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DOCTORAL THESIS

- ABSTRACT -

REALITIES AND PERSPECTIVES OF UNEMPLOYMENT IN THE NOWADAYS ROMANIAN SOCIETY

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Title of Doctoral Thesis: Realities and perspectives of unemployment in the nowadays Romanian society

CONTENT OF DOCTORAL THESIS

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ABSTRACT

The PhD thesis emphasizes, from the theoretical, methodological and applicative points of view, the complex framework of the phenomenon of unemployment, with its customization to the realities of Romania, in an original manner.

THE TOPICALITY OF THE RESEARCH THEME

Unemployment constitutes, alongside employment in the labour market (its counterparty), a significant economic-social phenomenon in the economic development of a state, which is why the research theme is a current one. The analysis of unemployment and employment in relation to representative economic indicators demonstrates the importance of the phenomenon of unemployment for a country's economy. The level of unemployment influences the standard of living of the individuals of a state, as well as the state economy and progress in the various sectors of activity.

Both nationally and internationally, particularly in the Member States of the European Union (EU), the creation of new jobs and the recreation of those abolished for various reasons is a priority. Romania's integration into the EU meant only the beginning of a responsible direction for the development of the labour market and the national economy. However, the economic-financial crisis that erupted in the year 2008 has inevitably contributed to the increase of unemployment and economic instability, generating economic and social inconsistencies, which will cause the economic-social environment for many years from now on. Thus, the ongoing study of unemployment is essential for the formulation of effective solutions (strategies and interventions) to counteract it and diminish its implications on multiple areas, i.e. economic, social, cultural, educational, political, etc.

MOTIVATION OF CHOOSING THE THEME AND CONDUCTING RESEARCH

The economic and social reality of unemployment is the result of developments in the values of several economic indicators in recent years. The literature is quite rich and complex, with relevant information to shape the phenomenon of unemployment and its difficulties. Thus, the motivation of the study of unemployment has sprang from the desire to understand and contribute to the integration on the labour market of as many inactive people/unemployed people and to discover effective ways of preventing and combating unemployment in Romania.

The identification of the causes of unemployment and the solutions for rapid insertion on the labour market of as many unemployed people represented two other reasons which were the basis for the choice of the study of unemployment. In conducting research, we have appealed to the study of a broad literature and statistical database, in order to outline a more conclusive picture of the phenomenon of unemployment and the application of empirical investigation methods.

RESEARCH OBJECTIVES

The main objective of research is the identification of unemployment in Romania, linked to the dynamics of the main macroeconomic indicators influencing the labour market and which are also influenced by the labour market transformations, and conducting a complex application research, from which the proposal for intervention to counteract it is to be submitted.

From the general objective, we set out the following secondary objectives:

O1. Synthesis of literature on employment and unemployment;

O2. Presenting the peculiarities of the phenomenon of unemployment in Romania;

O3. Identification of the dimensions of unemployment in Romania connected to representative macroeconomic indicators, with an impact on the labour market;

O4. Analysis of territorial disparities in the degree of economic development and unemployment, respectively employment in Romania;

O5. Identification of factors which influence the phenomenon of unemployment in Romania and the realization of a complex econometric modelling, applied both at national level but also in territorial aspect (at the level of the country's counties);

O6. The proposal for intervention to reduce unemployment and increase the integration of the population into the labour market at national and territorial level, depending on the results achieved during the Research.

