MULTIDIMENSIONAL APPROCHE TO UNEMPLOYMENT AMONG ROMANIAN YOUTH

Elena BUGUDUI

University of Economics Bucharest ; Artifex University of Bucharest, E-mail: bugudui@yahoo.com

Abstract   *The paper presents an approach to unemployment analysis among youth aged between 15 and 24, with the aid of multidimensional exploratory techniques. It analyzes the evolution of unemployment by level of training, duration, as well as how it has affected the female and male population. The analysis is performed with quarterly data for the 1996 to 2014 period, offered by the National Institute of Statistics. The results highlight typologies of unemployment for this age group, traits of youth behavior on the labor market and towards the labor market.*

1.Introduction

The youth unemployment is a very important problem, but it is and complex in approaches, it is a problem that persists throughout the world despite the improving economic situation. When referring to unemployment among the young population, we referring to the unemployment among the 15-24 age group. This period is subject to the many changes. If up to the 15 years, the entire population found itself in some form of education after 15 years, in parallel with a decrease in the proportion of young people enrolled in a program of education, there is an increase in labor market entry, as employed or unemployed. . The Rate of exit from a form of education is not identical with the pace of labor market entry. There are also young people who frequent a form of educatiton but are, also the labor market, while others leave the system of education and they still remains outside the labor market. There are also situations where participation in a form of education and the labor market overlap. This overlap can occur at any age but is more common in young people because of the transition from education to employment. When analyzing unemployment among young people, we should really consider two aspects, the transition from school to the labor market, and measures to be taken for reducing youth unemployment. The issues come to the attention, on the part of those who are able to make decisions about education and, on the other hand those who are able to create jobs and facilitate the integration of the young people in the labor market. . " Creating the of jobs is our most urgent task and the consequences of the crisis, slows further this situation. In this analysis was

found that it is necessary to implement structural reforms and measures to support the consumption and the demand. We need to the additional investment in the people, for improve education, training and activation measures of the European citizens, so they can be better prepared for the labor market " said the European Commissioner for the Employment , Marianne Thyssen quoted by the newspaper Capital. In 2014, according to a European Commission study, the rate of the youth 18-24 years in Romania which have no activity is 16 % more than EU average of 13 %, given that in the Romania, was made the largest reduction at the investment in education. A study by the European Foundation for the Improvement of Living and Working Conditions (Eurofound), that takes into account data from the past 5 years, show that the young people in Europe, still faces major difficulties of entering the labor market. The conclusion of the analysis performed in large part on data from 2011 and 2012, shows that unemployment is lower in countries with a more rapid transition from school to work. Correspondingly, this transition is lower in countries where most the young people have left the parental home more early. In Romania the young people leaving the parental home later, few of the who complete their studies find their job within a year. The same study, referred to in the newspaper Capital shows that the Member States have identified seven patterns, in terms of the youth behavior. At the one end of the spectrum is the model of "northern" and the "apprenticeship" (Austria and Germany), they are characterized by rapid transitions to adulthood and from school to work. At the other end of the spectrum, in the

models "Eastern Europe" and "Mediterranean" the difficult and challenging transition from school to work is associated with a very slow and late transition, towards independence and autonomy. In general, the countries where there is a closer connection between school and work, due apprenticeship programs or because a greater number of young people effectively combine school with early experiences in the labor market, they go through a smoother and faster transition from school to work. The Romania has in Eurofound study, a series of features, such as: the lowest rate of temporary contracts for young people 15-29 years old in the EU (5.8%) - (data used is from the year 2012), - the age at which 50% of men leave the parental home is 30.2 years old, one of the highest in the EU,as well as with Malta and Slovakia, while the average for women is 25.4 years old; Instead age at which they become parents is in line with the EU countries, even lower than in most of them, ie 31.8 years old for men and 28.8 years old for women. Romania has one of the lowest percentages in terms of young people who combine work with school (regardless of education level): less than 10%. However, the percentage is in line with other countries such as Czech Republic, Greece, Hungary, Italy, Slovakia. The Nordic countries have the highest percentage in this area. Conversely, the same countries with low numbers of students working at higher only records of hours actually worked. Romania ranks first in the number of hours worked by these young people. Also, Romania is the last places in terms of the percentage of young people who find a job within a year after graduation: 51.6%, compared to 66% - the European average data available 2011.

