,1
2000	41,7	22,9	56,5	15,8	31,7	9
2001	40,1	22,1	54,8	14,7	30,7	7,7
2002	36	19,9	49,4	18,4	33,7	11,5
2003	31,4	18,8	41,9	14,1	26,6	8,3
2004	33,2	19,5	45,4	17,2	31,9	9,8
2005	28,1	16	39,3	16,8	32,6	8,7
2006	25,9	14,8	36	17,8	34,5	9,1
2007	26,5	15,8	36	14,7	27,4	8,6
2008	26,5	16,9	34,6	14	26,4	7,5
2009	27,7	15,6	37,6	16,2	34,7	7,3
2010	31,2	18	41,4	13,2	29,5	5,9
2011	32	17,3	42,6	11,9	28,5	5,5
2012	29,3	14,1	39,8	12,3	32	5,6
2013	30,6	16,7	39,6	12,4	27,8	7

Source: (INS, 2015)

At the level of education system dimension we have considered relevant the following variables:

•The graduates form North-East Region-Total - (Code GT). The graduate is the pupil/student who graduated the last year of study of a school/university, regardless if he managed or not to pass the graduation exam, matriculation, license, etc. The number of graduates is determined at the end of the school year or university year (after the correction exam).

•The graduates form North-East Region – Pre-university education - (Code GP)

•The graduates form North-East Region – Secondary education cycle 2 (high school and professional education) - (Code GSC)

•The graduates form North-East Region – Superior education - (Code GSU)

•The rate of school abandonment and the programs of professional preparation in the North-East Region - (Code RA).

Table 2 - The evolution of the variables which describe the dimension – the Education System

Year	GT	GP	GSC	GSU	RA
1996	107454	96513	44110	10941	-
1997	98036	90082	43423	7954	-
1998	106131	98097	42996	8034	-
1999	108055	99965	40577	8090	-
2000	110762	102056	40179	8706	29,0
2001	110862	99875	36895	10987	26,3
2002	119134	106008	44054	13126	29,2
2003	113904	100206	41152	13698	28,0
2004	125267	112328	59015	12939	25,6
2005	119023	105028	58993	13995	21,4
2006	113880	99509	55374	14371	19,2
2007	122120	97809	55516	24311	19,7
2008	114848	94016	51441	20832	18,4
2009	106753	91763	49889	14990	19,2
2010	104192	88188	38843	16004	22,7
2011	87785	71993	31899	15792	21,6
2012	89634	76465	35493	13169	21,6
2013	-	-	-	-	22,5

Source: (INS, 2015)

III. RESULTS OF DATA ANALYSIS

The econometric modulation of the relation between the employment rate and the variables afferent to the dimension – the Education System

The best found model to estimate the value of employment rate for the young people in the North-East Region is:

$$ER = 5,688 + 1,112*RA$$

Table 3 – Model summary

Coefficient of determination	Factorial variables	Unstandardized coefficients	Standardized coefficients
0,725	Constant	5,688*	
	The rate of school abandonment and the programs of professional preparation in the North-East Region	1,112*	0,851

