

**Professor Crisan ALBU, PhD**  
**The Bucharest Academy of Economic Studies**  
**E-mail: crisan@ase.ro**  
**Lecturer Oana-Ramona LOBONT, PhD**  
**West University of Timisoara, Romania**  
**E-mail: oana.lobont@feaa.uvt.ro**  
**Associate Professor Nicoleta-Claudia MOLDOVAN, PhD**  
**West University of Timisoara, Romania**  
**E-mail: nicoleta.moldovan@feaa.uvt.ro**  
**Lecturer Ayhan KULOGLU, PhD**  
**University of Nevsehir, Turkey**  
**E-mail: kulogluayhan@gmail.com**

## **THE CRIMINAL BEHAVIOUR IN ROMANIAN SOCIO-CULTURAL CONTEMPORARY CONTEXT**

***Abstract:** The degradation of the social values leads to the vulnerability of certain categories of population and to a state of anomie in terms of the loss of state institutions authority or leads to the institutionalization of informal criminal behavior. This paper sets out to study the socio-cultural determinants of criminal behavior in Romania. According to the results, there is a bidirectional causality running from the level of education to criminal behavior, a unidirectional causality running from poverty to persons charged investigated by the police according to the residence areas as foreigners and a unidirectional causality running from density of population described by total level to persons charged investigated by the police according to the rural residence areas. Due to differentiated opportunities of individuals of a society, that does not allow the relative and equal access to the values and social goods, it can be appreciated the variability in the deviant and delinquent behaviors, depending on different times by various norms and social rules of a particular country.*

***Keywords:** crime, level of poverty, unemployment, density of population, level of education, Romania.*

**JEL classification: K14, J11, J64, I25**

### **1 Introduction**

Although a representative democracy, Romania encounters deficiencies in its citizens' attitude regarding the participation to the social change, a manifestation against certain dysfunctionalities and decreases of authority, both in the institutional sphere and in the space of the interpersonal relationships. From this perspective, we focus our attention on certain social phenomena, such as criminality, being aware of the variety of types which it can have, but also of the

multiple causes which can generate it.

The impact of the economic, political and social transformations on the Romanian citizens over the past 20 years has some noticeable consequences in certain macro-social dimensions, from noticeable, observable actions, moves and gestures in a close correlation with the situation characteristics or the individual personality characteristics, until the position adopted in a context or another by the state institutions regarding the public order observance, the defense of human rights and fundamental freedoms or public and private property, the prevention and fight against the antisocial deeds, or the observance of the legal system of the state frontier.

Criminality, a social phenomenon in essence, can be explained by different economic and social pressures, the monotony and degradation of the life quality, identity crises, difficulties in defining certain moral or even religious reference points, mass-media influences, the absence of culture and education or even the absence of the spirit of social solidarity. Accordingly, a profound and realistic approach of this phenomenon is necessary, both from the perspective of the attitude system, of a person's conduct, and from the perspective of the purposes and reasons which prefigure this behavior. And as found in Marinescu and Jora (2013) "to include a parasitical behavior in the order obviously requires an organism which is initially healthy and quite functional afterwards".

Considering in their largeness, the determining factors in the explanation of the criminal phenomenon and behavior, a series of representative theories were outlined for the legal psychology area, namely the psychobiological, psychosocial and psycho-moral theories (Cioclei, 1996), with a common element reflected by the psychological factor. For this paper, we have to remember the evolution of this theory, from a one-dimensional approach of the criminological phenomenon to a complementary approach, crossed with the approach of the individual within the social environment, emphasizing the frustrations, marginalizations, conflicts and social tensions generated by unemployment, social solidarity, level of education, standard of living or even the value and moral system with numerous irregularities in the deciphering of the delinquency sublayer.

## **2 Literature review**

The causes of the criminal phenomenon have a multiple and sometimes circular determination. In Romania, in spite of a rich sociological and criminological literature referring to the etiology of the delinquency and criminality phenomenon, we notice that studies didn't focus on the identification of the determining factors but rather they emphasized the identification of the criminals' profile.

The theoretical perspective of this paper intends to explain the perseverance of the criminal behavior, taking into account the great complexity of the causes and conditions maintaining this phenomenon, met in the analyses of certain foreign authors. We do not ignore the approaches' probabilistic character and the

## The Criminal Behaviour in Romanian Socio-cultural Contemporary Context

---

generalization degree of the results obtained by them, even showing dissatisfaction with regard to the traditional explanations of crime and delinquency.

In order to identify certain patterns we start from the indisputable reality of by no means linear interaction of poverty and level of education as a determining factor of the cultural underdevelopment because the biggest impediment for the increase of the living standard is not the financial resource as people might believe but the lack of motivation, the level of education, the states of apathy or even the fatalistic attitudes on reality.

