An analysis of the Romanian labor market under the impact of the contemporary world's problems using the regression function

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Abstract

Having as subject the labor market in the context of the contemporary world's problems, this paper aims to make a theoretical and practical presentation of these concepts, which are relevant for the national and international literature. The first part, dealing with the state-of-the-art of the domain, aims to present these concepts from the perspective of many specialists in this field. The practical part of this article consists in a research based on the presentation of the labor market under the impact of the contemporary world's problems. To support our line of reasoning, in our scientific approach we used a research based on the analysis of secondary sources, and as quantitative methods, we used: the simple linear regression and the public opinion poll. Among the contemporary world's issues analyzed using the quantitative methods were: juvenile delinquency, violence against other peoples and population's poverty rate.

The hypothesis of this paper starts from the premise according to which lack of education generates intensification of the contemporary world's problems, especially juvenile delinquency and poverty rate, these two having an impact upon the employment rate of the labor market, because potentially active people are convicted when referring to people above 18 years old and in special educational institutions when referring to people under 18. The most relevant conclusions of the research highlight the fact that between the labor market and the contemporary world's problems there is interdependence, and not giving the appropriate importance to the contemporary world's issues will generate irremediable difficulties in society.

Keywords: employment, poverty rate, violence, juvenile delinquency, population ageing.

Jel: C 01, C12

1. Introduction

In the course of time, the concept of labor market was addressed, both by the Romanian literature and the international literature, in various economic magazines and books. The originality of this paper consists in the fact that the repercussions of the contemporary world's problems upon the labor market are demonstrated using quantitative methods.

The selection of this subject for analysis in our scientific approach was not accidental, but was based on the fact that the labor market was not yet studied by scientists from the perspective of the contemporary world's problems. Even though the inhabitants of the world's states are unique individuals, because there are differences at the religious, ethnic, and cultural level, different mental attitudes, different values and principles, all the individuals are aware of the fact that these contemporary world's problems (violence, juvenile delinquency, poverty rate, school abandonment, usage of forbidden substances, alcohol consumption, prostitution, robbery, greenhouse effect, ineffective waste management) determine the disruption of the economic and social aspects.

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2. Contemporary world's problems and employment – theoretical approach

Over the years, our society has been faced to a variety of problems that had repercussions both on the society, seen as a whole, and on the individual, seen as a unique being. The problems existing at the global level are real: depletion of the ozone layer, acid rain, nuclear waste, AIDS proliferation, violence between states and suicide. To this effect, teachers have a special mission, consisting in directing people towards one-to-one, face-to-face communication, in order to prevent the disaster at world level (Cates K, 1990).

Taking into account the fact that the European Union (EU) population is ageing faster than the population from other world regions, control referring to aspects such as: age, mental decline, together with activating elderly people' potential, were pivotal in the development of a project framework by the European Commission, which can bring greater benefits at individual, economic and social level (Panitsides E., 2014). In a contemporary context of demographic, social and cultural changes required by the EU, in which socio-economic problems also appear, the number of fast ageing people is growing (18.2% are older than 65) (Eurostat, 2013), while the forecasts show that the number of people above 60 will be almost double until 2025 (Muenz R, 2007).

The concept of school abandonment is used in order to present the rate of people who abandoned school. The abandonment rate reflects the percentage of pupils who abandon school in any special year (Drewry J, 2007).

Dementia incidence has dramatically increased, while the previsions show a doubling of the number of people affected every 20 years. Europe hosts more than 28% of the global number of people affected by dementia, after Asia, which also presents a considerable percentage (35%) (Prince M, Jackson J , 2009).

Probation counselors, penitentiary departments, social assistants, educators and psychologists from Europe established a series of intervention strategies related to delinquents, which are focused especially on the causes and consequences of the offenders' conduct, rather than on their general education or qualification needs, for instance (Graham W , 2002):

• Alcoholism and drug abuse,

• Violence and aggressiveness,

• Sexual aggression,

• Robberies and theft of personal assets,

• Elementary social acquirements and functional alphabetization.

According to the American sociologist Douglas McGregor, the average human being abstains from working and tries to avoid it as much as possible, because such a person does not want to assume any responsibilities.

3. Implications of the contemporary world's problems on employment

3.1. Research methodology

- Study context

Research goal: Knowing the repercussions of the contemporary world's problems on the labor market.

Research objectives:

- Identifying the existence of the correlation between labor market and contemporary world's problems,

- Knowing the direction and intensity of the links between the research variables,

- Examining the extent to which violence against other peoples is supported by the Romanians.

Research hypotheses

- The indicators of labor market specific of the 21st century demonstrate stability,

- Between juvenile delinquency and labor market there is no correlation,

- The majority of the Romanians participating to the research by World Values Survey do not perceive violent attitudes as justifiable,

- The greatest poverty rate in the employment structure is held by unemployed people.

