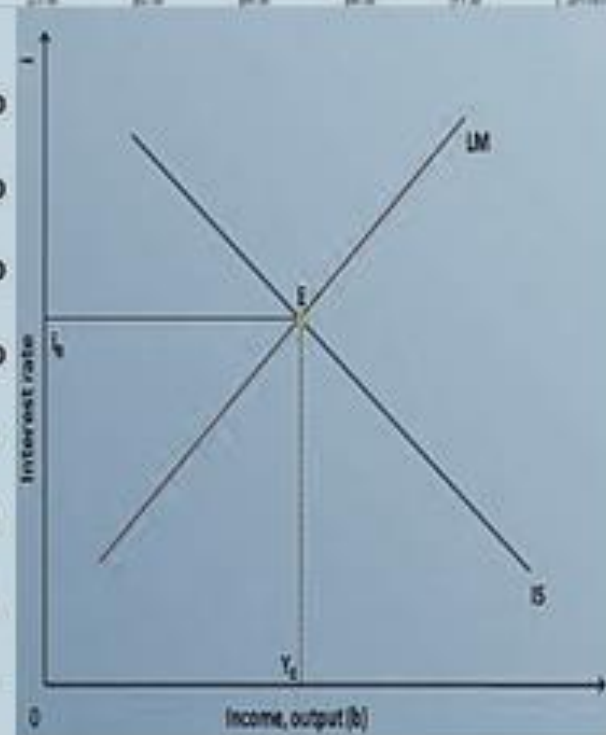


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## IDENTIFYING THE EXISTING CONNECTIONS BETWEEN TAX EVASION AND CORRUPTION AND DETERMINING A FUNCTIONAL LINK BETWEEN THE TWO PHENOMENA

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**Abstract:** *Informal economic exchanges are based on agreements that are inaccessible in the formal system, the object of which is to translate into restricted goods, access to decision-makers, influence on administrative decisions, or the enjoyment of preferential treatment in the bureaucratic system. Individuals have access to social connections within the institutional hierarchy through a system of „intercessions, acquaintances and relationships”. Favors start from getting a job, eventually in a government agency, priority in legal matters, preferential position in problem solving, and end to brokering in obtaining licenses, certificates, passports, driving licenses, identity cards, tax amnesty and so on. Corruption, a phenomenon specific to the underground economy, is a deliberate deviation from the legal standards materialized in the misuse of public resources by official persons for private purposes. It is a deviant phenomenon with important economic consequences whose motivation and mechanisms reside in the inner tensions of the individual who is unable to access legal ways of achieving personal goals. However, it should be pointed out that in most cases, tax evasion and corruption go hand in hand. Tax evasion does not exclude corruption, while reciprocal is also valid.*

**Keywords:** Corruption, tax evasion, theories and models of corruption.

**JEL Clasification:** E26

The relationship between the state and civil society clearly defines the nature of the underground economy, and this relationship is steadily flowing. The geometry of informal / underground economic activities is changing, being influenced by the character of the state authority, and by this we point to the existence of economic practices that violate or avoid the regulations established by the state, practices that vary according to the evolution of the state-society relationship.

The nature of the relationship between bureaucratic corruption and underground economic activities seems to be a taboo subject. It is difficult, if not impossible, to determine whether the underground economy and corruption are complementary phenomena or not, since we can not clearly establish whether firms become informal and act in the underground economy to avoid bureaucratic corruption or to bribe officials. However, the positive relationship between the two phenomena seems to have a common denominator: the weakness of the legal system.

The informal exchanges (bureaucracy, favors, clientelism, different forms of corruption, parallel production and marketing systems) demonstrate that economic legislation is not sufficient to understand the logic of the underground economy. It depends on policy makers if exchanges of this kind are

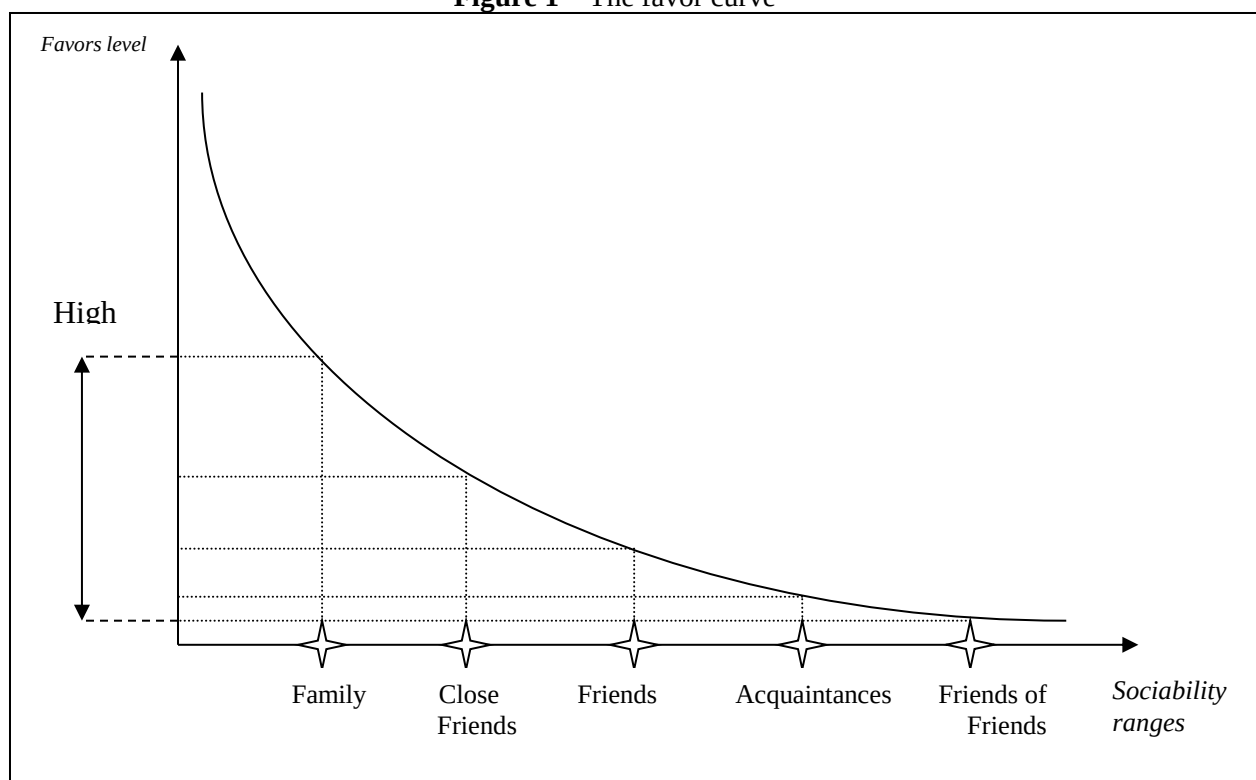
tolerated or severely punished. "Reciprocity" seems to create an informal social security system designed to ensure the survival of its members.

Activities such as those mentioned above are characteristic for members of groups in the elite of the formal system. They are neither random nor chaotic, but they are based on informal networks that operate on principles of friendship, loyalty and trust. Often, such networks operate under the protection and in parallel with a certain formal hierarchy. They represent intrinsic elements of bureaucratic structures, whose mechanisms are modeled in simultaneous and vicious cycles, in response to various inadvertences, forcing the gaps of the formal system.

The more the bureaucracy in the formal social system becomes more emphasized, it becomes incapable of satisfying social needs, and as a result, the tendency to create informal mechanisms that eschew the control of the formal system intensifies. In this context, informal economic exchanges develop, intensify and perpetuate by generating interest groups within the system. The underground activities of this nature are based on a symbolic-cultural logic, totally different from the economic concept of rationality or the formal ideology of the rule of law. The rules of "sociability" differ according to culture, the characteristics of the formal system, the purpose of the activity, the application of punitive measures, the social tolerance to the bureaucratic rules, etc.

Informal economic exchanges are based on inaccessible agreements in the formal system, the object of which is to translate into restricted goods, access to decision-makers, influence on administrative decisions or the enjoyment of preferential treatment in the bureaucratic system. Individuals have access to social connections within the institutional hierarchy through a system of „intercessions, acquaintances and relationships”. Favors start from getting a job, eventually in a government agency, priority in legal matters, preferential position in problem solving, going through brokering in obtaining licenses, certificates, passports, driving licenses, identity cards, tax amnesty and so on.

**Figure 1 – The favor curve**



Source: Adaptation from Adler Lomnitz Larissa – Social Networks and the Subteran Economy in Post-communist Societies - Subteran Exchange Networks in Formal Systems: A Theoretical Model, WP, 2004, pag. 13.

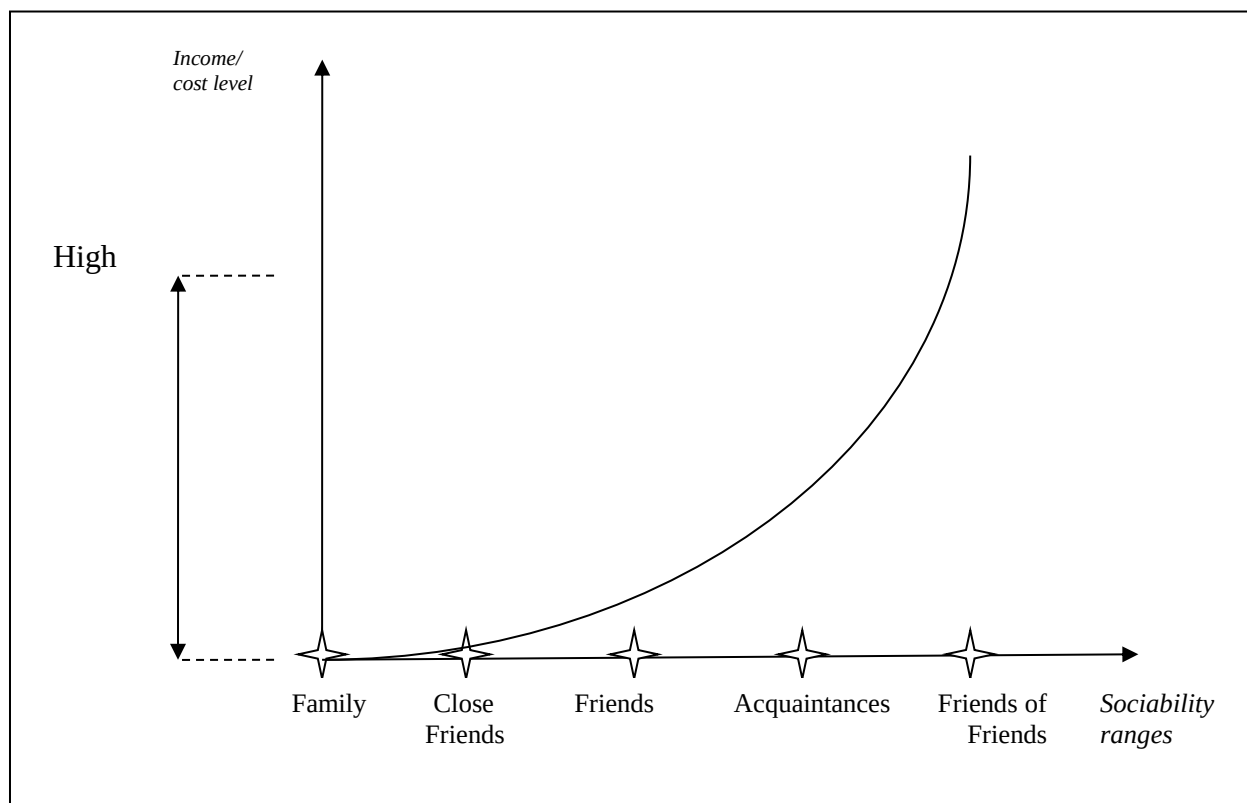
Such services, if made by individuals with the same social status, usually do not involve compensation, but rather a future consideration, being a duty of honor to be paid later. Payment of money as a reward of favor falls within the sphere of corruption, and accepting the bribe is in fact a recognition of social inferiority. Most bureaucratic favors are suspected of bribery.

