

EMPLOYMENT LEVEL ANALYSIS FROM THE DETERMINANT FACTORS PERSPECTIVE

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Abstract

Neglecting the human factor as part of the labor market causes losses for society as any activity that is initiated within it, has as a starting point, and also as a finishing point, the human intervention. The starting point of the article is represented by the projections made by the European Commission in the Population Ageing Report in 2015 underlying assumptions and projections, and also by the projections of the United Nations report in 2015, and this resulted in many conclusions including the one that for the first time in Romania the average aging in 2015 exceeds the values measured by EU till present day, and this is reflected in the employment level (active aging population). The hypothesis behind the article is that the evolution of the population and migrants has repercussions on employment. Structured in three parts: knowledge status, the analysis of employment indicators and information about the intensity and direction of the link between a number of factors and employment level, this article aims to establish the determinant factors of employment through a research focused on the analysis of secondary sources, and also using the regression model. The most important lesson learned as a result of this research is that the labor market works with a variety of factors with a higher or lower influence, and in turn the labor market influences other factors.

Key words: *labor demand; labor supply; employment level; employment policies*

Jel: *C10, J40*

I. INTRODUCTION

A priority for the European Commission regarding the employment level across all member states is improving employment opportunities. In order to remedy the situation of fast increasing unemployment a variety of initiatives to support the European Employment Strategy was implemented. A job holds the key to social inclusion, social participation, and recognition. The current situation in terms of employment brings the need to develop measures to improve employment strategy. In reference to the man, the woman wants to be equal and contribute to the family income. In past years normality was considered to be for a woman to take care of the household and to raise children, while today it is normal for a woman to have a job that gives her both safety and independence. There are European directives regarding the protection and safety at the work place, and they permanently bring improvements. Increasing workplace accidents in the EU attract and increase in health insurance costs. All European workers have as minimum rights: a working time limit, paid annual leave and not more than 48 hours worked per week. Regarding the comparative analysis of working conditions of Bulgarians and Romanians we notice that in both cases, workers must not exceed 40 hours per week, and the age at which a person is fit for work is 16 years old. Entrepreneurs want efficiency from their human resources, but they do not focus on creating an environment in which the employee can prove that he is the right man in the right place. The employee fails to be efficient at work in many cases because he doesn't identify with his position, doesn't like what he's doing and does not have the necessary training to accomplish the tasks given by the management.

II. THEORETICAL APPROACH

The European Commission suggested a series of measures to be implemented by the East European states in order to achieve the Europe 2020 strategy. For Romania the European Commission's recommendation is to prevent deficiencies in the labor market, and this means better support for teachers, trainers and other staff in the education environment, parental involvement and cooperation with local communities (Manafi I, 2012). Macroeconomic employment policies are reflected in the figure below:

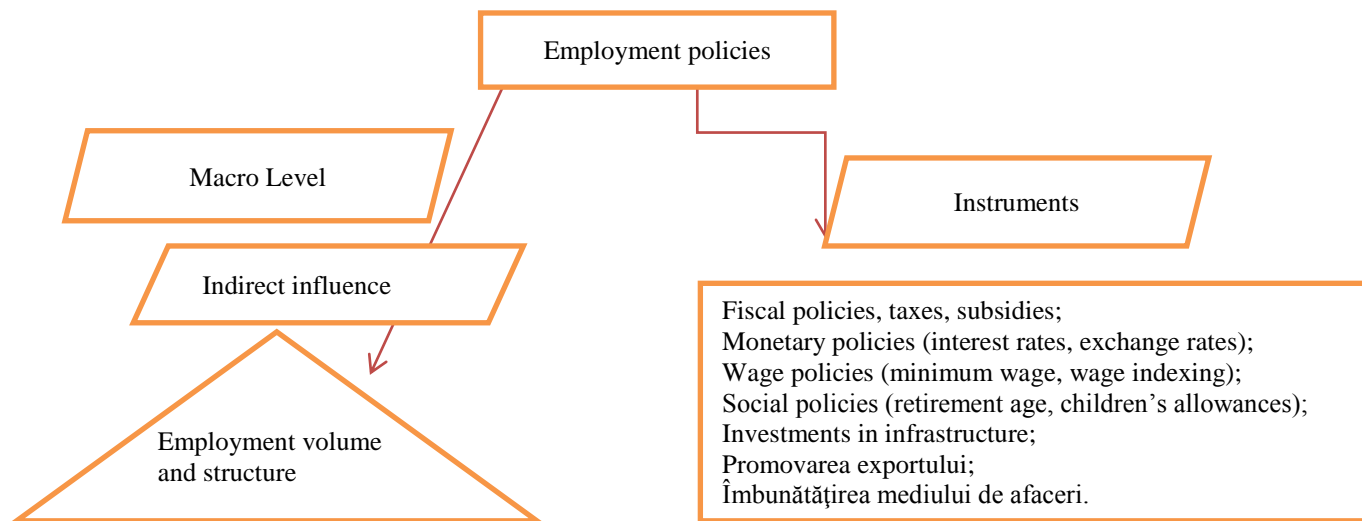


Figure 1. Employment Policies

Source: http://beta.ier.ro/documente/formare/Piata_muncii.pdf

Efficiency of labor policies (subsidized employment, advice on searching for and finding jobs) is a constant debate for both specialists and beneficiaries. An essential feature of labor resources is that individuals are structured according to the activities carried out during a short reference period of time, and by using a specific set of rules. (Kruger B, 2014). The level of full employment arises when the cyclical unemployment is zero, when full employment is reached, the unemployment rate at this level is called natural rate of unemployment. This concept was first used by Milton Friedman (1968) and Edmond Phelps (1968) as a way to differentiate between cyclical unemployment and structural changes (Duguleană C, 2014).

The changing of jobs for graduates is one way to increase employability, a concept defined as the relative ability of an individual to achieve employment given the interaction between personal characteristics and the labor market (Mocanu I, 2011). Romania's labor market characteristics: it is in the forming process, involving regulation and deregulation, change of mentality and human behavior, but it is a market with a limited area and with compression trends (Paraianu M, 2003). Determinants of labor supply and demand are derived from economic theories and from a variety of empirical studies. A thorough analysis of the most relevant factors affecting the supply and demand in the labor market is not necessarily needed to make deficit projections regarding jobs, but to define employment policies (Wilson R, 2008).

The indicators used to assess the type and volume of demand for labor (Tudose G et all, 2013):

1. Level indicators (total number of people who applied for a job, the number of people who found a job and the number of people who didn't find a job);
2. Structure indicators (according to different criteria: age, gender, industry, profession, education level).

Peculiarities of labor supply that influence the demand for labor is as follows (Popescu C, 2009): at the basis of the offer do not lay exclusively the market laws, but also the demographic laws, long training for labor supply in order for the population to reach legal age of employment, appropriate training, as people's resistance to change generates a reduced mobility. Failure to employ labor resources will generate its perishability. Demand for labor is influenced by many factors (Nica E, 2007): the economic situation of the country; labor productivity; production structure; business structure; forms of employment. Peculiarities of demand and supply of labor (Ghita T, 1992): Short-term labor demand is virtually unchanging; the vacancies are formed over a long period of time; labor owners have a relatively low mobility; labor supply is not formed solely on market principles; a job offer is perishable and is relatively rigid.

Internal legislation with relevance in labor relations

(<http://www.mmuncii.ro/j33/index.php/ro/legislatie/munca/mobilitatea-fortei-de-munca/7:legislatie-interna/>):

- H. G. no. 1256/2011 on the operational conditions and the procedure for authorizing the person providing occasional work;
- Law no. 76/2002 on the unemployment insurance system and stimulation of employment;
- H. G. no. 174/2002 aims to approve the methodological norms for applying the Law no. 76/2002 on the unemployment insurance system and stimulation of employment;
- O.G. no. 137/2000 on preventing and sanctioning all forms of discrimination,;
- Law no. 279/2005 regarding apprenticeship in the workplace;
- Law no. 335/2013 regarding the internship for graduates of higher education, with further amendments and supplements.

The indicators of the employment level (labor resource, employment rates, vacancy rates, unemployment) are closely related to employment and dependence, employment readiness, employment structure, proportion and average duration of unemployment (Mărginean I, 2002). Inactive population includes: long-term unemployed or discouraged people (who do not appear as applicants for employment) and those included in many training and retraining programs (Cojocaru R, Borovina C, 2014). Employment institutions: ANOFM (NEA), Ministry of Labor, Social Solidarity and Family, National Agency for Employment, the National Adult Training, Economic and Social Council, the National Commission for the Promotion of Employment, National Council for Combating Discrimination, National Council Occupational Standards.