We didn't limit the analysis of this paper to the conditionality of poverty and criminal behavior because the critics of the poverty culture impugn the fact that the structure of the personality of poor people is substantially different from the rest of the population. It is much more correctly to consider that the behavior of the poor is explainable through the patterns determined by the effective change of life situations and the environment in which they manifest under the incidence of a complex of factors which, in time, make the situation of the disadvantaged people chronically, even leading to their exclusion from the social and economic life.

The literature welcomes this approach, multiple studies showing the causalities between the criminal behavior and the high level of poverty and social exclusion, the level of education and professional competence, but also the conditionality with the reduced existing opportunities in certain communities in which people leave.

Ching-Chi Hsieh and Pugh (1993), performing a meta-analysis to 34 aggregate data studies, show that there is a strong correlation between poverty, income inequality and criminality. Even if the analysis performed by them showed considerable variations in the estimated size of different relations, they could conclude that, from the existing types of criminality, homicide and attack might be closer associated with poverty or income inequality than rape or robbery.

If during the '70s multiple studies made in USA were emphasizing the connection between unemployment, poverty, education, standard of living and criminality, more recent studies are also focused on the explanation of the criminal behavior determined by the economic cycles, urban concentrations or even by the geographical disposition and the social contrast of population.

Zhao et al (2002), starting from the economic theory of crime (rational criminal model - RCM) formulated by Becker (1968), which assumes that the tendency towards a criminal behavior is conditioned by the achievement of some higher benefits than the costs of the crime perpetration, prove the dynamics of the poverty-crime system through stability analysis of a system of ODEs. Of course, this approach of poverty and criminality conditionality assumes that these two maladies especially affect the metropolitan areas or the urban agglomerations. For example, Cahill (2004) in the study on criminal contexts, in the case of three cities with different demographical and social characteristics, proved that certain structural associations with violence are capable of being generalized across urban areas.

Katsina (2012) proves the impact generated by the standard of living on criminality in the case of Nigeria, starting from the theories stated by Ucha (2010)

and Ogunleye-Adetona (2010) and he considers absolutely necessary to debate on at least three indicators which should emphasize the standard of living, namely the failure of leadership as bad governance, the level of unemployment and the inequality in the urban centers of Nigeria.

Machin et al. (2010) present a series of empirical evidence of causality between the criminal activity and education in Great Britain. Their acknowledgement is that the criminal activity is negatively associated with a higher level of education; therefore the improvement of the level of education may bring significant social benefits and may be an instrument of criminality fighting. This concept is supported by Dardac and Petrescu (2007) who considered as mandatory the quality assurance in education through awareness of organizational goals and developing a culture based on professional merits acknowledging, transparency makers, stimulating and collaborative spirit of initiative.

More and more studies emphasize that the interpretation of the criminal activities must not be limited only to the economic factors but it is important to take into consideration the “external” social phenomena too, such as objections, dissatisfactions manifested in various areas of society, strikes, poverty and misery of certain higher and higher strata of population, unemployment, inflation, governance quality, family, religion, gender, race or even factors influencing the mind and behaviour of man in taking decisions (Lochner, 2007; Buonanno and Montolio, 2008; Sabates et al., 2008; Omotor, 2009; Halicioglu, 2012).

*The analysis we take into account within this paper is oriented towards the explanation, in a synthesized manner, of the criminal attitude conditionality by the socioeconomic factors.*

The approaches’ complexity which the science of criminology provide in the literature, currently leads to the necessity of checking them in the specific conditions of development of our country, claiming at the same time a thorough examination of its correlation with other social phenomena. Specifically, this paper attempts to study the socio-demographic determinants of crimes in Romania using the most representative indicators of a strong condition of anomie for the Romanian society: unemployment, level of education and standard of living.

The next sections describe the data, methodology and empirical findings that are used to test the above hypothesis for the Romanian reality and the final section concludes the paper.

### **3 Methodology, Model and Findings**

In this paper, the comprehension of the objective characteristics of the multifactorial determinism regarding the criminal phenomenon involves a careful analysis of the context in which crime is manifested, the social route of the criminal, his intellectual performances as well as the discernment and the degree of social maturity in certain conditions of social cohabitation.

On this line, the empirical analysis of the criminal behavior on sub-types is investigated using data from one single country, for Romania socioeconomic

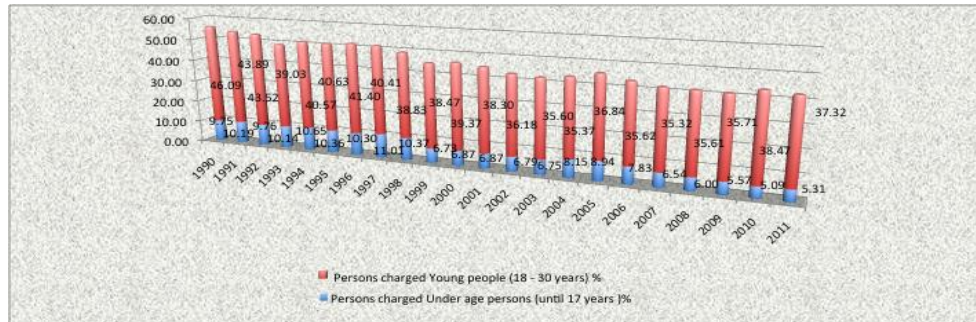
## The Criminal Behaviour in Romanian Socio-cultural Contemporary Context