Interpersonal relationships developed over the years allow individuals to be categorized according to their social distance: family, close friends, friends, friends of friends, etc. These categories are not static, an individual may move from one category to another, but the movement is conditioned by the intensity of reciprocal exchanges. Here, of course, there is confidence that facilitates the exchange between the person who asks for and the one who offers the favor and ensures the extension of these networks: starting from the family, where the level of trust normally reaches maximum odds, extends to close friends, then to acquaintances etc. (Figure 1).

If formal systems operate on fair-play principles, equality before the law, and economic rationality, informal systems, whatever their nature, are based on a complex of ideological components: gentleman's spirit, „noblesse oblige”, family, belonging to a group, etc.

It is interesting to analyze the level of income a corrupt person can get within a certain time frame (5-10 years). The level of this income is sensitively equal to the costs borne by those who corrupt, ie those who pay bribes. Figure 2 shows the CCCI curve, which highlights the evolution of corrupt income according to sociability ranges.

**Figure 2** –The Corruptors' Cost – Corrupted's income (CCCI curve – own vision) curve.



As a result, we can use the *Discounted Cash Flow (DCF) method*, a method taken from the revenue-generating property methodology, in the assessment of the cash-flow that occurs in the corrupt corrupt system. The method is of particular complexity, but the advantage of its application lies in supporting the two partners (corrupted and corruptor) in quantifying the parameters needed to ensure the success of the negotiations. In other words, the method allows an in-depth analysis of the economic efficiency of a transaction having as a parameter the corruption, depending on the option of the two partners on the bribery cashing scheme, which can take one of the following forms:

- a global amount covering several agreements;
- an initial amount followed by annual subscriptions,
- a minimum or maximum annual amount;
- an ascending or descending amount, depending on the evolution of their calculation base, etc.

Using the DCF method involves going through several steps:

- determining of the cash-flow over the forecast and the continuous (terminal) value, which is the present value of the cash-flow that is obtained after the explicit forecasting period;
- calculating the weighted average cost of capital (WACC) which is identified with the discount rate;
- calculating the present value of corrupt capital.

Cash-flow is the most important indicator because it effectively represents the income generated by the "investment" of the corrupt. It is a reproducible annual income that will remain at the same level or increase at a constant perpetual annual rate. The value of the corruptor's "invested" capital is calculated directly by updating the cash-flow with the discount rate. Updating will be done with the real cost of capital. The capitalization rate is a real rate because it does not include the inflationary component of the annual growth of annual income subject to capitalization.

Establishing the capitalization rate<sup>1</sup>, required in applying the annual and maintainable long-term cash flow capitalization method is an example of an assertion confirmation included in several valuation standards. From the perspective of the capitalization rate relationship with the discount process, capitalization can be defined as the discount of a future revenue stream of an annuities or an ascending annuities stream with a constant annual rate (g) that can not be higher than the expected rate the increase in income generated by corruption. In the infinite horizon, the two mentioned indicators can not increase by more than 2-4% because the inclusion in the Gordon-Shapiro formula of a higher rate than this would mean from a strictly mathematical point of view that the level of income generated by corruption would exceed even and the country's GDP. In this case, the Gordon - Shapiro discount rate capitalization formula can be applied, where the discount rate is lower with the perpetual annual rate than the discount rate. We consider that this formula is appropriate because we are considering mature corruption and the future evolution of the realized revenues will be part of the general trend of the phenomenon.

Continuous value (terminal or residual) is an expression of the net cash-flow obtainable during the non-explicit prediction period (which characterizes the entry of the corrupted - corruptible system in

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<sup>1</sup> Stan Sorin - Capitalization rate for unlisted companies, ANEVAR, Newsletter no. 1 - 2000, p. 10.

a state of stability) and can be calculated using the classic net cash-flow capitalization formula (the Gordon – Shapiro formula):

$$VR = \frac{CF_{p+1}}{k - g}$$

unde:

VR – terminal value;

$CF_{p+1}$  – the net cash flow from the first year following the explicit forecasting period;

k – discount rate

g - expected annual rate of increase in corrupt income (constant perpetual rate).

$CF_{p+1}$  is calculated on the basis of the forecast for this indicator in year p+1, and the net cash flow to be capitalized is the one for the year p + 1 and not the one for the final year of the forecasting term. The magnitude of the terminal value is significantly influenced by the level of g and the perpetual annual growth of the net cash-flow after the expiry of the explicit forecasting period (from year p to infinity).

In order to establish the level of g, the following factors must be taken into account:

- general economic conditions;
- the predicted increase of corruption in the sector where the corrupted assessed income is registered;
- the rise in the past of the corrupted cash-flow;
- The corrupted's / corruptible's predictions of future revenue growth.

Another method that provides the possibility to make the necessary estimates of the probabilities of achieving different incomes is the continuous probabilistic analysis. The average discounted net income (VNA) is obtained by determining the average or most probable value of the cash-flow. The standard deviation of the total bribe income in a given industry / industry is obtained by combining the expected standard deviations of individual cash-flows using the statistical sum.

$$\sigma_{VNA}^2 = \sum \frac{\sigma_i^2}{1 + r^{2i}},$$

where: r – capital cost discount factor.

The disadvantage of the method is represented by the fact that it introduces a subjective estimation element,  $\sigma_{VNA}$ .

Remaining in the sphere of corruption, we must mention some of the models of corruption dynamics, models developed by Richard Dudley<sup>2</sup> of Oregon University in the United States of America. These theoretical models attempt to highlight the causes of corruption by reporting the variables that occur in the evolution of the phenomenon at different reference levels.

1. *The bureaucratic model* targets four coordinates: corruption - bureaucracy - economic opening - the power of the judiciary system. Each of these coordinates is marked with a value between 0 and 10. Depending on the changes in the variables at a given moment, the corruption diagram also changes, ensuring a reasonable representation of reality. For average values (value 5 describes an average corrupted country) the model is in an unstable balance, which denotes the complexity of the phenomenon.

2. *the bribe probability model* reflects the magnitude of the already existing corruption. Similar to the previous model, four coordinates are considered: the size of the bribe - the strength of the legal / judicial system - the probability of giving a bribe - the probability of requesting / accepting a bribe. It is interesting to note that the likelihood of paying a bribe is conditioned by the likelihood of it being demanded, and the likelihood of it being offered. Decreasing the probability of punishment leads to increased corruption, as the increase in the severity of punishment generates the increase in the average size of the bribe because its acceptance becomes more risky. Moving any coordinate to a more corrupt situation places the system in a steady state.

3. *Business owner-employee relationship model* analyzes the influence of the corrupt employer on the employees. As a rule, if the employer is corrupt, then the employee, in the probable situation of losing his job, will develop cordial relations with the employer and will necessarily support corruption. In turn, the employer will encourage the corruption of his employees.

4. *The power and control model* is specific to individuals in hierarchically superior public positions. Such individuals have sufficient power and ability to control future or ongoing economic actions so they can resort to illicit methods to achieve their personal goals.

The models presented above presuppose the existence of static corruption and focus on internal effects and processes. An alternative explanation for changes in corruption attempts to provide an analytical model based on agent behavior<sup>3</sup>, developed by Ross Hammond (2000). The model puts citizens and bureaucrats together in a game with determined strategies: the Corrupt (C) strategy and the Non-Corrupt (NC) strategy that targets honest pay or non-payment of taxes. In the first case, both citizens and bureaucrats are involved in a secret arrangement whereby the citizen pays the bureaucrat a sum of money as a bribe, significantly lower than the taxes owed to the state, in order to "eliminate" these debts. The second case involves the honest payment of taxes by the citizen and their transfer to the system of the bureaucrat. Each player will choose the strategy and reward system in relation to the intensity of the threat of a penalty.

## Conclusions

Modern theories describe the underground economy as belonging to traditionalist economic systems (the source of minimal survival means), lacking the prospect of global development. In this context, we can conclude that both informal economic operations and participants in this kind of activity have aversion to change, the processes they involve are involutive or cramped undesirably in the past.

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<sup>2</sup> Quoted by Abraham Paul in Corruption. Causes - Mechanisms - Effects - Solutions, Detective Ed., Bucharest, 2005, pp. 183 - 198.

<sup>3</sup> Quoted by Abraham Paul in Op.cit., pp. 194-203.

Nevertheless, the phenomenon is one of the great challenges of contemporary times, as demonstrated not only by the wide spread of informal economic activities but also by their interconditioning with the formal economy. As a result, a series of models were developed to facilitate the assessment of the causes and effects of economic activity, and to estimate the size and dynamics of the underground economy.

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## ANALYSIS OF EFFECTS OF HUMAN CAPITAL INVESTMENT

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**Abstract:** *Human capital, technologies and information become pertinent elements of sustainable economic development processes. The way in which they integrate into functional processes through which a higher rate of development is attained is a specific and relatively new one for economic science. An analytical and lucrative approach to investment processes that creates presumptions of highly educated human capital, advanced technologies and varied consistent information implies decision and control-making behavior, based on new managerial principles.*

**Keywords:** human capital investment, cost/benefit analysis

### Investments in human capital. Cost/benefit analysis

More than two centuries ago, when Adam Smith talked about work, he laid the foundation for what was to become the theory of human capital.<sup>4</sup>

Two centuries after that, two schools of thought can be distinguished, with nuanced approaches to the term human capital<sup>5</sup>:

1. the first school regards the capacity to generate income and the human being as two totally distinct things;
2. the second one regards the individual as being capital himself.

What brings the two schools together within the modern economic theory is the view of human capital as a behavioral model based on maximizing personal interest in a competitive market, other forms of behavior being a priori excluded, each desiring to live better and better .

Any individual will choose to continue their studies, for example, only if that will bring him additional income in the future. Even if the choice will lead to increasing the general level of development, this can only constitute a basis of reasoning for the governmental decision-makers, not for individuals taken as separate entities.

Recent economic literature is quite rich when it comes to argue the importance of investment in education in the context of economic development.

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<sup>4</sup> The following excerpt is relevant: "It is to be expected that a trained workman will be lead to be paid salaries above the average level of the common labor force, and finally to replace all the expenses incurred for his training with the corresponding profits of a equally valuable capital. "

<sup>5</sup> Term introduced by Theodore W. Schultz, laureate of the prize awarded in memoriam of Alfred Nobel by the National Bank of Sweden in 1979 for pioneering research in the field of economic development with special application to developing countries' problems; and elaborated by Gary Becker, as a winner of Alfred Nobel's Memorandum Award by the National Bank of Sweden as well, in 1992, to extend the microeconomic analysis of human behavior including noneconomic behavior

Investment in education influences the process of economic development in a specific way, the way in which the educational factor integrates in the economic process is a holistic one, it can not be specified that a certain amount of education (seen as number of years of schooling or as money spent for the training of individuals involved in the active process) is necessary for carrying out an economic act, the same volume of education has different outcomes from one individual to another and from one economic process to another. Some of the benefits brought by this investment can be measured while others can't, but this doesn't mean that they are less important.