III. EMPLOYMENT LEVEL AND ITS DETERMINING FACTORS

1. Statistics on labor employment levels

Table 1. Activity rate, employment rate and unemployment rate by gender and environment

Indicators	2007	2008	2009	2010	2011	2012	2013
Activity rate							
Total	66,1	66,5	65,9	64,9	64,1	64,8	64,9
Male	74,8	76,1	75,1	73,7	72,1	73,2	73,4
Female	57,4	57,0	56,7	56,2	56,1	56,4	56,3
Urban	63,7	64,0	63,8	63,5	63,9	64,1	64,5
Rural	69,5	69,9	68,9	66,8	64,4	65,8	65,5
Employment rate							
Total	61,6	62,6	61,4	60,2	59,3	60,2	60,1
Male	69,1	70,9	69,4	67,9	66,3	67,6	67,6
Female	54,2	54,3	53,4	52,5	52,3	52,8	52,6
Urban	58,8	59,9	58,9	57,9	58,4	58,7	58,9
Rural	65,7	66,4	64,8	63,3	60,5	62,2	61,8
Unemployment rate							
Total	6,4	5,6	6,5	7,0	7,2	6,8	7,1
Male	7,2	6,5	7,3	7,6	7,7	7,4	7,7
Female	5,2	4,4	5,4	6,2	6,5	6,1	6,3
Urban	7,6	6,5	7,6	8,8	8,6	8,3	8,7
Rural	4,9	4,6	5,3	4,8	5,5	5,0	5,2

Source: insee

Rate analysis (activity, employment and unemployment) by gender and environment reflects periods of evolution and involution. The overall activity rate (female and male) is a decrease by 1.2% within 7 years, and a dominance of males compared to females, regarding people in urban areas in relation to the rural areas. The second indicator presented in the table - employment rate reflects an overall decrease of 1.5% from 2007 to 2013, and the dominance trend in terms of numbers are the same. The last analyzed indicator shows that the unemployment rate rose by 0.2% in that period of time. As with previous data there is a higher unemployment rate in urban areas compared to the rural areas, but also in the males in relation to the females.

A key role in analyzing employment rate it held by the intent of European organizations regarding the European strategy for Romania in 2020.

Table 2. Target employment rate of the labor force in the EU for 2020

<i>Country</i>	<i>Employment rate 2012 %</i>	<i>Employment rate target 2020%</i>
<i>Netherlands</i>	75,1	80
<i>Germany</i>	72,8	77
<i>Great Britain</i>	70,1	-
<i>Czech Republic</i>	66,5	75
<i>France</i>	63,9	75
<i>Portugal</i>	61,8	75
<i>Poland</i>	59,7	71
<i>Romania</i>	59,7	70
<i>Bulgaria</i>	58,8	76
<i>Italy</i>	56,8	67-69
<i>Spain</i>	54,4	74
<i>Greece</i>	51,3	70
<i>UE Average</i>	64,1	75

Source: <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>

From an employment rate of 59.7% recorded in the year 2012 in Romania, the target is to reach an employment rate of 70% by the end of 2020.

3.2. Occupancy analysis by the regression model

Research Methodology

Purpose – Determinants analysis of employment levels

Objectives:

- 1.Observing the extent to which developments in the population number influences employment levels;
- 2.Identifying the nature of the link between employment and projection of labor resources,
- 3.Finding out how employment is affected by the migration phenomenon.

Assumptions

- H1: Employment level and number of population is directly proportional,
- H2: Between the causal variable - population projection and the resulting variable - labor resources planning there is no correlation,
- H3: The migration phenomenon has repercussions on employment level.

During the study we used the research focused on analysis of secondary sources (national and international statistics). Information collection period June-July 2015 and analysis interval:

- For analyzing the evolution the 2000-2013 timeframe was used;
- For planning, projections, the period 2013-2060 was used.

We used linear regression as simple quantitative method. The simple linear regression function is used to describe the nature, direction and strength of the link between multiple causal variables (country’s population on the one hand and, on the other hand the number of emigrants). The reason we use this model is because in all existing cases there is a first-degree linear function.