reality, using a traditional determinant of crime such as unemployment and some conditions for choosing crime, such as density of population, poverty and level of education, as it follows:

$$\Delta L_{\text{perchar}}_t = \sum_{i=0}^4 \alpha_i \Delta \text{unemp}_{t-i} + \sum_{i=0}^4 \beta_i \Delta L_{\text{pop}}_{t-i} + \sum_{i=0}^4 \lambda_i \Delta \text{gini}_{t-i} + \sum_{i=0}^4 \delta_i \Delta \text{schenrol}_{t-i} + \mu_{it} \quad (1)$$

This model explains as the dependent variable in left-hand side, the logarithm of criminal behavior data represented by “perchar” as independent variables in right-hand side, the logarithm of the role of incentives on criminal behavior: unemployment, poverty, density of population and the most important determinant for this study, the level of education. The model presented in this paper is a macroeconomic individual crime decision model.

On the basis of the model developed, a number of two crime parameters are included to describe the criminal behavior: *i*) persons charged investigated by the police according to the category of persons such as the underage persons (up to 17 years old), young people (18-30 years old), persons with no occupation and unemployed persons, denoted by “percharun17”, “perchar18-30”, “percharnoocc” and “percharunemp” and *ii*) persons charged investigated by the police according to the residence areas, total level, urban, rural and foreigners denoted by “perchartot”, “percharurb”, “percharur” and “percharforg”. Even if European Union statistics defined six crime categories in order to reflect the diversity of policing and legal systems within the EU: homicide, violent crime, robbery, domestic burglary, motor vehicle theft and drug trafficking, in this paper we decided to consider the expression of the criminal behavior by means of categories of persons involved in criminal activities. We believe that in this way we can emphasize more clearly the criminal conducts separated from the juvenile delinquency, teenage years being a controversial subject because it is submitted to certain multifactorial determinations and conditioning. Even though, we meet a series of issues in the approach, issues generated by the possibilities offered by the statistical data used as descriptors of the criminal phenomenon, which don't involve the inclusion of the teenager from the point of view of psychology of ages as chronological stages or intervals of ontogenetic development. The consensus found in literature and practice, regarding the chronological stages of the child's development, emphasizes three important stages of the ontogenetic and psychic development, being separated on the age categories of 10-14 years old for the pre-teenage years / puberty, 14-18 years old for the stage of teenage years proper, and 18-25 years old respectively for the stage of extended / post-teenage years. In spite of all these deficiencies we might consider that the persons investigated by police according to categories of persons, as descriptor of the criminal phenomenon, such as under age persons (until 17 years) and young people (18-30 years), are relevant for the analysis of juvenile delinquency, as it is legally framed. The Romanian society which was characterized by a general state of anomie, after 1989 started to settle which led to the decrease of criminality among under age and young people:



*Source: National data on persons charged, collected by Romanian National Institute of Statistics*

**Figure 1. The trend of juvenile delinquency for Romania (%)**

Over the past decades, juvenile delinquency has become one of the major social issues that the Romanian society dealt with and still deals with, the data and interpretations showing that this phenomenon is not generated univocally by the origin of the child and teenage criminals from disorganized and monoparental families. The legal perspective cannot operate trenchant separations between the characteristic of the youth criminal conduct and the characteristics of the adult criminal conduct, especially because the juvenile deviance, from the pathological point of view, can be the product of the adult comprehension error regarding the teenager's moral world.

Even if at the level of the person the criminal behavior appears as a transducer of attitudes, having a determining role in the genesis of this phenomenon, the inequality and non-uniformity of the social origin environments exercise different pressures on individuals, what confers them certain particular limits regarding the resistance against restrictions either the moral ones or the legal ones.