Even though the way in which education makes the economic process suffer a transformation in the sense of acceleration and structural adjustment has not yet been explained, deciphering economic growth mechanisms through and with education is a technical issue that can not prevent governments and individuals from opting for high education (at the structural level of the labor market or at the personal level). It is not by accident that the most developed countries have the broadest policies (in terms of volume and structure) in the field of education.

Education policy appears to be an integral part of the general development policy in these states not only because they allow it (as it sometimes appears misinterpreted) but because in those countries they realise that education is a way of ensuring future welfare.

Investing in education as a way of forming human capital - skills and abilities - is a vital element in ensuring economic development, raising living standards and improving social inequalities and inequities. It is an important element in combating unemployment and social exclusion.

The technological revolution that we are experiencing transforms the education system from labor force producer into a capital producer.<sup>6</sup>

School changes its place and role in the new society, it is generating economic performance.

Education produces two types of effects in the economy: *qualitative effects* and *quantitative/qualitative effects*.

*The qualitative effects* are closer to the social side, they come to ensure and increase the efficiency of economic processes. The individual himself becomes more competent, being able to manage the economic act and develop / implement complex, interdisciplinary decisions in a way that is greatly differentiated from the past by speed and accuracy in execution.

The existence of intelligent economic agents (a performant educational product) ensures the democracy of economic processes, the pursuit of activity on the basis of high quality competition. An appropriately educated manager will be able to see the best solutions and opportunities to achieve the best return on money spent.

*The quantitative/qualitative effects* refer to the number of qualitative transformations that occur (for example, the number of higher educated individuals).

Directing considerable financial resources towards the educational system has led to a quantitative and qualitative increase of the human factor. Qualified, able, high-quality individuals have emerged to exploit high technology and create hi-tech.

Taking into account the human factor as an active and determinant presence in the economic context has led both to reaching an economic leap and to the reduction of the necessary period to reach it.

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<sup>6</sup>See Peter F. Drucker „*Post Capitalist Society*”, Image Publishing House, Bucharest, 1999

The key question is how much money a society has to spend to get the best results. This question can not be answered without realizing the magnitude of returns of the money being spent. For this, a method of *cost/income* analysis is generally used.<sup>7</sup>

The *cost/income* analysis is hampered by the fact that an economic leap due to education is only recorded if we are dealing with a coherent and continuous allocation of funds for education over a long period, the whole educational process involving a long period of time for implementation at the individual level.

If we witness a syncope of allocating the necessary funds for a period equivalent to generational exchange, all the investments in the educational system are transformed into permanent losses, the educational product will no longer work at the desired parameters, the increases of the educational level are related to certain ages that the individual goes through. Once these ages are left behind, if the educational act did not achieve the quantitative/qualitative increases of knowledge, it could be recovered only to the detriment of other knowledge, which makes the individual ultimately a less educative product than if there was cursivity.

The way in which funding is carried out must be related to the level of development achieved by each economic system; where the level of income per family member allows the family to bear the schooling costs, then the family must bear them. If individuals, households can not afford to pay for education then the costs of higher education will have to be borne by the government through subsidies and transfers. Otherwise, the community is self-defeating to poverty.

*If the individual affords to pay for higher education, then he has to do so, if not, the society being directly interested in it must finance it so far as he is not able to do so.*

The effects that education brings to the economic system and which contribute to accelerating the pace of economic development are as follows:

#### *The private effects of education*

##### *Income*

Education, the learning process, have generally significant impact on workers achieving the amount of skills, abilities and knowledge (whether they are acquired in a school system or whether they are acquired after graduation as a result of specialization courses or experience on the labor market) which they use to complete the whole process of work.

The main outcome of education is the increase in labor productivity and an increase in wage income (we take into account that the salary level is related to the labor productivity dynamics).

##### *Effects on employment*

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<sup>7</sup> It is a cost/benefit analysis as it is found in Romanian literature, but I prefer this translation of the term "cost / benefit analyss" because the term "benefit" is more likely to mean "income" than "benefits"; moreover, the way the issue is interpreted in the literature makes me prefer this term

Mincer(1993)<sup>8</sup> has determined that educated workers have three great advantages over those less educated: a higher salary, greater job security, and greater mobility of income in the direction of growth.

The negative relationship between education and unemployment is the result of two factors: one is the faster increase in the number of available jobs requiring a highly trained workforce than the number of individuals able to occupy them (this imbalance has become a problem in developed economies, which attempt to import labor from less developed economies where high-quality work is not properly rewarded) and the second reason is that an educated individual becomes, through his work, an element of great value for any company, thus he becomes a true hunted on the labor market (it is a practice often condemned in developed economies because for some hierarchical positions salary levels grow artificially), thus eliminating the possibility of voluntary unemployment.

The decision to invest in education, Mincer (1974)<sup>9</sup>; Becker (1976), is grounded before individuals get salary increases. Salary is the link between the labor market and the education market, as well as the connection with the phenomenon of economic development. Due to the fact that individuals are able to earn more, they will increase their savings, and in the conditions of increasing their decision-making powers, their actions on the market will become coherent. But these conditions can be fulfilled if the individual is in a job or starting a business on his own. The risks of non-allocation of the labor market become the risks of investing in education, creating a new dimension for the opportunity cost of pursuing a higher education form, Freeman (1986)<sup>10</sup>.

The risk of being unemployed leads to an increase in schooling level as evidenced by a series of studies, Rees-Mocan (1997)<sup>11</sup>; Beths-McFarland (1995)<sup>12</sup>. More skilled individuals will be able to get a job with a higher salary faster. It is thus much closer to full employment, the economy will work much closer to potential GDP. Thus, it can be appreciated that in the long run the potential level of the economy is increased not only implicitly but also explicitly through investment in education.

By increasing education, Fernandez and Shioji (2001)<sup>13</sup>, three types of effects can be observed that will lead to an increase in long-term economic potential:

- Unemployed people with a precarious state of studies have the tendency to continue their studies because after graduation they have an increased chance of taking up a job.
- The social and psychological state of the unemployed (which can turn into a strong restriction on development) is improving significantly in the case of the unemployed in a form of education.
- Territorial areas where the education / culture level is higher is the "driving force" of economic growth for the national economic system due to higher employment, rising labor

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<sup>8</sup>Mincer Joseph "Education and Unemployment" in Studies in Human Capital; Edward Elgar Publishing, Cambridge UK 1993

<sup>9</sup>Mincer Joseph. "Schooling, Experience and Earnings" NBER, New York, 1974

<sup>10</sup> Freeman R.B. "Demand for Education" *Handbook of Labor Economics*. Vol. I, edited by O. Ashenfelter and R. Layard. Elsevier Science 1986

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<sup>12</sup> Betts, J.R. și McFarlad, L.L. "Safe Port in a storm. The impact of Labor Market Conditions on Communitie College Enrolments" *Journal of Human Resources* 30(4) 1995

<sup>13</sup> Rosa M Fernandez, Etsuro Shioji "Human Capital Investment in the presence of Unemployment: Application to University Enrolment In Spain" University of Oxford, Departament of Economics, Discussion Paper Series, 2001

productivity and a tendency to concentrate real capital (especially the capital involving high-tech) in these regions.

#### *Non-economic effects at private level*

Education often affects the quality of life in ways that are rarely perceived as such. Highly educated individuals can better adapt to varied living conditions, and, even more, they can adapt these conditions to meet individual preferences. Having a greater income they succeed in investing in themselves, accessing better quality health care, certain methods of psycho-physical maintenance, certain services (housekeeping and tourism) residing in better health, we can think we have to deal with the maintenance of human capital.

#### *The public effects of education*

##### *Economic development*

The contribution of education to economic development is mainly accomplished in two ways: the first, the most well-known and publicized is the creation of new knowledge, also known as *Schumpeterian* growth, it is attributed to the growth of human capital. More highly educated individuals means more scientific and technical information to the economic system, more inventions, a larger stock of knowledge, which leads to the emergence of more efficient technological processes of production, thus to economic growth in its quantitative side.

Through the second path, education affects the process of economic development by disseminating and transmitting information. The school system communicates to the individual the information through he/she is able to manage the new information, without which the new technologies would have a much smaller effect. For example, if individuals enter the labor market without information on computer use, the impact of information technology could be a negative one, and the individual would not be able to work with the equipment at his workplace or with the other individuals he should communicate with.

*Griliches and Jorgenson* (1967) believe that half the percentages of annual output growth can be attributed to educational increases in human capital, which means that 15%-20% of US economic growth at this time can be explained by the education situation.<sup>14</sup>

*Denison* (1985)<sup>15</sup> estimates that education per worker generates 16% of production. A study on Rand Corporation reflects that 21% of the increase in production between 1940 and 1980 was the result of the increase in workers' skills<sup>16</sup>. Accepting that 16 percent of US economic growth is due to education, we can say that GNP instead of increasing from \$ 2,210.2 billion in 1959 to \$ 7,269.8 billion in 1997 would be raised to just \$ 6.009 billion, which means a \$ 1,260 billion difference.

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<sup>14</sup>Dale W. Jorgenson, Zvi Griliches. "The Explanation of Productivity Change," *Review of Economic Studies* 34, no. 3 (July 1967): 249-283; Zvi Griliches, "Notes on the Role of Education in Production Functions and Growth Accounting," *Cap. Education, Income, and Human Capital*, 71-127, New York, NY: Columbia University Press, 1970

<sup>15</sup>Edward F. Denison, *Trends in American Economic Growth, 1929-1982* Washington, DC: Brookings Institution, 1985

<sup>16</sup>E.M. King, J.P. Smith. *Computing Economic Loss in Case of Wrongful Death* Santa Monica, CA: The Rand Corporation, 1988

Education generates an abrasion of the discrepancies between the extreme levels of income generated by the manifestation of competitive market laws (as *Bian (1994)*<sup>17</sup> shows for a study on China's economy, or *Riskin (1998)*<sup>18</sup>.

This translates into a higher increase in low incomes compared to the growth of higher incomes. Increasing the level of education leads to an increase of the productivity of the work much more for the activities with limited decision-making powers (the direct work processes) than for the ones that imply the elaboration and implementation of strategic decisions (the sphere of top management), because the work is already highly skilled. This should not lead to a downward trend in education as although the productivity gains are lower, the overall effects on total output are much larger and more extensive.

By achieving uniformity and revealing competences at decision-making levels in the labor market, education, *Yueh (2001)*<sup>19</sup>, contributes to the elimination of non-moral discrimination that may occur at the time of employment. Therefore, decision-making resources will be better allocated to markets, eliminating market dysfunctions that may arise as a result of doubtful decisions. Assigning the decision to individuals whose only quality is to hold a characteristic of a traditionalist character (eg the man is the one who has to decide within the family) leads to the emergence of "terror" (JS Mill - "*Freedom Essay*") that alters the functioning of the market. Making economic flows more consistent leads to the determination of potentially higher GDP.

#### *Extra-economic public effects*

Education involves a series of changes in the behavior of the individual as a social animal, the way he behaves within the collectivity and about it is an immediate result of his degree of culture.

*Friedman (1995)*<sup>20</sup> describes a series of these effects: "A stable and democratic society is impossible without a minimum level of training and knowledge of the majority of citizens and without their broad acceptance of a common set of values ... the benefits a child from education come not only to the child or his/her parents but also to other members of society. My child's education contributes to your well-being by promoting a stable and democratic society."