MATERIAL AND METHODS APPLIED

In conducting the research we have appealed to a rich bibliographic source, consisting of nationally and internationally recognised academic works/studies, but also from numerous official statistical databases and regulations. Thus, in conducting research, we have called for the merging of several research methods, namely:

• *Theoretical documentation* – The use of the most conclusive and recent printed and electronic publications (books, articles, specialty magazines), the synthesis of information and its use, with connection to the research theme undertaken by the PhD thesis;

• *Statistical methods* – statistical documentation from the databases of the National Statistics Institute, the National Employment Agency, The National Bank of Romania, the European Statistical Office (Eurostat); classification of statistical information; synthesizing it over time series for each economic indicator analysed, graphical representation of statistical data;

• *Analysis and interpretation of the obtained data* – interpretation of the statistical information presented in the form of tables and graphs, quantitative and qualitative analyses and extraction of conclusions. The statistical data were centralised in a database that included data at national, but also at a territorial level (macroregions, regions and counties), over time series. Subsequently, the values of the selected indicators were analyzed, selected and included in empirical analyses;

• *Mathematical calculation methods* (for highlighting territorial disparities) *and econometric procedures* – models with data in the panel, analysis of clusters (homogeneous groups) by Ward method, spatial analysis and patterns of structural or simultaneous equations, applied both at national level and at the level of administrative-territorial units. Prior to econometric processing, the process of standardization of indicators/variables was applied, but also a series of square root tests. For the measurement of unemployment, we have used its representative indicators, namely the number of unemployed people and the unemployment rate, as endogenous variables/dependent on other factors (exogenous variables).

THE STRUCTURE OF PHD THESIS

The PhD thesis is structured in two parts and 5 chapters. The first part of the thesis includes the research of literature and consists of the first two chapters, and the second part comprises 3 methodological and applicative research chapters. All 5 chapters are organically linked, the information being presented objectively, in close connection with the title of the PhD thesis. These two parts are added to the Summary of the thesis, Introduction, Conclusions, proposals and subsequent developments, Bibliography, as well as the Annexes. The thesis comprises 58 tables (centralized in the Index of tables), 55 graphic representations

(found in the Index of graphics), 33 figures (synthesized in the Index of figures) and 29 annexes (comprising tables). We have consulted numerous bibliographic references: 82 books, 215 articles, 18 legal regulations, 53 statistical reports and 14 Websites.

MAIN RESULTS OBTAINED

Conducting the PhD thesis research we conducted it by drawing **5 research axes**, namely: (1) shaping the conceptual framework on employment and unemployment; (2) understanding and presenting the peculiarities of the phenomenon of unemployment in Romania; (3) analysis of the dimensions of unemployment in Romania, by linkinging them to representative macroeconomic indicators, but also by positioning at EU level; (4) critical identification and analysis of territorial disparities on unemployment in Romania and the highlight of implications and strategies arising from the results obtained; (5) the econometric modeling of the explanatory factors of unemployment in Romania, at national and territorial level, and the presentation of the prospects for unemployment according to the results obtained from the empirical analysis.

A separate chapter in the PhD thesis is allocated to each research axis.

The first research axis was addressed in the first chapter of the PhD thesis, ***"Terminology concepts on employment and unemployment"***, in which we outlined the concepts of employment and unemployment, described the labour market and presented unemployment as a complex economic phenomenon. We started from the idea that both unemployment and employment are complex, interdependent economic phenomena, whose influence on the labour market is significant. Currently, not only tenderers and labour buyers are important, but also intermediaries, whose involvement is increasingly demanded on the labour market, the latter facilitating the insertion into the labour market not only of the unemployed, but also of active people seeking a better job financially and professionally evolutionary.

In the research of the Romanian labour market, its definition and description in terms of demand and supply of labour was essential. Thus, the indicators presented conceptually in the first part of the work were analyzed in the second part of the research. The first chapter also discussed issues related to labour balance theories, labour migration, young NEETs (Not in Employment, Education or Training), comparative presentation of the traditional labour market vs. the modern one.

In the PhD thesis, unemployment was treated from a macroeconomic perspective, in addition to exposing the characteristics of unemployment, causative factors of unemployment, underlining the model proposed by Pissarides ("matching model") of matching skills with labour market requirements (for which he received the Nobel Prize for Economics in the year 2010), the enumeration of the forms of unemployment, the costs of unemployment, providing theoretical information about the relationship between unemployment and inflation, as well as the implications of unemployment at economic and psycho-social level.