Research organization

Research type: office research. Research methods used: statistical method based on statistical-mathematic analysis (simple linear regression) and public opinion poll method. Data collection method: statistics sources analysis: INS (National Statistics Institute), AJOFM (County Employment Agency), national and international reference sites: Labor Ministry, Myjob and World Values Survey. The research was carried out for the period 2000-2009, and the data collection interval was August 1 – December 15, 2014. Output processing used EXCEL, which facilitated the study of the phenomenon by mathematical simulation.

Sample dimension for the public opinion poll that used the questionnaire as instrument. The sample consisted of 1503 Romanians chosen by the site from various social and economic layers.

Sampling modality: face to face .

Questionnaire application mode: The questionnaires were filled in by site representatives.

3.2. Research results

The analysis of the labor market was made on two levels:

1. The first level is the one of the implications of violence against other peoples and of juvenile delinquency upon the labor market,

2. The second level is that of the poverty rate repercussions on the labor market.

The first analysis level is approached from three perspectives: labor market under the impact of minors (14 to 17 years old) definitively convicted to educational measures, labor market under the impact of young convicted people, and labor market under the impact of violence of individuals against other peoples.

- Labor market under the impact of minors (14 to 17 years old) definitively convicted to educational measures

The simple linear regression is used. The labor market is studied under the impact of juvenile delinquency represented by the indicator "people between 14 and 17 years old definitively convicted to educational measures". The research interval is 2000-2009. This period was chosen because the effects of the economic crisis in Romania were not very strong at that time (Table 1).

x - minors definitively convicted to educational measures (14 to 17 years old).

y - employed people

Table 1. Computation data

Years	X	y	xy	x²	yi=a+bx	y²
2000	2023	10508	21257684	4092529	10180.98	110418064
2001	1880	10440	19627200	3534400	10071.46	108993600
2002	1722	10079	17356038	2965284	9950.442	101586241
2003	1639	9915	16250685	2686321	9886.871	98307225
2004	1229	9158	11255182	1510441	9572.845	83868964
2005	1495	9147	13674765	2235025	9776.579	83667609
2006	1347	9313	12544611	1814409	9663.223	86731969
2007	915	9353	8557995	837225	9332.347	87478609
2008	620	9369	5808780	384400	9106.401	87778161
2009	460	9243	4251780	211600	8983.854	85433049
Σ	13330	96525	130584720	20271634	96525	934263491

a = 8631.532

b = 0.765917

r = 19168950 / √ 6.39683E+14, where √ 6.39683E+14= 25291955

r = 0.75790701 strong connection

Minors definitively convicted to educational measures have a strong influence upon the labor market.

- Labor market under the impact of young convicted people

As in the previous case the method used is simple linear regression. Labor market under the influence of juvenile delinquency is represented by the indicator "young convicted people" (Table 2).

Table 2. Computation data

Years	X Young convicted people	Y Employed people	xy	x²	Yi=a+bx	y²
2002	83525	10079	841848475	6976425625	9593.729	101586241
2003	73605	9915	729793575	5417696025	9424.041	98307225
2004	65527	9158	600096266	4293787729	9285.862	83868964
2005	62831	9147	574715157	3947734561	9239.745	83667609
2006	67238	9313	626187494	4520948644	9315.129	86731969
2007	80727	9353	755039631	6516848529	9545.867	87478609
2008	82054	9369	768763926	6732858916	9568.567	87778161
2009	84129	9243	777604347	7077688641	9604.061	85433049
Σ	599636	75577	5674048871	45483988670	75577	714851827

The reason why we chose these two indicators: young convicted people (which belongs to indicators from the justice field) and employed people (which belongs to the labor market field), was based on the thesis according to which the criminal environment has repercussions upon the labor market. The first indicator was chosen because young convicted people are part of the potential juvenile delinquents category, and the indicator "employed people" was chosen because out of the people "fit for work" only a part undertakes labor market activities.

The simple linear regression model is used:

$$Y = a + bx + u$$

Eq (1)

Solving the system by the determinants method, the resulting parameters are   and .

$$\begin{cases} na + b \sum x_i = \sum y_i \\ a \sum x_i + b \sum x_i^2 = \sum y_i \end{cases}$$

Eq (2)

$$a = \frac{\begin{vmatrix} \sum y_i & \sum x_i \\ \sum x_i y_i & \sum x_i^2 \end{vmatrix}}{\begin{vmatrix} n & \sum x_i \\ \sum x_i & \sum x_i^2 \end{vmatrix}} = \frac{\sum y_i \sum x_i^2 - \sum x_i y_i \sum x_i}{n \sum x_i^2 - (\sum x_i)^2}$$

Eq (3)

$$b = \frac{\begin{vmatrix} n & \sum y_i \\ \sum x_i & \sum x_i y_i \end{vmatrix}}{\begin{vmatrix} n & \sum x_i \\ \sum x_i & \sum x_i^2 \end{vmatrix}} = \frac{n \sum x_i y_i - \sum x_i \sum y_i}{n \sum x_i^2 - (\sum x_i)^2}$$

, Eq (4)

where a is a calculation parameter, while b is the regression coefficient or the slope of the regression line.

a = 8164.98

b = 0.017106

Being a first degree function, the correlation coefficient can be computed.

$$r_{y_x} = \frac{n \sum xy - \sum x \sum y}{\sqrt{[n \sum x^2 - (\sum x)^2][n \sum y^2 - (\sum y)^2]}}$$

Eq (5)

r = 0.426468647 weak correlation.