* significant from a statistic point of view at a level of 0,05

The found model manages to surprise approximately 73% of the employment variation rate for the analyzed period.
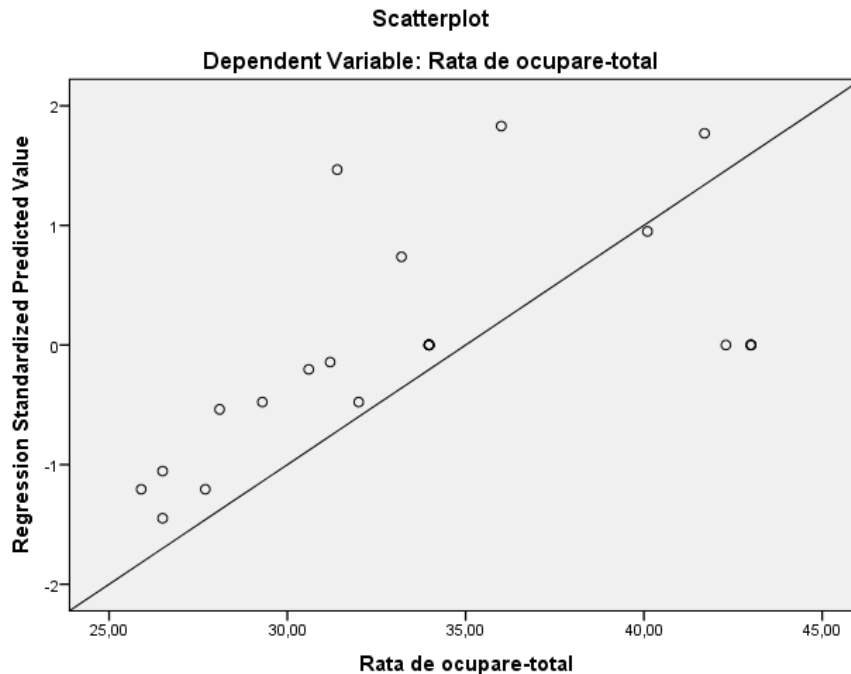

Figure 1: Scatterplot between the observed values of the variable - the employment rate and the estimated standard values

The Scatterplot graphic outlines a group, relatively compact around the bisector of the coordinating points represented by the observed values of the variable-the employment rate of young people between 15-24 years old and of the standard values estimated using the model. This thing reiterates, this time in a graphic way, the fact that the identified model is relevant and approximates relatively in a truthful way the statistic relation between the presented variables.

By analyzing the value of the regression coefficients we can outline:

The reduction by one percent of the rate of school abandonment led to a decrease by approximately 1% of the employment rate of young people during the analyzed period. The found situation is a normal one, the fact that more and more young people choose to stay in an institutionalized education form determines them to start a career at an older age.

The analysis of the influence of the variables afferent to the Education System on the variable the rate of employment divided on residence environment (urban-rural) didn't lead to significantly different results.

The econometric modulation of the relation between the unemployment rate and the variables afferent to the dimension – the Education System

The best found model to estimate the value of unemployment rate for the young people in the North-East Region is:

$$UR = 0,920 + 0,0001*GP$$

Table 4 – Model summary

Coefficient of determination	Factorial variables	Unstandardized coefficients	Standardized coefficients
0,677	Constant	0,920*	
	The graduates form North-East Region – Pre-university education	0,0001*	0,823

* significant from a statistic point of view at a level of 0,05

The found model manages to surprise approximately 68% of the unemployment variation rate for the analyzed period.
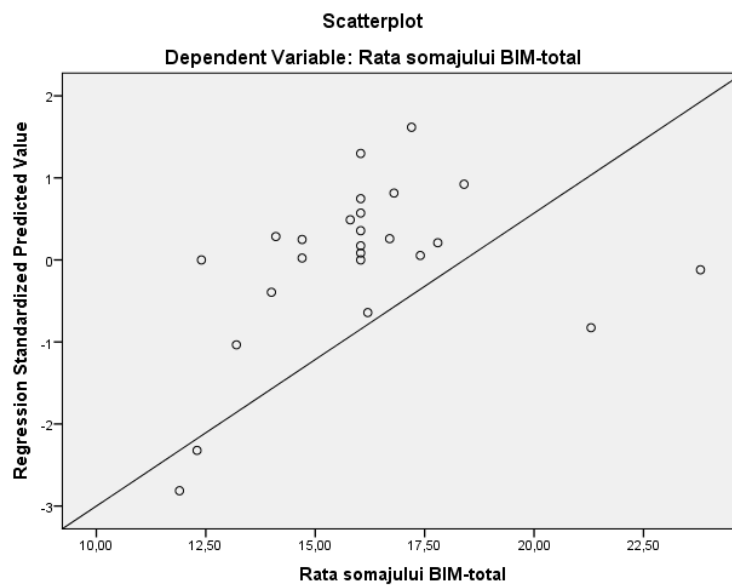

Figure 2: Scatterplot between the observed values of the variable - the unemployment rate and the estimated standard values

The Scatterplot graphic outlines a group, relatively compact around the bisector of the coordinating points represented by the observed values of the variable-the unemployment rate of young people between 15-24 years old and of the standard values estimated using the model. This thing reiterates, this time in a graphic way, the fact that the identified model is relevant and aproximates relatively in a truthful way the statistic relation between the presented variables.