The second chapter, **"The Phenomenon of Unemployment in Romania"**, was aimed mainly at achieving the second research axis, by customizing the phenomenon of unemployment in Romania to find the best solutions for preventing and counteracting it . The research object of this chapter represented the specific causes of unemployment, the brain-drain phenomenon (migration of people with higher education) and the presentation of ways of optimizing the insertion of unemployed in the labour market.

Although the causes of unemployment are, for the most part, the same for all age segments, they have been addressed separately for young people and adults. The distinct approach was aimed at observing the differences between the two age segments. The determination of the specific causes of youth and adult unemployment helps to perceive the

attitude of the unemployed towards labour market requirements, which is difficult to quantify, as each unemployed person has a certain perception of the unemployment phenomenon, and this attitude derives from the time experienced as unemployed, from the opportunities offered during the period of unemployment, as well as from the needs as a working person.

One of the negative consequences of unemployment is brain migration (brain-drain). Brain migration is not only a consequence of unemployment, it is also a determinant of it. In Romania, this phenomenon is hard to quantify, but its theoretical exposure has helped to identify the implications it has on unemployment, as well as on the Romanian economy and society. Brain migration slows down the economic-social development of the country of origin, as emigrants contribute to the development of countries in which they become immigrants through the potential and professional creativity they possess. Romania loses not only specialists but also considerable sums of money intended for educating and training those who choose to emigrate. By implementing the "Start-up Diaspora" program, which allocates 40,000 euros to Romanians abroad returning to Romania as entrepreneurs, attempts to recover Romania's valuable emigrants.

Unemployment in Romania is also a consequence of inappropriate correlation between the education system and the requirements of the labour market, which becomes a trigger factor of brain migration. The loss of well-trained young people and adults limits the economic development of the country of origin, despite the financial remittances sent by them to relatives remaining in the country.

International migration can be diminished by various ways, more or less costly, with long-lasting effects: ensuring quality education; the orientation of tertiary education to economic sectors with competitive potential, drawn up by national strategies; development of training programmes according to the needs of employers; establishment of a local/area portfolio of vacancies, by fields of activity; encouraging entrepreneurship; stimulating internal labour mobility; development of job fairs and other job events; counselling the unemployed and even employers.

Following the study of the problems of the Romanian labour market, an important role is the support of the sectors of activity whose competitive potential would contribute to the decrease in the number of unemployed and unemployment rates, established by SNC 2014-2020. Thus, the priority sectors established by this are: tourism and eco-tourism; textiles/leather; wood and furniture; creative industries; automotive and components industry; ICT, food and beverage processing; health and pharmaceutical products; energy and environmental management; bioeconomy (agriculture, forestry, fishing, aquaculture), bio-pharmaceutics and biotechnologies.

In the third chapter of the PhD thesis, **"The Dimensions of Unemployment in Romania Connected to Representative Macroeconomic Indicators",** the dimensions of unemployment were presented descriptively and statistically. For this, macroeconomic indicators with influence on unemployment have been selected. The statistical data, retrieved/processed, were selected from the databases of INS, Eurostat and NEA, for most indicators. Unemployment has also been analyzed from the perspective of values recorded at EU level, which enabled the identification of Romania's position in this regard.

This chapter focused on statistical instruments and economic analysis, as to characterise the Romanian economic environment. In addition to the representative unemployment indicators, the unemployment rate and the number of unemployed, the values of the following macroeconomic indicators were presented and analysed: GDP, gross value added, civil active population, occupied population, the average number of employees, employment rate, job rate, gross and net monthly earnings, relative poverty rate or poverty risk rate, severe material deprivation rate, the rate of people under 60 years of age from

households with very low labour intensity, risk of poverty or social exclusion, life expectancy, direct foreign investment, corruption perception index. Also in this chapter, the relationship between inflation and unemployment was approached from the traditional perspective of Phillips' curve.