Thus, education produces a number of effects that we see in Saxon literature as "neighborhood effects", which means a peaceful life in the community, without social or individual conflicts (reduction of crime).

#### **Conclusion**

There is an intense polemic about the way in which funding for the higher education system is to be achieved, there are fierce followers of purely private funding, and public finance followers are fiery as well (the state, the society being undoubtedly interested in the educational level of the individual should support his/her schooling). Given that for the individual to exist and integrate into society; (and not to become a burden to it, he/she must be able to obtain his/her own means of satisfying needs, instead

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<sup>17</sup> Bian, Y. "*Work and Inequality in Urba China*" State University of New York 1994

<sup>18</sup> Riskin, C. "*China's Political Economy*" Oxford University Press 1987

<sup>19</sup> Yueh, Linda Y. "*An Investment model of Social Capital with Empirical Application to Women's Labor Market Outcomes in Urban China*" University of Oxford, Departament of Economics, Discussion Paper Series, nr. 83/2001

<sup>20</sup> Milton Friedman „*Capitalism și libertate*” Ed. Enciclopedică colecția BNR , București 1995, pag.104

of society to offer it); needs some degree of education. So, for a minimum of schooling, the costs must be borne by the community, there is no controversy.

My opinion is that as long as the individual is the main beneficiary of education (in the form of a higher culture and increased income) he should pay. When the individual decides to continue his studies he does something for himself, he does not think that by doing so he does good to society. Interested in increasing income in the future are he and his family, it is normal for them to pay for schooling.

But a highly educated individual produces a number of beneficial effects at society level. A highly skilled workforce leads to a higher pace of development, to a general rise in living standards. So society is also interested in educating the individuals who compose it.

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## WORKFLOW IN THE REPUBLIC OF MOLDOVA

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**Abstract:** *The economic development of a country is closely linked to the creation of well-paid jobs that support the population for a high standard of living.*

*In the Republic of Moldova the process of transition to the market economy has produced a longer period than in other countries. Due to the poor job offer, many citizens of the Republic of Moldova chose to go to work abroad or move to more developed regions. These events have resulted in the depopulation of the rural environment and the decrease in the workforce.*

*The main challenge for Moldovan authorities is to attract investors and support the business environment for SME development both in urban and rural areas.*

**Keyword:** unemployment, labor, salary, migration, economic development

**JEL classification:** F5, P2, J43, J11, J31

### Introduction

The transition of the Republic of Moldova to a market economy generated a state of insecurity and imbalance on the labor market, both by increasing unemployment and deteriorating the social protection system on the labor market, as well as by the inefficient use of the labor force accompanied by the decrease in labor productivity and substantial reduction of salaries.

In rural areas the employment situation is much more difficult than in the urban environment. More than 50% of the population of the Republic of Moldova is situated in the rural area and most of them carry out agricultural activities or work for the public sector (education, health, social assistance). The low supply of jobs in rural areas has led to a massive migration of the economically active population<sup>22</sup>.

### Methodology

In order to investigate the evolution of the labor force flow in the Republic of Moldova during the period 2000-2016, I chose as the research method the statistical analysis, which interpreted the influence of the application of the European Neighborhood / Eastern Partnership instruments (the Association Agreement and the Deep Free Trade Agreement and Comprehensive between the European Union and the Republic of Moldova) on the labor force flow.

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<sup>22</sup> Active population - From an economic point of view, all persons supplying available labor for the production of goods and services during the reference period, including employed and unemployed people

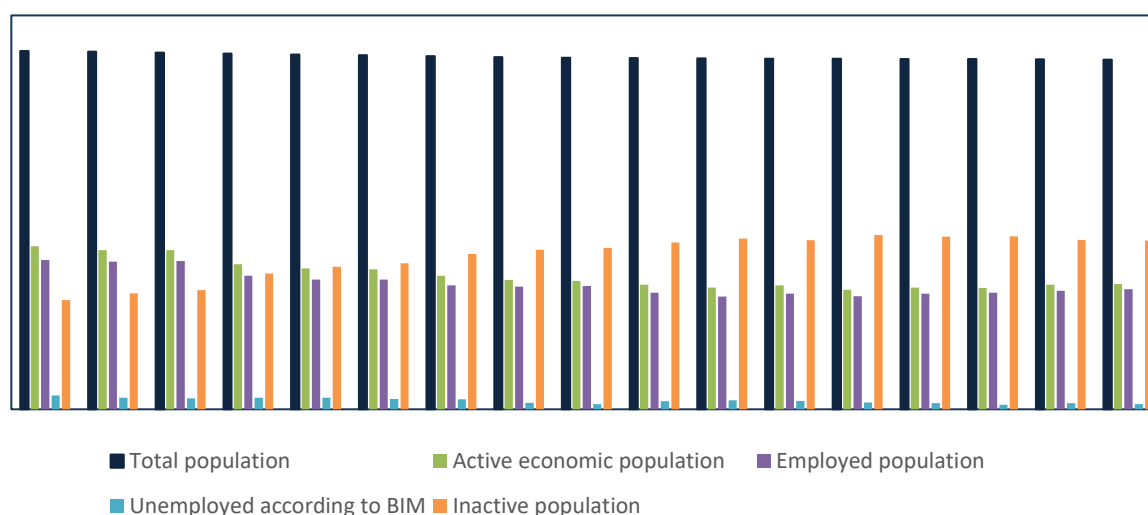
I have also used the analysis of documents (reports, studies, analyzes carried out by European and national institutions) to investigate the political and economic determinants that influence the flow of labor force in the Republic of Moldova.

### Workflow in the Republic Of Moldova

According to the Labor Force Survey conducted by the National Bureau of Statistics of the Republic of Moldova<sup>23</sup> in 2016 over 70% of the declared persons working abroad come from rural areas.

Between 2000 and 2016, according to the information published by the Labor Force Survey of the Republic of Moldova, the number of unemployed calculated according to the BIM<sup>24</sup> methodology and the unemployed registered at the labor offices has been steadily decreasing. Also, the number of the economically active population and of the employed population<sup>25</sup> was also reduced.

**Figure 1.** Evolution of the labor force in the Republic of Moldova in the period 2000 - 2016 expressed in thousands of persons



*Source:* Created by the author on the basis of the data provided by the National Bureau of Statistics of Moldova<sup>26</sup>

Statistical data provided by the National Bureau of Statistics of the Republic of Moldova shows that from 2000 to 2016 the number of unemployed calculated according to BIM methodology decreased from 140 thousand in 2000 to 53.3 thousand persons in 2016, decrease of 38%. At the same time, it decreased by 23% and the number of active population, from 1,654.7 thousand persons in 2000 to 1,272.8 thousand persons in 2016. The number of the employed population decreased by 19.5%, from

<sup>23</sup> National Statistics Bank of Moldova - [www.statistica.md](http://www.statistica.md) - page accessed on 25 April 2018

<sup>24</sup> Unemployed according to BIM recommendations - are people aged 15 and over who meet the following conditions at the same time: they do not have a job and do not work for income, are looking for a job and are available to start work the next 15 days, if they immediately find a job.

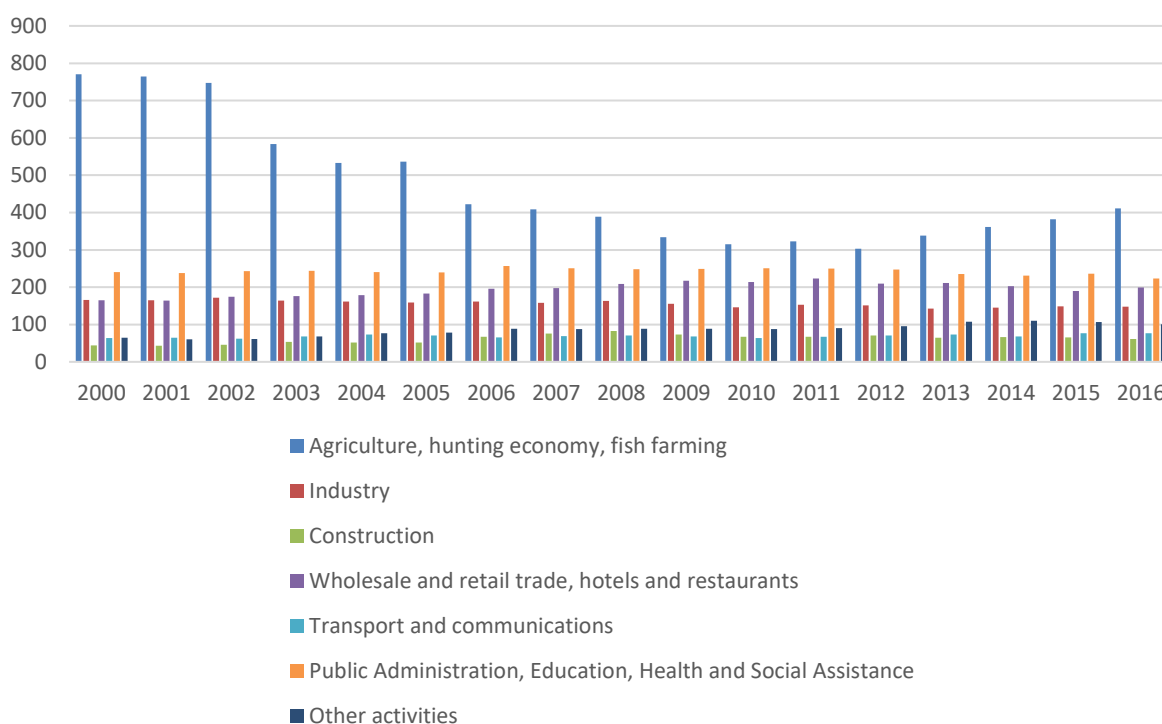
<sup>25</sup> Occupied population - includes all persons aged 15 and over who have been engaged in an economic or social activity producing goods or services for at least one hour during the reference period in order to obtain income in the form of wages, benefits.

<sup>26</sup> National Bureau of Statistics of the Republic of Moldova - [www.statistica.md](http://www.statistica.md) - page accessed on 23 April 2018

1,514.6 thousand in the year 2000 to 1219.5 thousand people in 2016. The share of the active population in the total population has also decreased from 45.3% in 2000 to 35.83% in 2016.

The decline of the economically active population was caused by the continuous increase of the inactive population. According to data published by the Labor Force Survey, between 2000 and 2016 the share of the inactive population increased by 54.38%, from 1,109 thousand persons in 2000 to 1,713 thousand persons in 2016, which leads to an increase in the economic dependency ratio and may cause difficulties for the social protection system of the Moldovan population. In 2016, the ratio of economic dependency, expressed as the number of unemployed, inactive or unemployed persons, to 1000 employed persons, was 1447,7850 / 00.

**Figure 2.** Evolution of the employed population of the Republic of Moldova by types of economic activities in the period 2000 – 2016



*Source:* Created by the author on the basis of the data provided by the National Bureau of Statistics of Moldova<sup>27</sup>.

People from the Republic of Moldova who are 15 years old and older, working or looking for a job abroad are also among the inactive people. Some of the income earned by them arrives in the Republic of Moldova for to support the family members. Between 2000 and 2016, the number of people looking for a job abroad grew from 138 thousand in 2000 to 319 thousand in 2016, representing 18.62% of the total inactive population aged 15 and over.