2. Date and model

The variables used in the analysis are: the unemployment rate for the age group 15-24 years, by level of education, higher[1], secondary[2] and primary[3], the unemployment rate by duration, long time [4] short[5], the unemployment rate among female population and the unemployment rate among the male population. For the 15-24 age group, the unemployment rate is

---

[1] University of short / long term (including undergraduate and graduate Bologna) or graduate (ISCED 5), doctorate or post-doctorate (ISCED 6). National Classification on education level corresponds to International Standard Clasification of Education (ISCED-97).

[2] high school, high school and professional level I (ISCED 3), specialized or technical secondary schools (ISCED 4);

[3] secondary level (ISCED 2) Primary (ISCED 1), no education (ISCED 0);

[4] Situation when the young unemployment has no job and looking for six monaths and more

[5] Situation when young unemployment has no job and looking for less time than one month

calculated using the same methodology * as for the other age groups. This indicator is often misinterpreted. The youth unemployment rate does not reflect the proportion of all young people are unemployed. The youth unemployment rate of 25% does not mean that "1 in 4 young people is unemployed." The youth unemployment rate can be raised even if the number of unemployed is low. It may be the case that the young workforce (unemployed plus employed population) is relatively small. This is not a problem when calculating the unemployment rate for other age groups over 25 year. Another indicator of youth unemployment published by Eurostat is the ratio of youth unemployment. This has same numerator as the youth unemployment rate, but the denominator is the total population aged 15 to 24. It thus provides a measure of unemployment to population. The size of the labor market among young people (eg young workforce size) does not trigger the effects of youth unemployment ratio, contrary unemployment rate. The ratio of youth unemployment is, by definition, always lower than the unemployment rate among young people, usually less than half of it. Analysis is performed with multidimensional exploration techniques: Principal Component Analysis (PCA). Principal Component Analysis (PCA) and Factor Analysis, consist of a variety of statistical techniques used in order to present a set of variables based on a smaller number of hypothetical variables, called factors. The Factors Analysis is used to reduce the number of variables, in order to increase data processing speed and detect hidden connections between variables that may lead to the identification of the patterns. The variables are replaced with linear combinations of factors that represent them. Principal Components Analysis is a factorial technique and aimed at reducing the initial number of variables, considering a smaller number of uncorrelated variables representative and, having made their classification. PAC is also known as Hotelling transform or Karhunen-LEOV transform (KLT). If we want to reduce the size and vizulaizam just a space just use PAC, and if we want to get a model that explains the correlations between data use and Analysis Factors.

2.1. Descriptive statistics of the data and the analysis of the correlations between variables

The data used in the analysis are quarterly data for the period 1996 to 2014 and come from statistical research Household Labour Force Survey, the source is the National Statistics Institute.

The analysis shows that the highest variability of the unemployment rate, meet at the persons who have graduated from a higher educational institution, with a minimum value of 8.1%, in 2000 Q2 and a maximum

value of 39.6% 3 in the first half of 2010. average value in the unemployment rate for this category was 23.8%, over half of them having a higher unemployment rate of 24.5%. Long-term unemployment rate was an average of 12, 8%, while the unemployment rate short-term value was 4.7%. The data show that unemployment among young boys was not significantly different from

unemployment among girls. Between 1996 - 1999 and after 2010,the rate of unemployment women exceeded of the rate at men, but in most period, the female unemployment was lower (see Figure no.1). Among young people, unemployment for six months and for more, was a higher than for unemployment rate a month and under a month (see Table no.1).