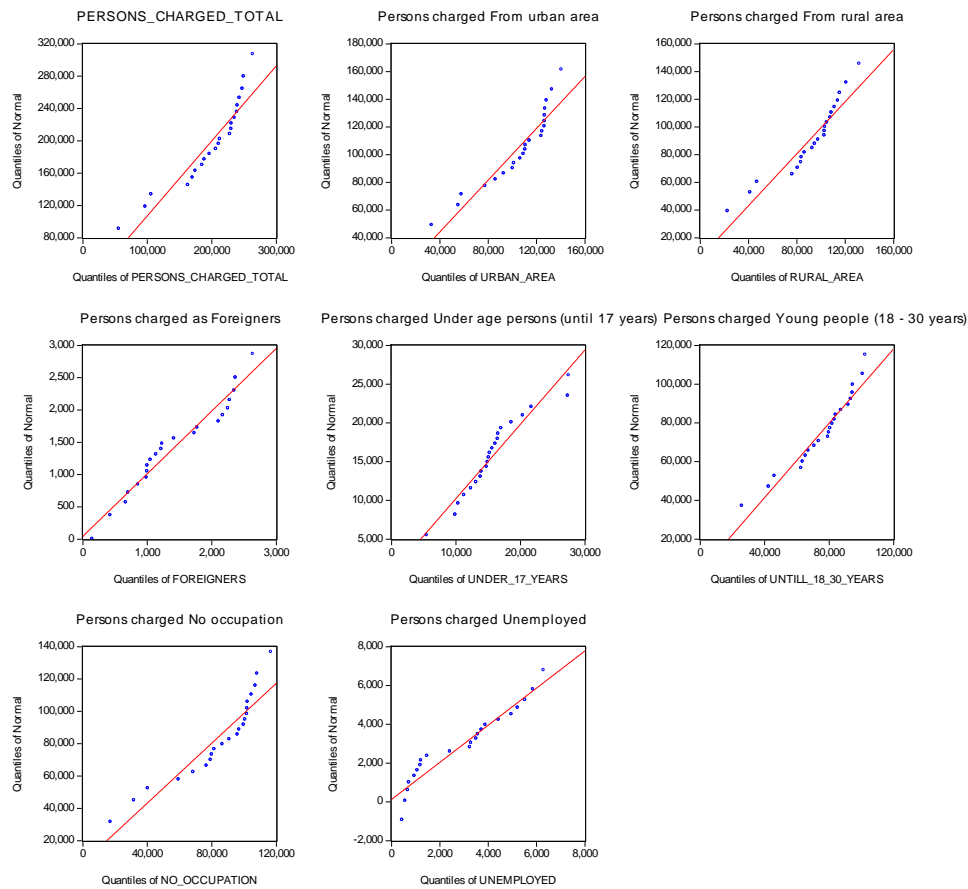
In this paper, we selected as determinants of criminal behavior:

- *unemployment* described by unemployment with primary, secondary or tertiary education (% of total unemployment) denoted by “unempriedu”, “unempsecedu” and “unemptert”.
- *density of population* described by total, urban and rural population denoted by “poptotal”, “popurban” and “poprural”.
- *level of poverty* described by GINI index as the indicator which measures the extent to which the distribution of income or consumption expenditure among individuals or households within an economy deviates from a perfectly equal distribution, denoted by “gini”.
- *level of education* described by two sets of variables *i*) School enrollment, primary, secondary or tertiary (% gross) denoted by “schenrolpri”, “schenrolsec” and “schenroltert” and *ii*) Pupils with primary and secondary education, denoted by “priedupupil” and “secedupupil”.

## The Criminal Behaviour in Romanian Socio-cultural Contemporary Context

The model presented in this paper is a macroeconomic individual crime decision model with a sample period for annual data 1990-2011, gathered from Romanian National Institute of Statistics for criminal behavior and population density and from The World Bank Data for unemployment, level of poverty and level of education.

An analysis of the trend in crime descriptors over the study period, though it reveals an overall increasing trend in police forces' performance, it also shows us that criminality goes in a constant tendency of manifestation:



**Source:** National data on persons charged, collected by Romanian National Institute of Statistics

**Figure 2. The trend in crime descriptors for Romania**

Different studies in the area of criminality emphasize for Romania that, the continuous increase of criminality, especially during 1990-2000 can be explained through factors such as the permissive legislation or the legislation which is insufficiently regulated and implemented, the economic and social changes, the

improper perception of democracy, unemployment, a lower standard of living, the emergence of certain new types of crimes such as corruption or drug consumption, inflation, the foreign citizens influence, the negative influence of press by the excessive popularization of the methods used by criminals, which seems to encourage the latent aggressive instincts.

As a first step of our analyses we checked for unit roots because we used: Dickey–Fuller (DF); Augmented Dickey–Fuller (ADF); and Phillips–Perron (PP) tests to assess the degree of integration of the two series (Dickey and Fuller, 1979 and Phillips and Perron, 1988). DF unit root test supposes that error terms are statistically independent and have constant variance. In order to resolve the autocorrelation problem in ADF test, the dependent variable lag must be parallel with the optimal lag length. DF (Dickey-Fuller) equation uses this as independent variable.

PP unit root test permits error term to be dependent at a weakly level and to be distributed heterogeneously (Enders, 2004: 229). Phillips and Peron use nonparametric statistical methods to take care of serial correlation in the error terms without adding lagged difference terms (Gujarati, 2004: 818). Table I and Table II show reports of unit root test results for questioned variables using ADF and PP tests.