The economic and legal reforms applied by the Moldovan Government have had an impact on the structure of the employed population, both in urban and rural areas. The evolution of the employed

<sup>27</sup> National Bureau of Statistics of the Republic of Moldova [www.statistica.md](http://www.statistica.md) - page accessed on April 23, 2018

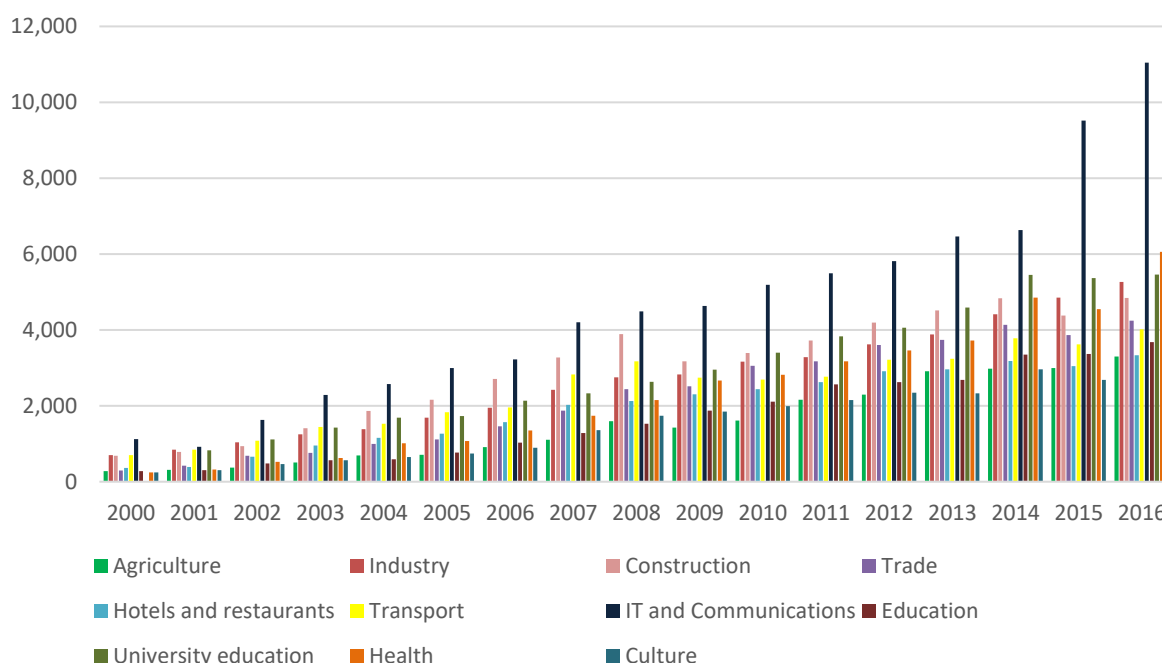
population by type of economic activity shows that all areas of activity in the Republic of Moldova were affected.

During the analyzed period, 2000 - 2016, the largest share of the employed population by field of activity was recorded in agriculture and forestry. It represented over 50% in 2000 and fell to 33% in 2016.

The Republic of Moldova ranks first in Europe as regards the population employed in agriculture, far exceeding the share of the employed population in agriculture in the European countries. For example, in Belgium, the employed population in agriculture accounts for only 2.5% of the total employed population, in Denmark - 4.4%, in France - 4.7%, in Germany - 3.2%, in the Netherlands - 3.6 %, in Portugal - 11.6%, in Greece - 20.4%<sup>28</sup>.

A large number of the employed population of the Republic of Moldova work in agriculture, which is why extensive structural re-adjustment measures of the Moldovan economy are needed to attract and re-employ the employed population from agriculture to the other economic sectors producing goods and services.

**Figure 3.** Average salary earning in the Republic of Moldova between 2000 and 2016



*Source:* Created by the author on the basis of the data provided by the National Bureau of Statistics of Moldova<sup>29</sup>.

One of the main factors determining occupational structure is the average monthly salaries, which directly influences the attractiveness of jobs. Analyzing the evolution of the average monthly salary according to the field of activity we observe that there is a close link between the increase of the employment level and the level of salary (Figure 3).

<sup>28</sup> Ion Dona "Rural Economy", Economica Publishing House, B., 2000.

<sup>29</sup> National Bureau of Statistics of the Republic of Moldova [www.statistica.md](http://www.statistica.md) - page accessed on April 23, 2018

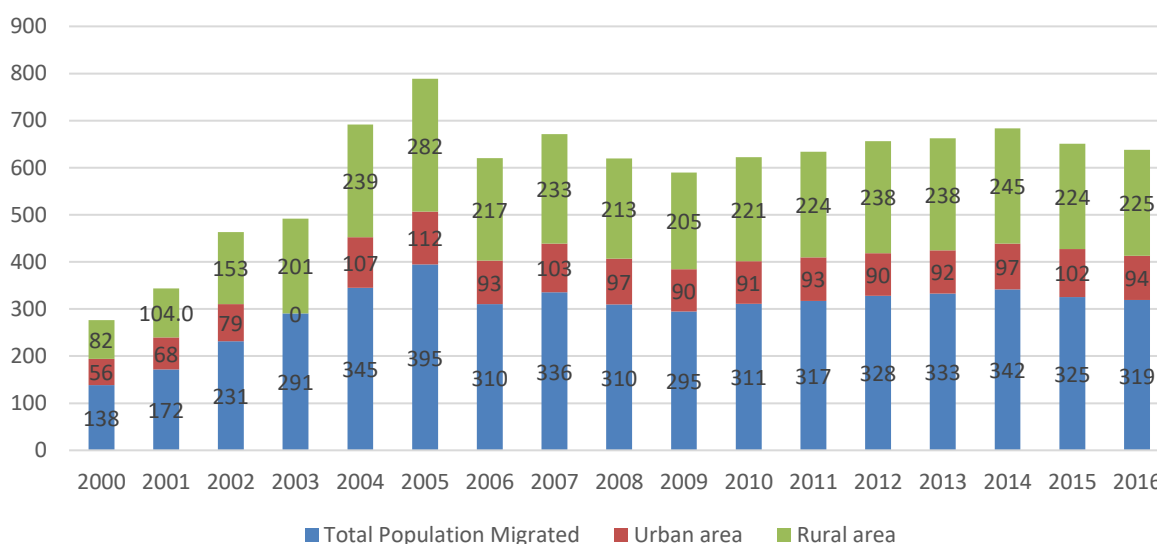
Between 2000 and 2016 the average monthly salary in the economy increased from 492 Moldovan lei to 4,669 Moldovan lei. The highest increase of the salary was registered in health from 246 Moldovan lei in 2000 to 6,056 Moldovan lei in 2016 and in trade up to 4,248 Moldovan lei.

The lowest monthly average salary is registered in agriculture, 3,300 lei in 2016, 30% lower than the average monthly salary in the Republic of Moldova. The low level of income has led to the lack of attractiveness of jobs in agriculture and the employed population in other areas of activity. The share of people employed in agriculture has fallen from 50.56% in 2000 to 33.68% in 2016.

A lower level than the average salaries was recorded in education, health and social care, trade, hotels and restaurants.

The highest level of salary is recorded in IT and Communications. The salary in this economic sector is 236% higher than the average salary in the economy. Over-average salary increases in this sector are due to the staff shortage caused by emigration of qualified specialists from the Republic of Moldova. The lack of specialized labor force has prompted employers to compete with each other in the struggle for candidates by providing better working conditions, investing in the professional development of employees by organizing trainings, employing young and inexperienced specialists and to offer a higher salary.

**Figure 4.** Migration of the population aged 15 and over from the Republic of Moldova between 2000 and 2016 - expressed in thousands of persons



Source: Created by the author on the basis of the data provided by the National Bureau of Statistics of Moldova<sup>30</sup>

The low level of salaries and the reduced opportunities on the labor market have led to lower living standards, which has led Moldovan citizens aged over 15 to emigrate abroad to earn a decent income that allows them a higher living standard, both for them and for to support of the remaining families in the Republic of Moldova.

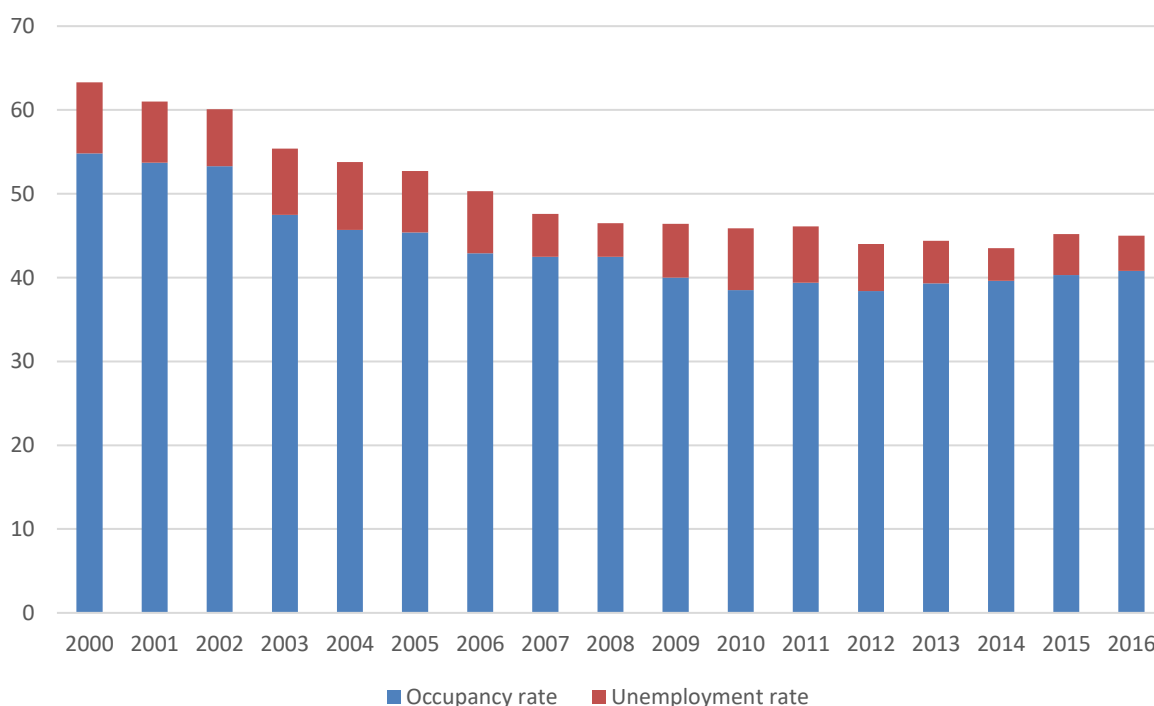
<sup>30</sup> National Bureau of Statistics of the Republic of Moldova [www.statistica.md](http://www.statistica.md) - page accessed on April 23, 2018

The number of citizens of the Republic of Moldova who left to work in other countries increased alarmingly during the analyzed period. In 2000 there were registered 138 thousand Moldovans working or looking for a job abroad, their number increased almost 3 times between 2000 and 2016.

In the year 2016 there were 319 thousand people working or looking for a job abroad. Unofficial sources claim that the number of Moldovans working abroad is over 1 million people, which represents almost half the population of the Republic of Moldova.

Most citizens of the Republic of Moldova who are working or looking for a job abroad come from rural areas. The high share of migration of people from rural areas abroad is due to the fact that over 50% of the population of the Republic of Moldova is in rural areas where jobs are low.

**Figure 5.** Employment and unemployment rate in the Republic of Moldova between 2000 and 2016



*Source:* Developed by the author on the basis of the data provided by the National Bureau of Statistics of Moldova<sup>31</sup>.