This shows a weak correlation between the causal variable (young convicted people) and the resultant variable (employed people).

-Violence against other peoples

Another relevant problem of the contemporary world is violence against other peoples. In order to identify the Romanian perception on justifiability of the existence and practice of violence, we used information from the data base of the international site World Value Survey, processed in our own manner.

For each of the following affirmations, please give a mark from 1 to 10, where 1 means that they are not at all justifiable and 10 means that they are perfectly justifiable (Table 3).

Table 3. Justifiability of violence against other peoples

	Number of cases	%
Never justifiable	1,267	84.3%
2	97	6.4%
3	29	1.9%
4	15	1.0%
5	25	1.7%
6	11	0.7%
7	6	0.4%
8	4	0.3%
9	4	0.3%
Always justifiable	9	0.6%
No answer	8	0.5%
Don´t know	29	1.9%
(N)	(1,503)	100%
Mean		1.36
Standard Deviation		1.24
N		1,466

Source: http://www.worldvaluessurvey.org/WVSOnline.jsp

In order to study the overall perception on these aspects, the average score is computed:

The score=(1*0+2*97+3*29+4*15+5*25+6*11+7*6+8*4+9*4+10*10)/

The second level of the research is the analysis of the poverty rate in connection to the occupational status (The table below) .

Table 4. Poverty rate per occupational status

Indicator	Value (%)
Total, people of 16 years old and above with employment status:	17.9%
-employees	3.8%
-self employed (except peasants)	34%
-self employed (including peasants)	38.4%
-unemployed people	31.2%
-retired people	9.3%
-other inactive people	25.5%

Source: http://www.fonduri-ue.ro/res/filepicker_users/cd25a597fd-62/2014-
2020/Dezbateri%20parteneriale/Rezultatele%20analizei%20documentare/03.06.2013/7.Social%20inclusion_23%20mai.pdf

According to the table above, one can see that from the total percentage of people included in the interval 16+ years old employed on the labor market, around 18% present poverty rate. The greatest percentage of poverty rate in Romania for the year 2011 was observed at self-employed people.

The poverty rate on development areas in Romania in the year 2011 compared to the year 2007 can be observed in the table below.

Table 5. People at poverty risk %

Indicator	2011-2007		
Development areas	2011	2007	Growth rate 2007-2011 (%)
Romania	40.3	45.9	-3.3
North-West	34.3	38.3	-2.8
Center	28.5	37.6	-6.9
North-East	51.2	55.1	-1.8
South-East	50	51	-0.5
South-Muntenia	43.1	50.3	-3.9
Bucharest-Ilfov	28.4	35.1	-5.3
South-West Oltenia	44.8	55.4	-5.3
West	33.1	34.2	-0.8

Source: http://www.fonduri-ue.ro/res/filepicker_users/cd25a597fd-62/2014-
2020/Dezbateri%20parteneriale/Rezultatele%20analizei%20documentare/03.06.2013/7.Social%20inclusion_23%20mai.pdf

The Romanians' overall poverty rate for the year 2011 presents a decrease of almost 3.3%. The greatest decrease was observed for the Center region (6.9%).

Conclusions

An intensification of juvenile delinquency simultaneously generates a reduction of the labor market, and an involution attracts a significant enhancement of the potential market. One can say that these two variables belong to the category of inversely proportional variables.

Therefore, juvenile delinquency has a significant impact upon the labor market, and, not taking into account this social phenomenon, can generate an inability of the labor demand to meet the offer. Educational measures

represent a priority for the society, but especially for the individual, in order to reintegrate himself and to mend himself, so as to become a reliable human resource for any national or international organization.

A change in the sense of an evolution or an involution of juvenile delinquency, reflected in the number of young convicted people, does not generate a significant influence upon the labor market.

Labor market does not suffer from the intensification of juvenile delinquency through the number of young convicted people. In order to support the argumentation during the scientific research, the simple linear regression method was used. This choice is not accidental; it was based on the fact that for the three cases presented, the linear first grade function was used, simple linear regression being a characteristic of it.

For the first case, the simple regression was used in order to identify the impact of minors definitively convicted people to educational measures (from 14 to 17 years old) upon the labor market, aiming to observe the extent to which the latter is affected. For the second case, simple regression was used in order to highlight the repercussions of the number of young convicted people upon the employed people. For the second case, we also used statistical-mathematical modeling based on simple linear regression in order to observe the extent to which internal migration influences the number of vacancies distributed on activities of the national economy.

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