Analyzing the values obtained by Romania for the unemployment rate indicator, it was found that the Romanian labour market has progressed in recent years, in 2017 Romania occupying the 8th place of the 28 EU member States. Positive results have also been recorded with regard to the number of BIM unemployed which has declined in recent years. The degree of economic development was measured by the analysis of GDP values (nominal, real and Gdp/inhabitant) and one of its core components, gross value added (gva), remarking an ascending trend for all the indicators mentioned. The statistical analysis of the indicators: the active population, the employed population, the average number of employees, the employment rate, gross and net earnings, job vacancies, aimed at establishing the dimensions of the labour market, for most indicators the trend being an ascending one, except for the employment rate. Inflation was also analysed using the consumer price index and inflation rate, demonstrating that there is no analytical form of a link between inflation and unemployment in Romania and that Phillips" curve is not valid.

The relative poverty rate, the rate of severe material deprivation, the rate of people under 60 years of low labour intensity households, the share of people in total population at risk of poverty or social exclusion (AROPE indicator) and life expectancy are the indicators analyzed to identify the standard of living in Romania. It was found that Romanians have significant financial problems, living conditions being limited. Another important indicator in the evolution of unemployment is represented by foreign direct investment, the analysis of which shows a growing trend between 2012-2017 and 2020.

Although it has a significant contribution to the labour market, higher education has experienced a reduction in the number of universities, faculties, graduates, didactic and non-didactic staff, amid reduced birth rate after year 1990. A positive aspect is the larger number of foreign students enrolled in Romanian universities, and a worrying aspect is the relatively high percentage rate of young NEETs in Romania.

Migration has been analyzed in the light of the values related to the following indicators: definitive emigrants, temporary emigrants, definitive immigrants and temporary immigrants. It was found that the phenomenon of migraton is quite advanced in Romania, the number of emigrants and immigrants being high, and the countries with most Romanian emigrants were: Spain, Germany and Italy. The degree of corruption has been measured by the values of the corruption perception index, whose values have fluctuated in the case of Romania, with the need for effective solutions to reach the value of the EU average.

The fourth chapter, **"The Analysis of Regional Disparities on Unemployment and the Degree of Economic Development in Romania"**, started by presenting the territorial structure of Romania (4 macroregions – Nuts I, 8 regions – Nuts II, 41 counties and Bucharest municipality – NUTS III) and its demographic description. From a demographic point of view, Romania has declined, considerably decreasing the number of inhabitants and experiencing a continuous decrease of population due to the decrease of births.

Administrative-territorial units (ATU) have been characterised from the perspective of economic development and regional disparities, so that the influence of economic progress on unemployment and employability can be observed.

In the first stage, the statistical data of the indicators were presented: unemployment rate, employment rate, gdp/inhabitant, nominal gdp, gva, share of the civilian active population and the civilian employment of the total population, average monthly net earnings, gross average nominal earnings, average number of employees, the weighting of the average

number of employees in the resident population on 1 January, the evolution of vacancies, vacancies rate, on all three levels (NUTS I, NUTS II , NUTS III). In the second stage, the applied mathematical instruments (the composite index of disparities, the Gini index, the Herfindahl-Hirschman index and the Theil Index) were presented. In the third stage, the comparative analysis of the calculated indexes was carried out for the years 2012 and 2016.

Analytically analyzing the indicators described and determining their composite index (noted with Di) for assessing the disparities in NUTS I, NUTS II and NUTS III levels, it was found that the degree of economic development differed from one development region to another, there being counties with favorable variables and unfavourable variables for each of the analyzed indicators. Considering the unemployment rate, in the year 2016, at NUTS level 1, the composite index value exceeded the national average only in Macroregion 3. In the same year, at NUTS level 2, the value of the composite index exceeded the national average in the regions: North West, Bucureşti-Ilfov and the West Region. At NUTS level 3, in the year 2016, the composite index had values located above the national average in the counties: Cluj, Braşov, Sibiu, Constanţa, Ilfov, Arad, Timiş, plus the municipality of Bucharest.