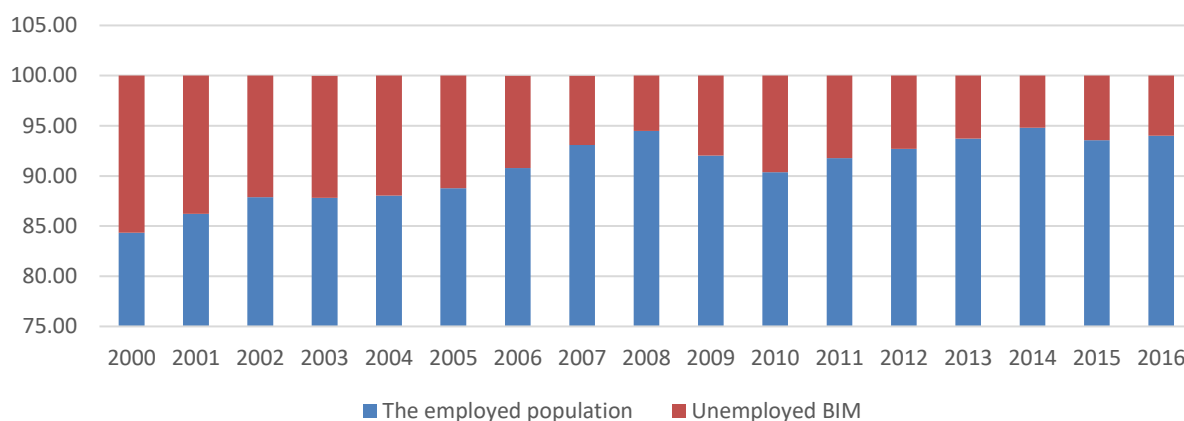
The evolution of rural employment also resulted in a depopulation of the villages. An important role in the depopulation of the villages in the Republic of Moldova was the migration of the labor force both abroad and in the urban environment. People who migrated from rural areas were generally young people who, after graduating from the general school, went to the urban environment to continue their education in the upper and lower secondary education, and after graduation they remained in the urban environment or migrated abroad for looking for a job.

The unemployment rate in the Republic of Moldova decreased between 2000 and 2016 from 8.5% in 2000 to 4.2% in 2016. After signing the Deep and Comprehensive Free Trade Agreement between the European Union and the Republic of Moldova in 2014, the unemployment rate fell sharply

<sup>31</sup> National Bureau of Statistics of the Republic of Moldova [www.statistica.md](http://www.statistica.md) - page accessed on April 23, 2018

to 4.9% in 2015 and 4.2% in 2016. This recovery is due to local business development by opening up access to the EU member states market and by intensifying exports as well as investments made by foreign investors in Moldova's economy.

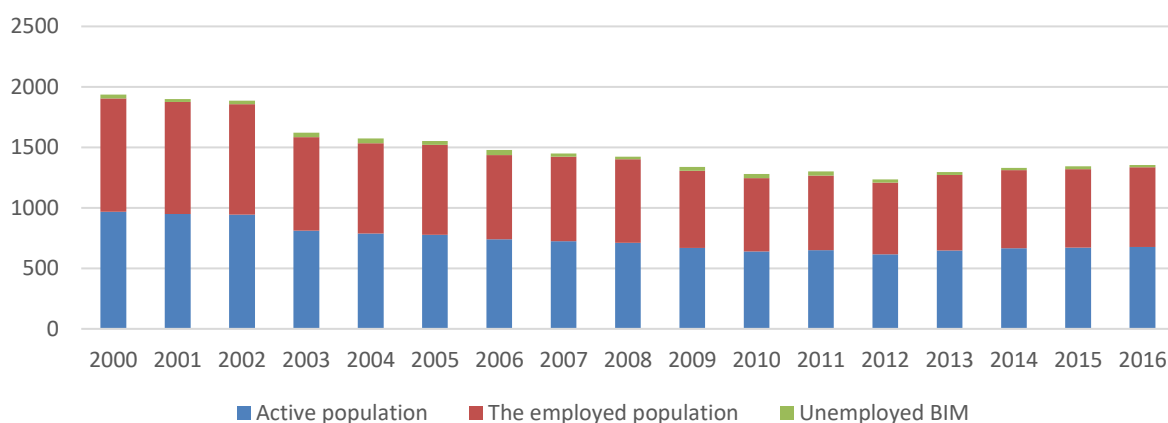
**Figure 6.** The employment rate of the population of the Republic of Moldova - the urban environment in the period 2000 – 2016



*Source:* Developed by the author on the basis of the data provided by the National Bureau of Statistics of Moldova<sup>32</sup>

Most of the jobs created after the signing of the Deep and Comprehensive Free Trade Agreement between the European Union and the Republic of Moldova were in the urban area, where the occupancy rate of the active population was 94% in year 2016 compared to 84% registered in 2000. The number of economically active persons reached in 2016 to almost 600 thousand people, which was registered only before the global economic crisis.

**Figure 7.** The employment rate of the population of the Republic of Moldova - the rural environment in the period 2000 – 2016



*Source:* Developed by the author on the basis of the data provided by the National Bureau of Statistics of Moldova

<sup>32</sup> National Bureau of Statistics of the Republic of Moldova [www.statistica.md](http://www.statistica.md) - page accessed on April 23, 2018

Between 2000 and 2016, the employment rate of the active population in rural areas registered significant changes. In 2000 the number of the economically active population was 969 thousand people, which are constantly decreasing. In 2016, the number of economically active people was only 677 thousand people, 30% less.

Also, the unemployment rate in the rural area is higher than the unemployment rate in the urban area. Employing rural people is difficult due to limited business activities in rural areas. In rural areas there are people who have never been officially employed after the restructuring of agriculture, following which colchos (socialist organizations) have been liquidated.

The employment rate of the rural population in the Republic of Moldova is characterized by a high concentration of informal activities. Agricultural reforms, the allocation of land-based agricultural workers and the lack of sustainable market economy mechanisms in agriculture have led to an increase in the self-sufficiency of the population and the spread of some elements of natural economics in rural areas.

The attraction of foreign investments in the rural area is a problem which consists in achieving the objectives of the rural environment regarding the modernization of the infrastructure and the diversification of the employment and in the willingness and the ability of the citizens of the Republic of Moldova to attract them.

The labor market instability in the Republic of Moldova, the discrepancies between the volume of demand and the supply of labor, the demand and labor supply characteristics according to the specialty and the fields of activity, as well as their distribution according to the geographical localities, have determined the inefficient use of the labor force. This is reflected both in the employment of the employed population in activities that do not correspond to their profession or specialization and in the increased territorial mobility of people, to find a job suitable for the profession and specialization or to obtain higher incomes.

For most employed people, salary are the main source of income. Although in rural areas people employed may have other sources of income, such as processing individual land lots, they do not provide income for a decent living standard. Considering that the majority of rural inhabitants work in agriculture and according to statistical data in agriculture there are the lowest salaries compared to those registered in other economic sectors, there is also a lack of motivation of the population to engage in this economic sector.

The most effective way of creating jobs in rural areas is the development of small and medium-sized businesses. A frequent problem faced by entrepreneurs wishing to develop rural businesses is vocational training because most well-trained people opt for a job in the urban area where they have more opportunities for career development or to start a business.

Given that more than 50% of the population of the Republic of Moldova is in rural areas where employment opportunities are very low, generally available jobs are in agriculture, a field where the salary level is well below the average salary in the economy, the possibilities social-economic development are low.

Developing entrepreneurship in rural areas by attracting foreign investors and investors is a good opportunity to create well-paid jobs and raise living standards. To this end, public authorities in the Republic of Moldova should focus on creating the institutional-legislative framework and ensuring sustainable mechanisms for attracting public and private, domestic and external investments in rural areas, necessary to create more attractive jobs, as well as to diversify the occupational structure in order to ensure a more efficient use of the human potential in rural areas, to diminish the role of non-productive agricultural activities in the overall economic activities in the rural area, and to reduce the migration of labor force.

Also, the development of a system for supporting agricultural producers in order to transform agriculture from a subsistence activity into a modern, competitive and profitable economic branch that

can cope with the demands of the market economy is an opportunity for improving the living standard of the Republic of Moldova's population and the growth of the economy.

### **Conclusions**

Still a large part of the population of the Republic of Moldova is working in agriculture, a poorly developed field of activity, where salaries are below the average wage.

Chisinau authorities should focus on changing legislation and attracting investors to all regions of the country so that residents of the Republic of Moldova can benefit from skilled and well paid jobs and want to work and live in the Republic of Moldova .

Another method by which the Moldovan authorities can inflate job creation is to support and develop Small and Medium Enterprises, to support local and foreign entrepreneurs for business development and job creation.

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## THE IMPACT OF COMPENSATION GROWTH ON INFLATION RATE AND UNEMPLOYMENT

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**Abstract:** *The study analyzes the manner in which the growth rate of employees' compensation impacts both inflation rate and unemployment rate. The objective of the study is to identify, analyze and evaluate the effects of the compensation's growth on inflation and unemployment for five countries: Bulgaria, Czech Republic, Hungary, Poland and Romania with quarterly data collected for the period between 2000 - 2018. The results of the study proved to be important as it indicates the variation in the effects of compensation of employees on each indicator due to the peculiarity of each country, as well as the manner in which every economy responds to a positive impact given by the growth of the general wage level.*

**Keywords:** compensation; inflation; unemployment; cointegration; causality

**JEL Classification:** E24, E31, M52

### 1. Introduction

The well-known relation between inflation and unemployment has been one of the most appealing subjects for economists in empirical literature. Thus, on short term, a low rate of unemployment can be obtained if a high rate of inflation is accepted by the economy. In this relationship, compensation of employees has an determinant role, as it significantly impacts both variables. This study aims to identify and assess the effects of compensation of employees on both factors. This approach will be achieved through an econometric model, which aims to assess the intensity and direction of influence of this indicator.

For this study, the following countries are considered: Bulgaria, Czech Republic, Hungary, Poland and Romania. State selection has as starting point the consideration of the economies outside the Euro zone, where factors such as employees motivation are considerably driven by compensation package in order to achieve and maintain sustainable levels of figures such as unemployment and inflation. Thus, the selection criteria provides a homogeneous study group, as well as comparable results. In order to conduct the analysis, we used different econometric tests and methods to quantify the impact of the compensation growth. The results of the study are important, as they allow the formulation of proposals for guidance of compensation establishment process at national level in the direction of stimulating all groups of employees.

### 2. Literature review

This research analyzes the trade off between inflation and unemployment, as well as the effects given by general level of employees' compensation on both specific indicators. As a low rate of unemployment might be a desirable policy objective for a sustainable economy, not so many economists would consider a high rate of employment as a place for work for anyone who is looking for a job.

In one of his studies, economist Phillips compared the growth rates of both wage and unemployment for United Kingdom, and he concluded that as labour market shrank, the general level of compensation would subsequently increase. Further, given the correlation between compensation and overall prices increase, the economist's results have been considered as the trade-off between unemployment and inflation rate, and then developed as „the Phillips curve”.

Madeira (2017) shows that the Phillips curve for United States data is more accurate if a behavioral model is used with both backward and forward looking forecast strategies and entrepreneurs using one of these two strategies based on their performance. In addition, Bhattacharai (2013) indicates in his research paper that even if inflation rate increases, its response at a decrease in unemployment might be lagged and rather slow, which makes disinflation an expensive objective for public authorities. In this regard, the study developed by Cover (2010), demonstrates how both inflation and unemployment are disadvantageous for individuals and in this respect, any instrument that can be used by policymakers in order to avoid an increase of these variables are highly recommended.