3.3. Research results

Employment level and its determining factors were examined from two perspectives:

1. The impact of population on employment,
 2. The impact of immigrants on employment.
- A. The first analysis perspective

We studied it using two steps:

1. The evolution of population and the employment level:
 2. Population of Romania and labor resources prognosis
- Analysis of the impact on employment level of population evolution

We applied the simple linear regression function, and the data is presented in the table below:

Table 3. Data

Years	Population	Employed population				
2000	22435205	10508	2.36E+11	5.03E+14	5.29E+18	1.1E+08
2001	22408393	10440	2.34E+11	5.02E+14	5.24E+18	1.09E+08
2002	21675775	9234	2E+11	4.7E+14	4.34E+18	85266756
2003	21574365	9223	1.99E+11	4.65E+14	4.29E+18	85063729
2004	21451845	9165	1.97E+11	4.6E+14	4.22E+18	83997225
2005	21319673	9139	1.95E+11	4.55E+14	4.15E+18	83521321
2006	21193749	9321	1.98E+11	4.49E+14	4.19E+18	86881041
2007	20882980	9353	1.95E+11	4.36E+14	4.08E+18	87478609
2008	20537848	9259	1.9E+11	4.22E+14	3.91E+18	85729081
2009	20367437	8952	1.82E+11	4.15E+14	3.71E+18	80138304
2010	20246798	8713	1.76E+11	4.1E+14	3.57E+18	75916369
2011	20147657	8528	1.72E+11	4.06E+14	3.46E+18	72726784
2012	20060182	8605	1.73E+11	4.02E+14	3.46E+18	74046025
2013	19983471	8549	1.71E+11	3.99E+14	3.41E+18	73085401
	2.94E+08	128989	2.72E+12	6.19E+15	5.73E+19	1.19E+09
Value	x	y	xy	xx	xyy	yy

Following the calculation the correlation coefficient is $r = 0.89$. This result reflects the fact that the population number exerts direct influence on employment level and the intensity of the relationship between the two is strong. An increase in the number of population automatically generates an increase in employment levels.

Analysis of the impact of population prognosis on labor resources

The forecasts and prognosis were taken from studies conducted by the United Nations in 2015. This time we applied the same model and calculation data which are presented in the table:

Table 4. Data

Years	Population	Labor resource				
2013	20	8683	171438.5	400	3473200	75394489
2015	19.9	8615	164376.8	396.01	3411626	74218225
2020	19.7	8344	155355.2	388.09	3238223	69622336
2025	19.4	8008	145445	376.36	3013891	64128064
2030	19	7655	134565.2	361	2763455	58599025
2035	18.7	7196	125929.6	349.69	2516369	51782416
2040	18.4	6844	119337.4	338.56	2317105	46840336
2045	18.2	6557	113682.9	331.24	2171941	42994249
2050	17.9	6351	109138.2	320.41	2034924	40335201
2055	17.7	6166	105670.2	313.29	1931746	38019556
2060	17.4	6073	1518599	302.76	1838661	36881329
Value	206.3	80492	173660	3877.41	28711141	598815226
	x	y	xy	xx	xyy	yy

The calculation result of the correlation coefficient is $r = 0.99$, deterministic connection. Therefore the analysis of the nature, intensity and direction of the link between the two variables reflects a direct and deterministic connection. When you increase the value in terms of population projection it instantly occurs an increase in the projection of labor resources.

The figure below is a graphic representation of the population of Europe based on projections made by the United Nations in 2015.

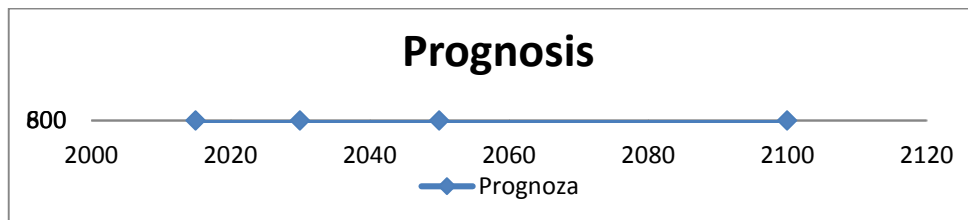


Figure 1. Population prognosis in Europe
Source: UN report regarding population projection

II. The impact of number of immigrants on employment levels

This analysis was studied from two perspectives:

1. The number of permanent immigrants;
 2. Total number of immigrants.
- The number of permanent immigrants

The simple linear regression model is used and calculation data are reflected in the table below.