**Table I: ADF Unit Root Test**

<b>H<sub>0</sub>: series have a unit root</b>				
<u>variables</u> <sup>1</sup>	<u>intercept</u>	<u>trend + intercept</u>	<u>none</u>	<u>Decision</u>
DDLpercharunemp	-4.71[0.00]***	-4.82 [0.00]***	-4.89[0.00]***	H <sub>0</sub> :Reject
DLperchar18-30	-4.04[0.00]***	-4.25 [0.01]**	-4.30[0.00]***	H <sub>0</sub> :Reject
DLperchartot	-4.33[0.00]***	-4.76 [0.00]***	-4.49[0.00]***	H <sub>0</sub> :Reject
DLpercharun17	-4.53[0.00]***	-4.95 [0.00]***	-4.73[0.00]***	H <sub>0</sub> :Reject
DLpercharurb	-4.46[0.00]***	-5.06 [0.00]***	-4.64[0.00]***	H <sub>0</sub> :Reject
Lpercharforg	-4.15[0.00]***	-7.30 [0.00]***	-4.02[0.00]***	H <sub>0</sub> :Reject
Lpercharnoocc	-8.29[0.00]***	-5.68 [0.00]***	-4.62[0.00]**	H <sub>0</sub> :Reject
Lpercharrur	-5.57[0.00]***	-4.20 [0.01]**	-3.56[0.00]***	H <sub>0</sub> :Reject
DLpoptotal	-4.86[0.00]***	-4.86 [0.00]***	-3.56[0.00]***	H <sub>0</sub> :Reject
DLpopurban	-4.16[0.00]***	-4.03 [0.02]**	-4.07[0.00]***	H <sub>0</sub> :Reject
DDLpoprural	-6.25[0.00]***	-6.23 [0.01]**	-6.30[0.00]***	H <sub>0</sub> :Reject
Dgini	-3.64[0.00]***	-3.30 [0.09]*	-3.12[0.00]***	H <sub>0</sub> :Reject
Dunemptert	-4.33[0.00]***	-4.18 [0.01]**	-4.15[0.00]***	H <sub>0</sub> :Reject
DDunempriedu	-8.77[0.00]***	-4.72 [0.00]***	-9.02[0.00]***	H <sub>0</sub> :Reject
DDunempsecedu	-5.75[0.00]***	-5.55 [0.00]***	-5.92[0.00]**	H <sub>0</sub> :Reject

<sup>1</sup> In this and following table for unit root,  $\Delta$  means first difference of the variables. All the variables are not in levels.



The Criminal Behaviour in Romanian Socio-cultural Contemporary Context

<b>H<sub>0</sub>: series have a unit root</b>				
<u>variables<sup>1</sup></u>	<u>intercept</u>	<u>trend + intercept</u>	<u>none</u>	<u>Decision</u>
DDschenrolpri	-4.72[0.00] <sup>***</sup>	-4.56 [0.00] <sup>***</sup>	-4.87[0.00] <sup>***</sup>	H <sub>0</sub> :Reject
DDschenroltert	-6.56[0.00] <sup>***</sup>	-6.61 [0.00] <sup>***</sup>	-6.74[0.00] <sup>***</sup>	H <sub>0</sub> :Reject
Dschenrolsec	-4.53[0.00] <sup>***</sup>	-4.61 [0.03] <sup>**</sup>	-4.45[0.00] <sup>***</sup>	H <sub>0</sub> :Reject
DLpriedupupil	-4.01[0.00] <sup>***</sup>	-4.55 [0.04] <sup>**</sup>	-2.40[0.01] <sup>**</sup>	H <sub>0</sub> :Reject
DDLsecedupupil	-4.17[0.00] <sup>***</sup>	-3.84 [0.02] <sup>**</sup>	-4.30[0.00] <sup>***</sup>	H <sub>0</sub> :Reject

**Note:** Numbers of lags used in ADF regressions was selected using Akaike Information Criteria (AIC). Probability values of t-statistics are in brackets. <sup>\*\*\*</sup>, <sup>\*\*</sup> and <sup>\*</sup> denote significant at %1, %5 and %10 respectively.

