

**BUCHAREST UNIVERSITY OF ECONOMIC STUDIES**

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**Economic Cybernetics and Statistics**

**THE USE OF ESTIMATES IN THE CALCULATION  
OF STATISTICAL INDICATORS IN THE FIELD  
OF UNEMPLOYMENT, AT COUNTY LEVEL -  
QUANTITATIVE ANALYSIS**

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## **KEY WORDS**

Unemployment rate

Cluster analysis

Logit model

Economic and social determinants

Correlation

## Summary

Unemployment is a phenomenon with both economically and social implications. It has significant effects at the macroeconomic level and at the individual level.

More and more detailed information is needed and for this various methods of estimating statistical indicators have been developed at a smaller territorial level. In this respect, the present thesis aims to achieve a more comprehensive picture of unemployment in the counties of Romania, over the last 20 years, highlighting the features of different segments of the unoccupied people. As a synthetic indicator of unemployment, the unemployment rate was used.

The paper is structured in 3 chapters and it ends with a chapter of "General conclusions".

The first chapter had as objectives:

- analysis of the evolution of the unemployment rate in Romania over the last 20 years, highlighting trends in terms of the age of the unemployed, educational training and the period of unemployment;
- identification of the groups of countries in the European Union with which Romania has positioned itself, in three years considered to be representative for the analyzed period: 1997, 2008 and 2016;
- the analysis of the evolution of the unemployment rate in the counties in Romania, highlighting the same characteristics investigated at national level;
- carrying out the groups of counties with the identification of common features.

For international comparisons the data existing on the EUROSTAT website were used, where the unemployment rate is defined according to the International Labor Office.

For the analysis at the county level in Romania, the data on the unemployment rate registered with the National Agency for Employment were used, downloaded from the website of the National Institute of Statistics. To analyze the data, descriptive statistical methods were used and from the econometric point of view, a cluster analysis was used which was applied to unemployment rate data for different groups of unemployed. Data processing was done using software R.

In the second chapter, an analysis of the unemployment in Romania was presented from the point of view of the chances of people being unemployed and of the factors that influence this status. 10% of the data obtained at the October 2011 Population and Housing Census in Romania were processed.

The objective of this analysis was to identify at the level of each region of Romania those individual characteristics that contribute to the unemployed economic situation. Given that the

explained variable had two values: "unemployed" or "other situation", the logistic model was chosen to illustrate the link between the explanatory variables and the explained variable.

Through the logistic model the chances of being unemployed were estimated according to the characteristics: place of residence, the gender of the person, the age, the ethnicity, the legal marital status, the level of education, whether or not have children. Previous research conducted at the level of each county, published in the article "Social determinants of unemployment in Romania- an analysis at NUTS3 level" (Schonauer, 2017) proved to be in accordance with what was stated in the thesis for the data processed at the national level and regional level.

The third chapter aimed to identify those economic and social indicators that are correlated with unemployment and their highlighting at regional level and the county level in Romania. At the county level, the registered unemployment rate was used as an explained variable, according to the methodology used by the National Agency for Employment. In the analysis carried out for the three years: 1997, 2008 and 2016, the following were chosen as explanatory variables: regional gross domestic product per capita, net monthly average wage, population migration regarding changing domicile (including external migration), expenses of the units with activity research-development/ inhabitant, number of local active units/1000 inhabitants.