Table no. 1. Descriptive statistics of variables

	SUP	SEC	PRIM	MASC	FEM	LD	SD
Mean	23.8	22.4	17.6	20.3	20.4	12.6	4.7
Median	24.5	21.7	17.9	21.2	20.6	12.8	4.7
Maximum	39.6	29.7	31.5	25.7	30.9	17.2	9.1
Minimum	8.1	15.4	10.0	14.5	14.2	8.4	1.9
Std. Dev.	7.7	3.7	3.9	20.3	20.4	1.9	1.6

Figure no.1. The Femaile unemployment vs The Maile unemployment
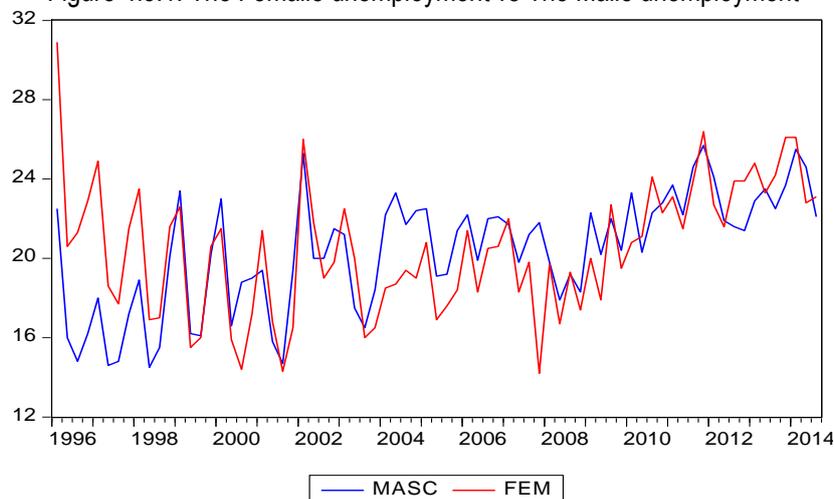
The correlation analysis highlights that there is not strong correlation between variables taken into account, greater correlation between FEM and SEC. (table no. 2).

Table no.2 Correlation matrix

	SUP	SEC	SD	PRIM	MASC	FEM	LD
SUP	1.00						
SEC	0.56	1.00					
SD	0.51	0.41	1.00				
PRIM	0.03	0.34	0.29	1.00			
MASC	0.36	0.56	0.27	0.46	1.00		
FEM	0.51	0.78	0.36	0.22	0.57	1.00	
LD	0.14	0.58	-0.19	0.54	0.49	0.33	1.00

Source: Personal processing

2.2. The multidimensional analysis

The onset of the approach begins with use the method Principale Components Analysis. The picture of Output's method, obtained using Eviews software (Table no.3) shows information about the 7 PC obtained after applying the method (equal number of initial variables), and the specific dispersions, the loadings for the each components. We retain that that

between the first and second main principals component, the dispersions there is a big difference, but the first component explains only 55% of the dispersion, so definitely check we consider the second part. The first two PC explain of the dispersions amount of 75.51%, we stop at two main components. In case the percentage would be lower, and we appeal to the third PC. The loadings on the two components, are

viewed in the second part of the worksheet no. 3. A suggestive image of initial driving forces which do contribute to the two main components and their cumulative contribution, shows in the graph no. 2 and 3. The graph Orthonormal loadings (plot) shows, by moving the cursor, that the two components are formed as follows: PC1, consists of unemployment for

secondary school graduates SEC (0.45 contribution) the Gender FEM (0.46) and MASC (0.44), PC2, consisting of unemployment by duration, LD (0.53), SD (0.59), the unemployment rate for graduates of higher education SUP, those with primary education (PRIM) have an approximately equal participation the two components (0.36 respectively 0.34).