By analyzing the value of the regression coefficients we can outline:

Taking into consideration the differentiation of measure units of the analyzed variables, respectively of the measure order of associated values, in order to interpret the regression coefficients it is better to analyze the standard coefficients. The reduction by a standard deviation of the number of graduates in the pre-university cycle led to a decrease during the analyzed period, on the average, with approximately 0, 8 standard deviations of the unemployment rate of young people.

The found situation is a very interesting one, the fact that demographically, the young population is on a well-known descendent trend, however, the young graduates look for solutions to get out of the unemployment area and get a job in a period as short as possible.

The analysis of the influence of the variables afferent to the dimension Education System on the variable the unemployment rate divided on residence area (urban-rural) didn't lead to significantly different results.

IV. CONCLUSION

The problem of the influence exerted by the quality of education system on the employment perspectives of young people was also studied and presented in the specialty literature. It is presented both the perspective of the poor preparation offered to the young people by the education system and the perspective of their supra-qualification. In both situations it is about a lack of correlation of the existent necessities on the labor market with the abilities and the knowledge offered by the education system.

The identified models managed to surprise a significant proportion of the variation of the indicators which describe the employment situation of the young people on the labor market in the North-East Region of Romania

By analysing the value of calculated regression coefficients (all of them very significant from a statistic point of view at a level of 0,05) we could outline the isolated influence of the factorial variables. Thus, we can conclude that:

- The reduction by one percent of the rate of school abandonment led to a decrease by approximately 1% of the employment rate of young people during the analyzed period. The found situation is a normal one, the fact that more and more young people choose to stay in an institutionalized education form determines them to start a career at an older age.
- The reduction by a standard deviation of the number of graduates in the pre-university cycle led to a decrease during the analyzed period, on the average, with approximately 0, 8 standard deviations of the unemployment rate of young people. The found situation is a very interesting one, the fact that demographically, the young population is on a well-known descendent trend, however, the young graduates look for solutions to get out of the unemployment area and get a job in a period as short as possible.

V. REFERENCES

1. ADR NORD-EST. (2014). Planul de Dezvoltare Regionala Nord-Est 2014-2020.
2. Booth, A.L., M. Francesconi and J. Frank (2002), "Temporary Jobs: Stepping Stones or Dead Ends?", Economic Journal, 112(480): F189-F213.
3. Clocotici Valentin (2014), Regresia liniară multiplă, Accessed at http://profs.info.uaic.ro/
4. Duncan, G. S. (1981). The incidence and wage effects of overeducation. Economics of Education Review, 1(1), 75-86.
5. Eurostat (2015). Regional statistics by NUTS classification. Accessed at http://ec.europa.eu/eurostat/web/regions/data/database
6. Hapenciuc Cristian Valentin, Condratov Iulian (2015), Empiric findings of the analysis in the dynamics of the youth unemployment in the North-East Region - Romania - European Union, The USV Annals of Economics and Public Administration, Vol 15, No 2(22)
7. Hammer, T. (2003), Youth Unemployment and social Exclusion in Europe, Policy Press, UK: Bristol.
8. ILO. (2011). Global Employment Trends for Youth. Geneva.
9. Isengard, B (2003). Youth Unemployment: Individual Risk Factors and Institutional Determinants: A Case Study of Germany and the United Kingdom. Journal of Youth Studies, 6 (4), 357-77
10. INS. (2015). Baza de date TEMPO. Accessed at http://statistici.insse.ro/shop/
11. Pastore Francesco, Luca Giuliani (2015), The determinants of youth unemployment. A panel data analysis, Discussion Papers-CRISEI, University of Naples "Parthenope", Italy,
12. Pastore, F. (2015), The Youth Experience Gap. Explaining National Differences in the School-to-Work Transition (2015), Physica Verlag, Heidelberg.