### 3. Data and methodology

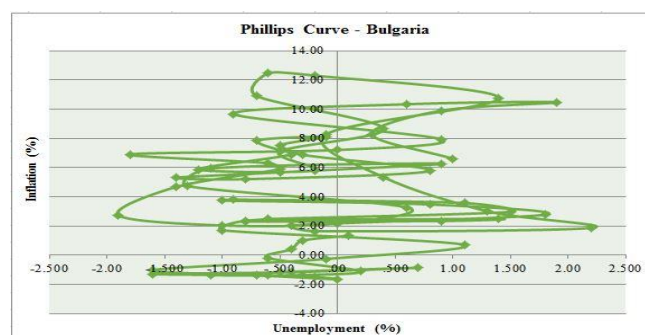
The study approaches a way of analyzing the causality between the growth rate of employees' compensation and inflation rate, as well as unemployment rate, through various models and tests using Eviews (e.g., VAR / VECM model, the impulse-response function).

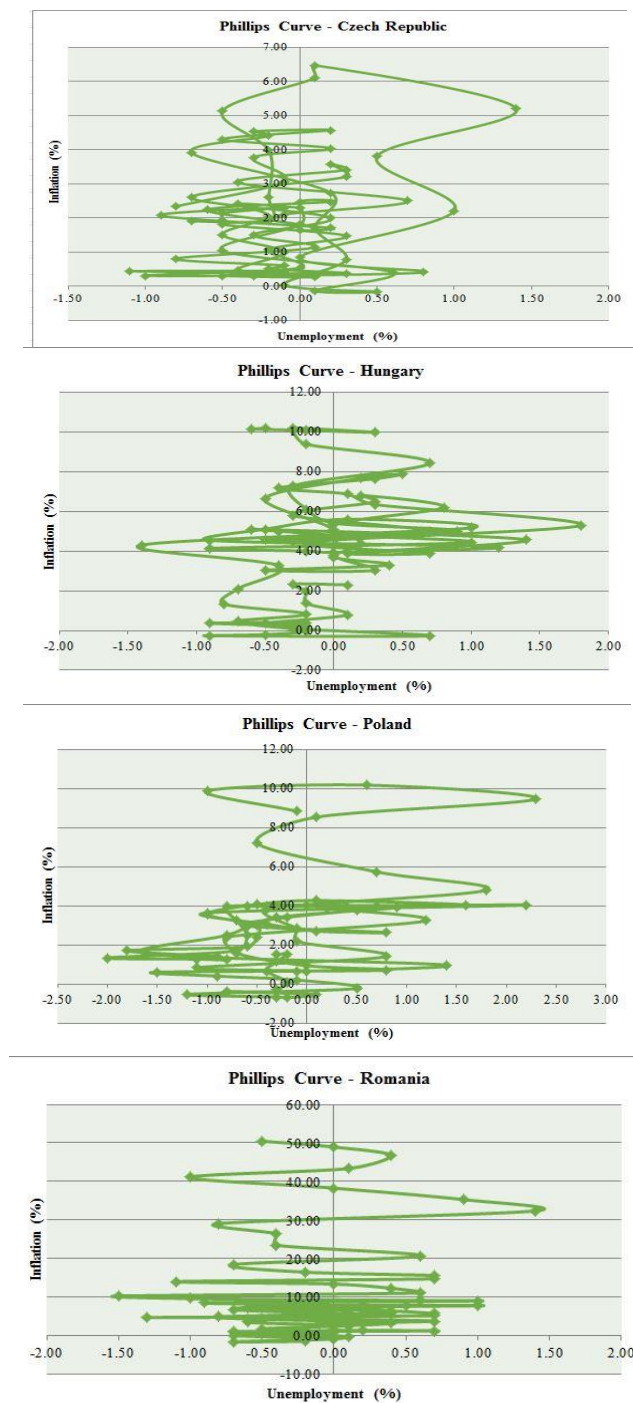
The three data series (employees' compensation, unemployment and inflation rate) were taken over for 18 years (2000-2018) from the official Eurostat database for each of the five economies: Bulgaria, Czech Republic, Hungary, Poland and Romania. In order to model the three variables and to get the relationship of influence between each factor and compensation' growth, we will use the Eviews 7 program. The use of cointegration as a case study methodology is motivated by the need to represent long-term causal relationships between unemployment / inflation rate and the growth of compensation.

### 4. Results

First, we analysed the Phillips curve developed for all five economies included in the study which represents the trade off between unemployment and inflation rate during 2000 – 2017. As Cashwell (2004) observed, the trade-off between inflation and unemployment from 1960 was available only in the short-run, its application being limited to our considered period.

**Figure 1** The Phillips Curve for Bulgaria, Czech Republic, Hungary, Poland and Romania during 2000 - 2018





Source: Authors' work

As Figure 1 shows, the trade-off did not persist and we could not find similarities between the two variables. The irregular patterns obtained for all countries in Figure 1 indicate the high number of adjustments, as well as the numerous and volatile policy objectives set by public authorities in the last decade.

In order to analyze the cointegration of data series, we need to study the stationarity of the variables as well as the integration order. Using the Augmented Dickey Fuller test we checked both conditions. Further, we will use the ADF test to determine the data series integration order used in the

model, and the results of running this test indicate that all three time series are 1<sup>st</sup> order integrated. The next step is to check the cointegration of each of pairs surveyed, namely: growth of employees compensation, inflation rate and unemployment rate.

Running the VAR model involves selecting the appropriate number of lags for each model, and this was done by considering the Likelihood Ratio, Final Prediction Error, Akaike information criterion, Schwarz information criterion and Hannan-Quinn information criterion.

The next step is to analyze the results of the Johansen Test to illustrate the long-term relationship between each pair of variables analyzed, and further we obtained for each model two cointegration relationships.

After lag selection, the patterns are run by using VAR for data series pairs where we have not observed cointegration relationships, respectively rewriting them as VECM for cointegration. We used VECM models for all influence relationships between unemployment and compensation, respectively between inflation and compensation. This fact indicates the economic dependency of the indicators, as well as the short-term dynamic, results sustained also by the Phillips curve which are represented by Figure 1.

**Table 1** VECM equations

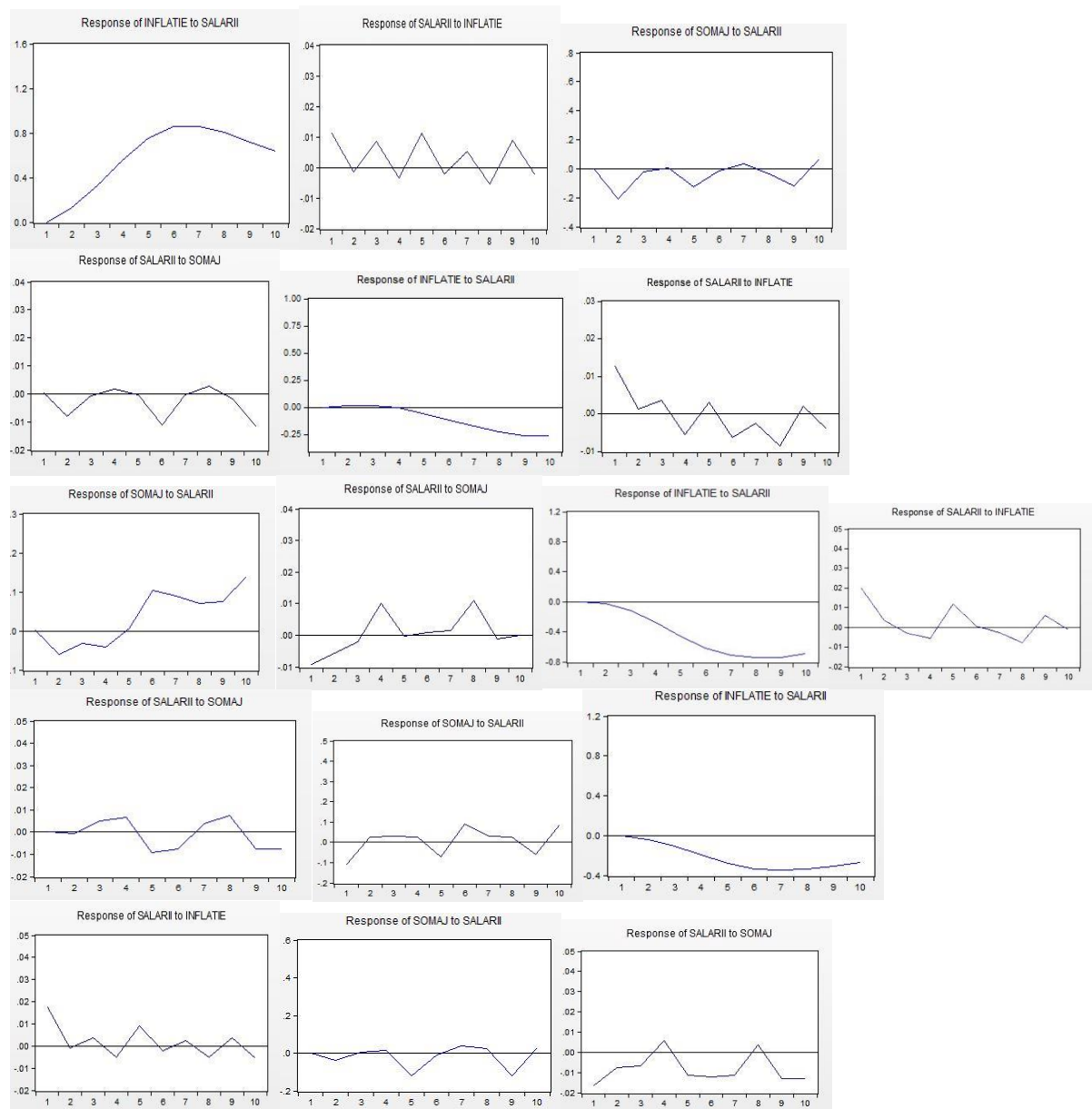
|           | <b>Inflation_Compensation</b>                                                                                                                                                                                                                                                                                                                                                    | <b>Unemployment_Compensation</b>                                                                                                                                                                                                                                                                                                                                       |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>BG</b> | $D(\text{Inflation}) = C(1)*(\text{Inflation}(-1) - 498.029624512*Compensation(-1) + 9.1688057163) + C(2)*D(\text{Inflation}(-1)) + C(3)*D(\text{Inflation}(-2)) + C(4)*D(\text{Inflation}(-3)) + C(5)*D(\text{Inflation}(-4)) + C(6)*D(\text{Compensation}(-1)) + C(7)*D(\text{Compensation}(-2)) + C(8)*D(\text{Compensation}(-3)) + C(9)*D(\text{Compensation}(-4)) + C(10)$  | $D(\text{Unemp}) = C(1)*(\text{Unemp}(-1) + 0.588048318627*Compensation(-1) + 0.190537398803) + C(2)*D(\text{Unemp}(-1)) + C(3)*D(\text{Unemp}(-2)) + C(4)*D(\text{Unemp}(-3)) + C(5)*D(\text{Unemp}(-4)) + C(6)*D(\text{Compensation}(-1)) + C(7)*D(\text{Compensation}(-2)) + C(8)*D(\text{Compensation}(-3)) + C(9)*D(\text{Compensation}(-4)) + C(10)$             |
| <b>CZ</b> | $D(\text{Inflation}) = C(1)*(\text{Inflation}(-1) + 312.618264811*Compensation(-1) - 8.5981038337) + C(2)*D(\text{Inflation}(-1)) + C(3)*D(\text{Inflation}(-2)) + C(4)*D(\text{Inflation}(-3)) + C(5)*D(\text{Inflation}(-4)) + C(6)*D(\text{Compensation}(-1)) + C(7)*D(\text{Compensation}(-2)) + C(8)*D(\text{Compensation}(-3)) + C(9)*D(\text{Compensation}(-4)) + C(10)$  | $D(\text{Unemp}) = C(1)*(\text{Unemp}(-1) - 11.1838883921*Compensation(-1) + 0.326557353137) + C(2)*D(\text{Unemp}(-1)) + C(3)*D(\text{Unemp}(-2)) + C(4)*D(\text{Unemp}(-3)) + C(5)*D(\text{Unemp}(-4)) + C(6)*D(\text{Compensation}(-1)) + C(7)*D(\text{Compensation}(-2)) + C(8)*D(\text{Compensation}(-3)) + C(9)*D(\text{Compensation}(-4)) + C(10)$              |
| <b>UG</b> | $D(\text{Inflation}) = C(1)*(\text{Inflation}(-1) + 910.427947239*Compensation(-1) - 19.8820000654) + C(2)*D(\text{Inflation}(-1)) + C(3)*D(\text{Inflation}(-2)) + C(4)*D(\text{Inflation}(-3)) + C(5)*D(\text{Inflation}(-4)) + C(6)*D(\text{Compensation}(-1)) + C(7)*D(\text{Compensation}(-2)) + C(8)*D(\text{Compensation}(-3)) + C(9)*D(\text{Compensation}(-4)) + C(10)$ | $D(\text{Unemp}) = C(11)*(\text{Compensation}(-1) + 0.00901681450822*Unemp(-1) - 0.0168681351736) + C(12)*D(\text{Compensation}(-1)) + C(13)*D(\text{Compensation}(-2)) + C(14)*D(\text{Compensation}(-3)) + C(15)*D(\text{Compensation}(-4)) + C(16)*D(\text{Unemp}(-1)) + C(17)*D(\text{Unemp}(-2)) + C(18)*D(\text{Unemp}(-3)) + C(19)*D(\text{Unemp}(-4)) + C(20)$ |
| <b>PL</b> | $D(\text{Inflation}) = C(1)*(\text{Inflation}(-1) + 475.672120985*Compensation(-1) - 9.10205318123) + C(2)*D(\text{Inflation}(-1)) + C(3)*D(\text{Inflation}(-2)) + C(4)*D(\text{Inflation}(-3)) + C(5)*D(\text{Inflation}(-4)) + C(6)*D(\text{Compensation}(-1)) + C(7)*D(\text{Compensation}(-2)) + C(8)*D(\text{Compensation}(-3)) + C(9)*D(\text{Compensation}(-4)) + C(10)$ | $D(\text{Unemp}) = C(1)*(\text{Unemp}(-1) + 31.3818694881*Compensation(-1) - 0.240751737201) + C(2)*D(\text{Unemp}(-1)) + C(3)*D(\text{Unemp}(-2)) + C(4)*D(\text{Unemp}(-3)) + C(5)*D(\text{Unemp}(-4)) + C(6)*D(\text{Compensation}(-1)) + C(7)*D(\text{Compensation}(-2)) + C(8)*D(\text{Compensation}(-3)) + C(9)*D(\text{Compensation}(-4)) + C(10)$              |
| <b>RO</b> | $D(\text{Inflation}) = C(1)*(\text{Inflation}(-1) - 39.4518061327*Compensation(-1) - 7.57511836869) + C(2)*D(\text{Inflation}(-1)) + C(3)*D(\text{Inflation}(-2)) + C(4)*D(\text{Inflation}(-3)) + C(5)*D(\text{Inflation}(-4)) + C(6)*D(\text{Compensation}(-1)) + C(7)*D(\text{Compensation}(-2)) + C(8)*D(\text{Compensation}(-3)) + C(9)*D(\text{Compensation}(-4)) + C(10)$ | $D(\text{Unemp}) = C(11)*(\text{Compensation}(-1) + 0.207543947124*Unemp(-1) - 0.0188272491476) + C(12)*D(\text{Compensation}(-1)) + C(13)*D(\text{Compensation}(-2)) + C(14)*D(\text{Compensation}(-3)) + C(15)*D(\text{Compensation}(-4)) + C(16)*D(\text{Unemp}(-1)) + C(17)*D(\text{Unemp}(-2)) + C(18)*D(\text{Unemp}(-3)) + C(19)*D(\text{Unemp}(-4)) + C(20)$   |