**Table II: PP Unit Root Tests**

<b>H<sub>0</sub>: series have a unit root</b>				
<u>variables<sup>2</sup></u>	<u>intercept</u>	<u>trend + intercept</u>	<u>none</u>	<u>Decision</u>
DDLpercharunemp	-9.90[0.00] <sup>***</sup>	-9.29 [0.00] <sup>***</sup>	-10.36[0.00] <sup>***</sup>	H <sub>0</sub> :Reject
DLperchar1830	-4.04[0.00] <sup>***</sup>	-4.23 [0.01] <sup>**</sup>	-4.30[0.00] <sup>***</sup>	H <sub>0</sub> :Reject
DLperchartot	-4.33[0.00] <sup>***</sup>	-4.72 [0.00] <sup>***</sup>	-4.49[0.00] <sup>***</sup>	H <sub>0</sub> :Reject
DLpercharun17	-4.59[0.00] <sup>***</sup>	-4.98 [0.00] <sup>***</sup>	-4.81[0.00] <sup>***</sup>	H <sub>0</sub> :Reject
DLpercharurb	-4.40[0.00] <sup>***</sup>	-4.91 [0.00] <sup>***</sup>	-4.58[0.00] <sup>***</sup>	H <sub>0</sub> :Reject
Lpercharforg	-3.49[0.00] <sup>***</sup>	-11.39 [0.00] <sup>***</sup>	-2.33[0.08] <sup>*</sup>	H <sub>0</sub> :Reject
Lpercharnoocc	-8.29[0.00] <sup>***</sup>	-5.68 [0.00] <sup>***</sup>	-1.51[0.11]	H <sub>0</sub> :Reject
Lpercharrur	-5.81[0.00] <sup>***</sup>	-4.39 [0.01] <sup>**</sup>	-1.21[0.13]	H <sub>0</sub> :Reject
DLpoptotal	-4.85[0.00] <sup>***</sup>	-4.85 [0.00] <sup>***</sup>	-3.54[0.00] <sup>***</sup>	H <sub>0</sub> :Reject
DLpopurban	-4.16[0.00] <sup>***</sup>	-4.03 [0.02] <sup>**</sup>	-4.07[0.00] <sup>***</sup>	H <sub>0</sub> :Reject
DDLpoprural	-6.15[0.00] <sup>***</sup>	-6.12 [0.01] <sup>**</sup>	-6.20[0.00] <sup>***</sup>	H <sub>0</sub> :Reject
Dgini	-3.63[0.00] <sup>***</sup>	-3.83 [0.03] <sup>**</sup>	-3.07[0.00] <sup>***</sup>	H <sub>0</sub> :Reject
Dunemptert	-5.60[0.00] <sup>***</sup>	-5.36 [0.00] <sup>***</sup>	-4.14[0.00] <sup>***</sup>	H <sub>0</sub> :Reject
DDunempriedu	-12.24[0.00] <sup>***</sup>	-12.72 [0.00] <sup>***</sup>	-12.72[0.00] <sup>***</sup>	H <sub>0</sub> :Reject
DDunempsecedu	-23.96[0.00] <sup>***</sup>	-23.40 [0.00] <sup>***</sup>	-20.07[0.00] <sup>***</sup>	H <sub>0</sub> :Reject
DDschenrolpri	-4.76[0.00] <sup>***</sup>	-4.59 [0.00] <sup>***</sup>	-4.92[0.00] <sup>***</sup>	H <sub>0</sub> :Reject
DDschenroltert	-6.73[0.00] <sup>***</sup>	-6.80 [0.00] <sup>***</sup>	-6.89[0.00] <sup>***</sup>	H <sub>0</sub> :Reject
Dschenrolsec	-4.63[0.00] <sup>***</sup>	-2.66 [0.09] <sup>*</sup>	-4.05[0.00] <sup>***</sup>	H <sub>0</sub> :Reject
DLpriedupupil	-2.56[0.09] <sup>*</sup>	-2.62 [0.09] <sup>*</sup>	-2.52[0.01] <sup>**</sup>	H <sub>0</sub> :Reject
DDLsecedupupil	-3.46[0.02] <sup>**</sup>	-3.41 [0.03] <sup>**</sup>	-3.57[0.00] <sup>***</sup>	H <sub>0</sub> :Reject

<sup>2</sup> In this and following table for unit root,  $\Delta$  means first difference of the variables. All the variables are not in levels.

**Note:** Numbers of lags used in ADF regressions was selected using Akaike Information Criteria (AIC). Probability values of t-statistics are in brackets.

\*\*\*, \*\* and \* denote significant at %1, %5 and %10 respectively.

Causality test is used to see whether there is a cause and effect relationship between variables in the model, and to specify the direction of this relationship if any. In practice, the common method to determine the causality relationship between time series is the Granger causality analysis which was developed by Granger (1969). The analysis has been shown through the equations below:

$$X_t = \sum_{i=1}^n \alpha_i Y_{t-i} + \sum_{j=1}^n \beta_j X_{t-j} + \mu_{1t} \tag{2}$$

$$Y_t = \sum_{i=1}^m \lambda_i Y_{t-i} + \sum_{j=1}^m \delta_j X_{t-j} + \mu_{2t} \tag{3}$$

where it is assumed that the disturbances  $\mu_{1t}$  and  $\mu_{2t}$  are uncorrelated. represents that variable X is decided by lagged variable Y and X, so does equation (2) except that its dependent variable is Y instead of X. Granger-Causality means the lagged Y influence X significantly in equation (2) and the lagged X influence Y significantly in equation (3). In other words, researchers can jointly test if the estimated lagged coefficient  $\sum \alpha_i$  and  $\sum \lambda_j$  are different from zero with F-statistic.