Tabel no.3. Analysis wich PCA

Principal Components Analysis							
Date: 06/08/15 Time: 13:04							
Sample: 1996Q1 2014Q3							
Included observations: 75							
Computed using: Ordinary correlations							
Extracting 7 of 7 possible components							
Eigenvalues: (Sum = 7, Average = 1)							
				Cumulative	Cumulative		
Number	Variances/Value	Difference	Proportion	Value	Proportion		
1	3.854546	2.423123	0.5506	3.854546	0.5506		
2	1.431423	0.578412	0.2045	5.285969	0.7551		
3	0.853011	0.443340	0.1219	6.138980	0.8770		
4	0.409671	0.100508	0.0585	6.548651	0.9355		
5	0.309162	0.211546	0.0442	6.857813	0.9797		
6	0.097617	0.053046	0.0139	6.955430	0.9936		
7	0.044570	---	0.0064	7.000000	1.0000		
Eigenvectors (loadings):							
Variable	PC 1	PC 2	PC 3	PC 4	PC 5	PC 6	PC 7
SUP	0.286649	0.507630	-0.443624	0.249133	0.623506	-0.083636	0.074295
SEC	0.445998	0.086988	-0.335870	-0.262990	-0.506204	-0.230889	0.549540
SD	0.263683	0.594641	0.459666	0.023985	-0.214989	0.564131	0.023276
PRIM	0.355723	-0.311127	0.594528	0.242573	0.331888	-0.225194	0.451103
MASC	0.462492	-0.060288	-0.007944	0.521288	-0.348194	-0.277961	-0.558714
FEM	0.436039	-0.047346	0.138473	-0.728148	0.261565	-0.118799	-0.419195
LD	0.344706	-0.527703	-0.326183	0.086089	0.094721	0.692361	0.023760

Source: Personal processing
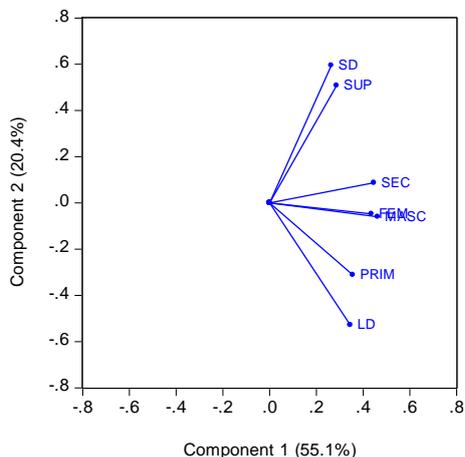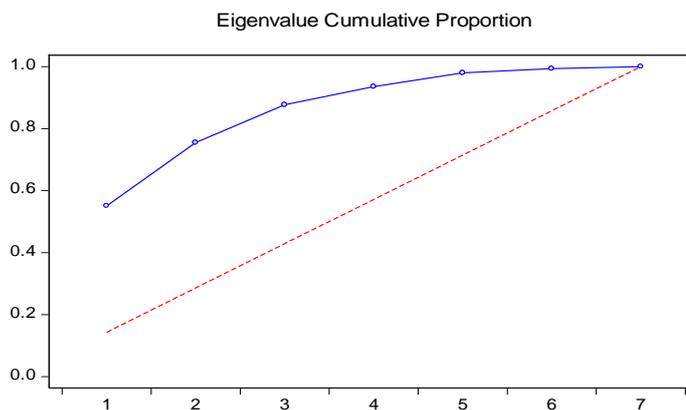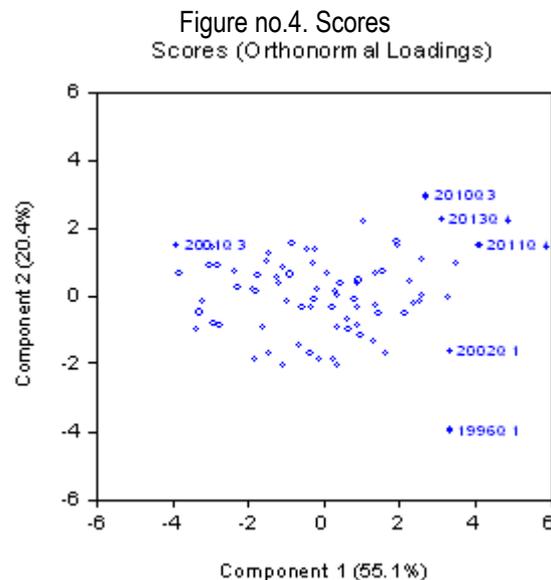
Figure no. 2. Lodings CP

Figure no. 3 Cumultaive Proportion

The Figure no.4. Highlights the values that have contributed to the shaping of trends; 1996Q1 nearly match the direction of the first composite factor, while 2010Q3 with the direction of the second composite factor.