Following the calculations related to Herfindahl--Hirschman (Hj), Gini (G) and Theil (T) indicators for unemployment rate, gdp, gdp/inhabitant and composite index, considering the unemployment rate, for NUTS I, NUTS II and NUTS III, it was noted that the degree of concentration is reduced and there are no major disparities between macroregions, regions and counties.

In the last chapter, ***"Econometric Modeling of the Explanatory Factors of Unemployment in Romania. Analysis at national and territorial level"***, a number of econometric models have been applied based on the values of the indicators analyzed and interpreted in Chapters 3 and 4. For this reason, statistical data for the period 1990-2017 was collected, but due to the multi-coliniarity of the data obtained, some of the tested variables were excluded and the analyzed period was narrowed to 2000-2017, at national level, and 2000-2016, at territorial level (counties and the municipality of Bucharest). Prior to their econometric processing, the logarithmization and standardization of the data were used and, where there were no data, both interpolation and extrapolation were done using the Econometric State 13 Package.

Only indicators whose results had statistical significance were chosen. The endogenous variables analysed were the unemployment rate, i.e. the number of unemployed, both at national and territorial levels. At national level, exogenous variables were: gdp/inhabitant, the number of vocational training programmes, participation rate in tertiary education (age segment 30-34 years), number of vacancies, number of final emigrants, numberof definitive immigrants, fdi, the number of graduates of the Baccalaureate exam, life expectancy, the index of perception of corruption, relative poverty, AROPE. At the ATU level (counties and municipality of Bucharest), the indicators/variables included for the processing were: unemployment rate, number of registered unemployed, gross average monthly earnings, average number of employees, gross value added to basic prices, the ratio of demographic dependency in people of more than 60 years and people aged between 20 and 59 years, the number of graduates of average studies, the number of graduates with Diploma of Tertiary education, net migration, employed population, gdp/inhabitant, total Gdp.

The econometric models and processes applied were: (i) Macroeconometrice models with data of the panel type (Random effects – RE, Robust regression – RREG, two-stage regression, standard error correction in the panel and the generalised method of the moments – GMM), applied for data at national and territorial level; (ii) analyzing clusters through the Ward method for analysis at territorial level; (iii) Spatial Analysis (models SAR – Spatial autoregressive, and SER – Spatial Error); (iv) modeling through structural equations (SEM).

The descriptive statistical analysis was also carried out, establishing the mean, standard deviation (sd), minimum (min) and maximum (max) values of each variable used in modeling. At the same time, square root tests (Levin-Lin-Chu test, the Im-Pesaran-Shin test, the Harris-Tzavalis test and the Fisher-type Test) were applied.

The working hypotheses set were:

H1. Improving economic activity, active labour market policies aimed at direct creation of jobs (job_vacant), education, training programs, increasing the number of graduates on each education cycle (especially higher secondary – baccalaureate/middle education, respectively tertiary) have a positive (favourable) impact on the performance of the labour market in Romania for the purpose of reducing unemployment;

H2. The change in the standard of living of the population (reflected in the light of poverty level) and the demographic changes (including internal and international migration, net migration, definitive and temporary migrants) induce negative effects on labour market performance in Romania, significantly increasing unemployment.

Following the application of macroeconometric models, it was found, that, *at national level*, tertiary education, graduates of baccalaureate, gdp/inhabitant and definitive immigrants are indicators that influence to a certain extent (not very significant) the unemployment rate, while the number of the unemployed is significantly influenced by the indicators: gdp/inhabitant, training programs, tertiary education, vacancies, emigrants and definitive immigrants, FDI and life expectancy. Thus, both hypotheses are partially confirmed. The *application of macroeconometric models with panel data at a territorial level* revealed that: the decrease in unemployment is influenced by gdp/inhabitant growth, GVA growth, improved tertiary education level; secondary education and graduates with average studies; the increase in monthly gross earnings and the increase in the dependency rate of the elderly result in slight increases in unemployment rates; net migration influences the growth of unemployment. The results obtained show that both hypotheses are partially validated.