Table 5. Data

Years	Migrants	Employed population				
2000	12594	10508	132337752	158608836	1.66666E+12	110418064
2001	9921	10440	103575240	98426241	1.02757E+12	108993600
2002	8154	9234	75294036	66487716	6.13948E+11	85266756
2003	10673	9223	98437079	113912929	1.05062E+12	85063729
2004	13082	9165	119896530	171138724	1.56849E+12	83997225
2005	10938	9139	99962382	119639844	1.09339E+12	83521321
2006	14197	9321	132330237	201554809	1.87869E+12	86881041
2007	8830	9353	82586990	77968900	7.29243E+11	87478609
2008	8739	9259	80914401	76370121	7.07111E+11	85729081
2009	10211	8952	91408872	104264521	9.33376E+11	80138304
2010	7906	8713	68884978	62504836	5.44605E+11	75916369
2011	18307	8528	156122096	335146249	2.85813E+12	72726784
2012	18001	8605	154898605	324036001	2.78833E+12	74046025
2013	19056	8549	162909744	363131136	3.10441E+12	73085401
Value	170609	128989	1559558942	2273190863	2.05646E+13	1193262309
	x	y	xy	xx	xyy	yy

$r = -0.026909101$ lack of connection. Between these two variables there is a low intensity reverse connection. The number of permanent immigrants does not affect employment levels.

- The total number of immigrants

Just as in the previous cases we use the same model. The period of analysis in this case is shorter-from 2007 to 2013. The causal variable is represented by the total number of immigrants.

Table 6.Data

Years	Immigrants	Employed population				
2007	1437529	9353	13445208737	2.06649E+12	1.93279E+16	87478609
2008	1922805	9259	17803251495	3.69718E+12	3.42322E+16	85729081
2009	2135691	8952	19118705832	4.56118E+12	4.08316E+16	80138304
2010	2234155	8713	19466192515	4.99145E+12	4.34905E+16	75916369
2011	2288531	8528	19516592368	5.23737E+12	4.46643E+16	72726784
2012	2341263	8605	20146568115	5.48151E+12	4.71684E+16	74046025
2013	2344183	8549	20040420467	5.49519E+12	4.69784E+16	73085401
Value	14704157	61959	1.29537E+11	3.15304E+13	2.76693E+17	549120573
	x	y	xy	xx	xyy	yy

$r = -0.91244512$ - strong reverse connection. The intensity of the link between immigrants and employment level is strong, but the nature of the link is a reversed one.

IV. CONCLUSIONS

A strategy for employment is necessary because on one hand the diagnosis carried out shows an increase in unemployment, an increased migration of young people to countries where they are better paid and secondly the projects of European organizations and United Nations show that for the period 2030 -2060 there will be a growing aging population. Strategic directions for employment should be focused on both young and aging populations.

University graduates migrate to other states, and so the society is at risk of remaining without a potential employment resource. The weak correlation between education and the expectations of entrepreneurs on potential labor resource generates weaknesses of the integration of young people at work, and in this sense a model for all European countries is represented by Finland which has one of the best educational systems in world, always in the top of the PISA, conducted by the Organization for Economic Cooperation and Development, and now it is planning a new reform in education characterized by replacing subject teaching with phenomena teaching. Taking as a reference the recent years, employment level analysis from the quantitatively point of view reflects the fact that labor market indicators in Romania lately present both stages of evolution and regression.

Not all the assumptions made at the beginning of the research do verify. The first assumption is checked because between population number and employment level there is a causal relationship, and a strong intensity between the two. Assumption number two is not verified because the result of the correlation coefficient shows that between the population projection and causal variable-employment level (labor resource) there is a correlation, basically the data shows a deterministic correlation. The last assumption does not fully verifies because employment level has suffered as a result of an increasing number of immigrants, while between the total number of permanent immigrants and employment levels there is a weak reverse link.

In conclusion we can say that an effective occupancy strategy for Romania can be developed and implemented when the factors affecting employment are taken into account for and also an important role is held by the young graduates migrating to other countries where labor is better paid.

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