Figure no.4. Scores

The next stage is to define a model of unemployment in Romania 1996 to 2014 period, by applying the method Factor Analysis.
Using the command in EViews, Principal Components / Make factor / Principal factor , we obtain

Table no. 3. Analysis Principal Factors

Factor Method: Principal Factors					
Date: 06/08/15 Time: 13:12					
Covariance Analysis: Ordinary Correlation					
Sample: 1996Q1 2014Q3					
Included observations: 75					
Number of factors: Minimum average partial					
Prior communalities: Squared multiple correlation					
	Loadings				
	F1	Communality	Uniqueness		
SUP	0.497815	0.247819	0.752181		
SEC	0.867856	0.753174	0.246826		
SD	0.488558	0.238689	0.761311		
PRIM	0.689835	0.475872	0.524128		
MASC	0.903593	0.816481	0.183519		
FEM	0.837076	0.700696	0.299304		
LD	0.665508	0.442901	0.557099		
Factor	Variance	Cumulative	Difference	Proportion	Cumulative
F1	3.675633	3.675633	---	1.000000	1.000000
Total	3.675633	3.675633		1.000000	
	Model	Independence	Saturated		
Discrepancy	0.594876	5.454526	0.000000		
Parameters	14	7	28		
Degrees-of-freedom	14	21	---		

 Source: Personal processing

The data show that our model permits a single main factor. The method with one principal factors ensure to all variables positive weights, with higher contributions for unemployment among men and among those who are graduates of secondary school (high school, post-secondary schools, vocational training schools) and ranks closely unemployment among women, that which shows that during the analyzed period, both genders were affected, with a slight difference, the male population. The smallest share of a main factor to meet short-term unemployment and unemployment rates for higher education graduates

3. Conclusions

The analysis based on multidimensional exploratory techniques, performed for the time interval 1996-2014 and the age range 15-24, outlines the fact that young people are affected by the unemployment phenomenon, irrespective of their gender. The periods when the unemployment rate was higher for women alternated with those when it was higher for men. It has been ascertained that there is a stronger relationship between the unemployment rate among men with medium education and women with higher education. The long run unemployment (six months and more) was preponderant in relation to the short run one, in a stronger correlation with secondary education graduates. The unemployment among young people can be also explained by the fact that many employers require professional background in the related field of activity and the Romanian educational system trains, unfortunately, graduates instead of people able to effectively work. A qualitative practical training of students, with a serious implication of both, universities and companies, as well as the voluntarism, would be a solution to surmount this obstacle. Also, the vocational education had a significant regression. The number of schools training artisans for the labour market decreased a lot. On the other hand, young people do not manifest intention to direct towards such schools. The educational system does not provide youth with adequate counselling, the parents, either are not acquainted with the market requirements or do not agree to let their children work, accept a part-time job, obtain an income. Situations are complex, so that if the long run or short run unemployment is statistically significant, it can provide information about the reasons having caused the same, be they related to mentality, economic standing or low performances of the educational system in training efficient graduates.

References

1. Abdi H, Wilims, L (2010), Principal Components Analysis, Jhon Willi@Sons, Inc.Volume 2
2. Abdi H,(2007) Eigen decompozition- eigenvalues and eigenvectors. In Salkind NJ, ed: Encyclopedia of Mesurement and Statistics
3. Arnold Field A (2012) Discovering statistics using R.
4. Beaumont, R(2012) Principal Analysis Component @Factor Analysis using SPSS,
5. Everitt B S, Hothorn T (2011)A handbook of Statistical Analyses using R. CRC Press..
6. Everitt B S, Hothorn T(2001 2 nd ed.) Applied multivariate Date Analysis
7. Hudea (Caraman), O.S. (2014). "Routes and Trends of Romanian Core Economic Variables", Romanian Statistical Review Supplement, 10,
8. Jolliffe IT,(2002) Principal Components Analysis , Springer
9. Kinnear, P.R. and Gray, C.D. (2004)
10. Ruxanda, Gh,(2009) Analiza multidimensionala a datelor, ASE.Bucuresti

*** ec.europa.eu/eurostat/.../Youth_unemployment

***National Institute of Statistics, 2014, Tempo online, https://statistici.insse.ro/shop/

***www.Capital.ro