Before the Granger causality analysis, the optimum lag length must be determined. As it was mentioned before, information criteria are used in order to determine the optimum length. According to the LR, FPE, AIC and HQ criteria, the optimum lag length determines as 3. (See appendix I)

**Table III: Granger Causality Test Results**

Null Hypothesis	Obs	F-Stat.	Decision
H <sub>0</sub> : DDschenrolpri does not Granger Cause DDLpercharunemp	18	5.29125[0.02]**	H <sub>0</sub> : Reject
H <sub>0</sub> : DDLpercharunemp does not Granger Cause DDschenroltert	18	4.18861[0.03]**	H <sub>0</sub> : Reject
H <sub>0</sub> : DDschenrolpri does not Granger Cause DLperchartot	18	5.09750[0.01]**	H <sub>0</sub> : Reject
H <sub>0</sub> : Dschenrolsec does not Granger Cause DLperchartot	18	5.61061[0.01]**	H <sub>0</sub> : Reject
H <sub>0</sub> : Dschenrolsec does not Granger Cause DLpercharun17	18	7.02224[0.00]***	H <sub>0</sub> : Reject
H <sub>0</sub> : Dschenrolsec does not Granger Cause DLpercharurb	18	4.96268[0.02]**	H <sub>0</sub> : Reject
H <sub>0</sub> : Dgini does not Granger Cause Lpercharforg	19	4.52914[0.03]**	H <sub>0</sub> : Reject
H <sub>0</sub> : DDLsecedupupil does not Granger Cause	18	6.42442[0.01]**	H <sub>0</sub> : Reject

## The Criminal Behaviour in Romanian Socio-cultural Contemporary Context

Null Hypothesis	Obs	F-Stat.	Decision
Lpercharnoocce H <sub>0</sub> : Dschenrolsec does not Granger Cause	19	8.19875[0.00] <sup>***</sup>	H <sub>0</sub> : Reject
Lpercharnoocce H <sub>0</sub> : DLpoptotal does not Granger Cause	18	4.80979[0.02] <sup>**</sup>	H <sub>0</sub> : Reject
Lpercharrur			

**Note:** Probability values of *t*-statistics are in brackets.  
<sup>\*\*\*</sup> and <sup>\*\*</sup> denotes significant at 1% and 5% respectively.

### Appendix I: Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-10.98441	NA	6.85e-05	1.762871	1.958922	1.782359
1	10.13255	29.81217	4.03e-05	1.160877	2.141128	1.258316
2	27.68043	16.51565	5.05e-05	0.978773	2.743225	1.154163
3	87.39323	28.10014*	1.27e-06*	-4.163909*	-1.615256*	-3.910568*

\* indicates lag order selected by the criterion

The results of the Granger causality analysis are summarized in table-III. According to the results, there is a bidirectional causality running from *level of education* to criminal behavior, a unidirectional causality running from *poverty* to persons charged, being investigated by the police according to the residence areas as foreigners, and a unidirectional causality running from *density of population* described by total level to persons charged, being investigated by the police according to the rural residence areas. We didn't find any causality between other variables.

## 4 Conclusions

We surprisingly remark a unidirectional causality running from *density of population* described by total level to persons charged investigated by the police according to the rural residence areas. It would have been easier to explain the manifestation of the criminal symptom in the urban areas because, traditionally, the place of the economic and cultural development is inevitably the place where the social issues are as well expressed acutely. A potential explanation might be given by the fact that families in the rural areas in which the head of the family doesn't have a legal occupational status, although from statistical reasons they are classified as subsistence peasants, are most of all exposed to the risk of extreme poverty.

The bidirectional causality running from *level of education* to criminal behavior supposes not only the consideration of the effective introversion of the moral standards favored by the precarious educational climate but also the development and implementation of a coherent program of ethical education as a response to the orientation towards a preventive criminology. The negative valences of the criminal phenomenon suppose the family responsabilization in equal measure, the delinquency being also associated with predelinquent forms concerning the pupil precarious school years, school dropout, repeated absences from classes. Moreover, some factors acting on teenagers can be predictive for the criminal behavior at the adult age. In practice, it was reported an increasing number of cases of school dropout in order to devote themselves to work in the family house, especially in the rural area and the gypsy communities, many times in the circumstances in which parents break the laws on the child's work.

This is why the most important of all is the indisputable conditionality of *poverty* and criminality because these two phenomena are so concentrated geographically in the same areas that it appears that in fact, poverty itself is more tied with violence and criminal damage. Poverty becomes the explanatory factor for the precarious educational level too. Although in Romania, the basic primary and high school education is for free and it is compulsory up to the 10<sup>th</sup> grade, namely up to the age of 16 years, the families with low incomes cannot afford to pay the children studies concerning the costs for clothes, school supplies, alternative books or the transport costs.

Another characteristic of Romania is long-term *unemployment* which is developed in the rural environment by choice, having consequences both at the level of economy generating a migration of the workforce and interregional contrasts, and at the personal level wasting the human capital, losing motivation and the obsolescence of the abilities.

The inferiority complexes generated by the membership of a family with reduced material possibilities, overlapped by the education deficiencies lead to the idea that the main cause of crimes must be also correlated with aspects referring to social inequality, much more emphasized in an unfavorable economic conjuncture at the national level.