From the *analysis of clusters through the Ward method*, it resulted that the counties: Vaslui, Brăila, Bacău, Teleorman, Olt, Buzău, Dolj, Mehedinţi, Galaţi, Ialomiţa, Călăraşi, Suceava and Neamţ have very low labour market performance under the two indicators considered as endogenous variables (unemployment rate and number of the unemployed), while Bucharest, Cluj, Ilfov and Timiş have very low unemployment rates under the impact of economic performance.

The results of *spatial analysis* of the explanatory factors of unemployment at the territorial level, made through the lag and error models, for all 4 applied space models (Spatial lag robust-SAR, Spatial lag bootstrap, Spatial error robust – SER and Spatial error bootstrap) showed that the increase in gdp/inhabitant, GVA and civilian employed population are statistically significant, while net migration is statistically insignificant. The results of spatial models reinforced the results previously achieved, stressing the idea that increasing gdp/inhabitant and GVA lead to performance in the labour market, influencing the decline in unemployment and increasing employment, which makes the H1 hypothesis reconfirmed and partially validated. Net migration also determines the reduction of unemployment (not very statistically significant), while increasing the dependency rate of the working age population (15 -64 years) increases the unemployment rate. These results suggest reconfirmation of the H2 hypothesis and strengthen the assertion that it is partially validated.

Applying *the method of the structural equations* (SEM), the same links were established as with the other methods applied, reconfirming that the increased values of gdp/inhabitant and GVA contribute to a significant reduction in the unemployment rate, which also happens under the the impact of net migration and the improvement of the

educational level towards the tertiary. The hypotheses were therefore reconfirmed and partially validated.

The results have contributed to formulating several types of interventions to prevent and combat unemployment and to increase the degree of employability in Romania. At the end of the chapter the forecasts of the European Commission on the evolution of the main macroeconomic indicators in the period 2018-2021 were discussed.

The PhD thesis ends with the determination of the conclusions, proposals and future developments, complemented by a bibliography comprising numerous titles from the national and international literature, statistical reports and websites, consulted in the preparation of this PhD thesis, but also by the Annexes.

PERSONAL CONTRIBUTIONS AND FURTHER DEVELOPMENTS

The entire work is personal contribution. The literature represented the fundamental source of the conception of the first two chapters, where theoretical notions are frequently met. The completion of a significant number of academic papers allowed the formulation of personal definitions for the concepts: unemployment, labour market, labour demand, labour supply, migration. The presentation of theoretical information in a personal manner shows the increased interest in the originality of the thesis.

In the second part of the PhD thesis, personal contributions are much more visible. The collection and synthesis of statistical data for the macroeconomic indicators used during the course of the work assumed the careful collection and processing of the statistical information in the databases consulted, as well as their layout in the form of graphs and tables. However, the most important contribution is the processing with the help of econometric models, space models and SEM, rarely used in the analysis of national and AUT unemployment levels in Romania. Depending on the results gained during the thesis, we formulated strategies to decrease the unemployment rate and the number of the unemployed and increase the employment rate.

In the future, research can be expanded in several directions:

1. Combining the social aspects of unemployment with its economic aspects through the application of questionnaires and opinion polls on the attitudes of Romanians to the realities and perspectives of unemployment, the replies of the unemployed being analysed in comparison to the replies of employed people;

2. Developing a policy of employment and unemployment, in accordance with the needs of the unemployed and the labour market;

3. Continuation of research by making personal forecasts using extrapolation for different time periods.

KEY-WORDS: *unemployment, employment, work resources, labour market, influence factors, economic environment, migration, brain drain, Romania, inflation, standard of living, education, regional disparities, economic development, econometric models, spatial analysis, cluster analysis, structural equations, economic perspectives.*