We are aware that, as any list of causal explanations of the social phenomena, the one approached in this paper is also quasi-complete, but the obtained results create for us new approaching perspective of the criminal phenomenon, in a country like Romania, which continues to surprise through the correlations between expectations and realities, supposing the appeal to certain notions and concepts belonging to the principles of connection and dynamic, psychological and statistical determinism.

***Financial support from the Romanian National Authority for Scientific Research, CNCS - UEFISCDI, Project PN-II-ID-PCE-2011-3-0893 is gratefully acknowledged.***

#### REFERENCES

- [1] **Becker, G. S. (1968), *Crime and Punishment: An Economic Approach*; *Journal of Political Economy*, 169-217;**
- [2] **Buonanno, P. and Montolio, D. (2008), *Identifying the Socio-economic Determinants of Crime across Spanish Provinces*; *International Review of Law and Economics*, 28(2), 89-97;**
- [3] **Cahil, M. E. (2004), *Geographies of Urban Crime: An Intraurban Study of Crime in Nashville, TN; Portland, OR; and Tucson, AZ*. A Dissertation Submitted to the Faculty of the Department of Geography and Regional Development for the Degree of Doctor of Philosophy, available on line at <https://www.ncjrs.gov/pdffiles1/nij/grants/209263.pdf>, 2004.**
- [4] **Ching-Chi, H. and Pugh, M. D. (1993), *Poverty, Income Inequality and Violent Crime: A Meta-Analysis of Recent Aggregate Data Studies*; *Criminal Justice Review*, Autumn 1993, 18, 182-202;**
- [5] **Cioclei, V. (1996), *Criminologie etiologică: Principalele teorii*. Actami Publishing, Bucuresti, 1996;**
- [6] **Dardac, N., Petrescu, V. (2007), *Quality Assurance in the Training of the Students in Economics - A Pragmatic Approach* ; Amfiteatru Economic, No 22, 24-28;**
- [7] **Dickey, D.A. and Fuller, W.A. (1979), *Distribution of the Estimators for Autoregressive Time Series with a Unit Root*. *Journal of the American Statistical Association*, 74, 427-431;**
- [8] **Dickey, D.A. and Fuller, W.A. (1981), *Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root*. *Econometrica*, 49 (4), 1057-1072;**
- [9] **Enders, W. (2004), *Applied Econometrics Time Series*; New York: John Willey and Sons Engle;**
- [10] **Granger, C.W.J. (1969), *Investigating Causal Relations by Econometric Models and Cross- spectral Methods* . *Econometrica*, 37, 424-438;**
- [11] **Gujarati, D.N. (2004), *Basic Econometrics*; The McGraw-Hill Company, Fourth Edition;**
- [12] **Halicioglu, F. (2012), *Temporal Causality and the Dynamics of Crime in Turkey*. MPRA Paper No. 41794, available on line at [http://mpra.ub.uni-muenchen.de/41794/1/MPRA\\_paper\\_41794.pdf](http://mpra.ub.uni-muenchen.de/41794/1/MPRA_paper_41794.pdf);**
- [13] **Katsina, A. M. (2012), *Trend Analysis of Poverty and Urban Crime in Nigeria Since 1999*. *International Journal of Arts and Commerce*, vol. 1, No.2, 2012;**
- [14] **Lochner, L. (2007), *Education and Crime*. Working Paper available on line at <http://economics.uwo.ca/faculty/lochner/papers/educationandcrime.pdf>;**
- [15] **Machin, St., Marie, O. and Vujic, S. (2010), *The Crime Reducing Effect of Education*; *CEP Discussion Paper*, No. 979, May 2010;**

- 
- [16] **Marinescu, C., Jora , O.D. (2013), *Assessment on the “Institutional Economics” of Corruption. Business and development in Romania, between formal and informal practices* . Amfiteatru Economic, Vol. XV • Special No. 7, 603-616;**
- [17] **Ogunleye-Adetona, C. I. (2010), *Human Resources and Economic Resources in Nigeria. Journal of Sustainable Development in Africa*, 12(3), 204-211;**
- [18] **Omotor, D. G. (2009), *Socio-Economic Determinants of Crime in Nigeria. Pakistan Journal of Social Sciences*, 6(2), 54-59;**
- [19] **Phillips, P.C.B., Peron, P. (1988), *Testing for a Unit Root in Time Series Regression. Biometrika*, 75(2), 336-346;**
- [20] **Sabates, R., Feinstein, L. and Shingal, A. (2008), *Educational Inequality and Juvenile Crime: An Area-based Analysis*. Published by: Centre for Research on the Wider Benefits of Learning Institute of Education, available on line at <http://www.learningbenefits.net/Publications/ResReps/ResRep26.pdf>;**
- [21] **Ucha, C. (2010), *Poverty in Nigeria: Some Dimensions and Contributing Factors. Global Majority E-Journal*, 1(1), 46-56;**
- [22] **Zhao, H., Feng, Z. and Castillo-Chavez, C. (2002), *The Dynamics of Poverty and Crime. MTBI-02-08M*, available on-line at <http://mtbi.asu.edu/downloads/Document8.pdf>.**