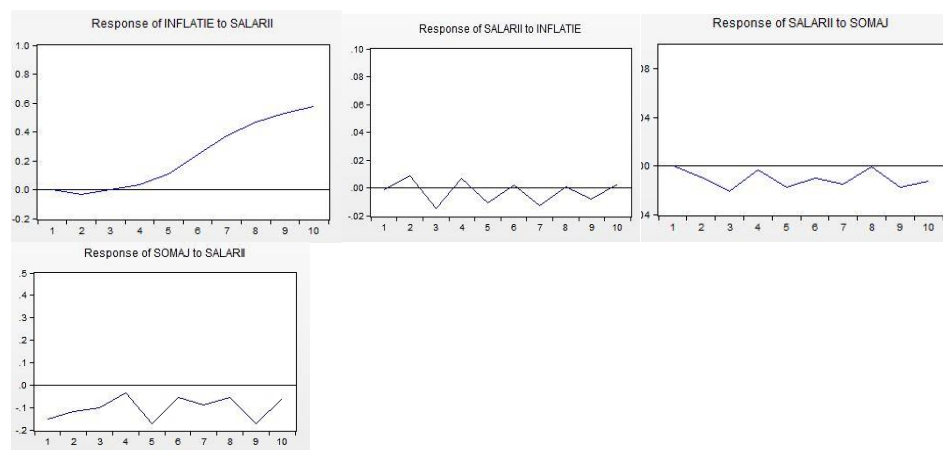
Source: Authors' work

The coefficients  $C(1)$  obtained through VECM models support the existence of a long term causality relation for inflation / unemployment and compensation in case of Bulgaria, Hungary and Romania. We further notice the unfavorable results for Poland given by the lack of negative and statistically significant coefficients.

The coefficients obtained for the models developed for Hungary determine that we can state the presence of causality from compensation to both inflation and unemployment on a long period of time. With respect to Bulgaria models, we have obtained the causality of compensation – inflation rate on long-term.

**Figure 2** Impulse – response function for Bulgaria, Czech Republic, Hungary, Poland and Romania





Source: Authors' work

The impulse - response representations show the specificity and the variety of each indicator (unemployment / inflation rate) response at an positive impact given by employees' compensation growth. Thus, the unemployment rate has recorded fluctuations, mainly around the zero value, with an ascending trend in Czech Republic. The analysis of Granger test indicates the highest causality between unemployment and the growth of compensation for the Czech economy.

**Table 2** Selection of statistically significant results of the Granger test

|           | <b>Null hypothesis</b>                    | <b>Prob</b> |
|-----------|-------------------------------------------|-------------|
| <b>BG</b> | Unemp does not Granger Cause Compensation | 0.0953      |
| <b>CZ</b> | Compensation does not Granger Cause Unemp | 0.0053      |
|           | Unemp does not Granger Cause Compensation | 0.0152      |
| <b>PL</b> | Unemp does not Granger Cause Compensation | 0.0596      |

Source: Authors' work

In addition, from Table 2 we note the lack of favorable outcomes for the Romania and Hungary, for which we have not identified causal relationships.

## 5. Conclusions

The analysis of the entire set of results for all five states included in the study indicates the causal relationship between compensation of employees and inflation / unemployment. Thus, the results are varied: in Bulgaria and Poland unemployment causes the rise of compensation, we have not achieved a relationship of cointegration for none Hungary, nor Romania, and in case of Czech economy we have achieved bidirectional causality.

The causal relationship from unemployment to compensation increase is also confirmed by the results of the study by Stock (2001). Thus, the economist underlined that a high flexibility of labour market is recommended in order to exclude distortions caused by institutional supply side for a long term growth in these economies.

An overall analysis of the obtained results indicates that Bulgaria recorded highest causality and cointegration relationship between unemployment / inflation rate and compensation of employees. We also note the increased number of causality relations from unemployment to wages rise, explained by Johansen test, VECM coefficients, Wald test, as well as Granger.

In the case of Romania, although the causal relationship between compensation growth and inflation / unemployment is supported by the results of the Johansen test which demonstrated long-term causality and the Wald test confirming short-term causality, the results of impulse-response functions

indicate low responses in growth of labour market' activity and inflation from the positive impact of wages' dynamics.

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## COINTEGRATING ANALYSIS OF THE LEADING WESTERN ART MARKETS

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**Abstract:** *In the paper, we test the cointegrating relationship between the Art Market Price Index for the United States, France and the United Kingdom, the main Western art markets. Usually, the price indices are calculated in US dollars for USA, in Euros for France and in pounds sterling for the United Kingdom (such as Artprice data). We found that, for the period 1998:Q1 – 2018:Q2, if the art market price indices are calculated in one and the same currency, then there is a long-run relationship between the Western art markets and there are no cointegration relationships if the price indices are in different currencies (USD, EUR, GBP).*

**Keywords:** *Art Market Price Index, cointegrating analysis*

**JEL Codes:** Z21, C5

### 1. Introduction

There are many studies on main financial markets co-integration and the crisis impact on decoupling and/or recoupling of these markets. Before the great financial crisis, (Chou, Ng and Pi 1994) found the long-run equilibrium (cointegration) relationships among the stock market prices of the United States, Canada, the United Kingdom, France, Germany, and Japan. Furthermore, "Subsample and subgroup analyses also indicate that the cointegration relationships have become stronger over time. This is consistent with greater stock market integration amid the increasing liberalization and globalization of capital markets" (Chou, Ng and Pi 1994, 1). Through the analyse of financial markets in the countries from the Nord of Europe, during 1989-2011 (Emanuelsson, Katinic and Petersson 2012, 1, 32), found "strong support for the existence of cointegration between the Belgian, Norwegian, Swiss and British stock markets in the period after the launch of the euro" and that "the financial integration has increased between these countries". Moreover, (Assidenou 2011, 212) proved that, during September 2008 / August 2009, the financial indices "of economies (OECD group, Pacific group and Asia group) have at least one cointegrating vector". That is "because the increasing globalization favours the transmission effect on either major or emerging markets" (Assidenou 2011, 217). Before it (Yang, Kolari and Min 2003, 477) showed that Asian financial markets "have generally been more integrated after the crisis than before the crisis".

On the other hand, (Haque and Shamsub 2015) argued that "as the 2008 financial crisis deepened, S&P 500 and G-20 stock indices moved towards less cointegration", so that "The 2007–2009 financial crises can be considered a structural break in the long-run relationship and may have resulted from effective joint intervention/responses taken by members of G-20 nations". Similar findings have been obtained by (Hellstrand and Korobova 2010): through analysing the financial sectors in Brazil,

Russia, India, US, UK, and Japan over 2000-2009 period, they found that "there is less cointegration during the recent financial crisis" (1, 43), but not an undeniable decoupling.

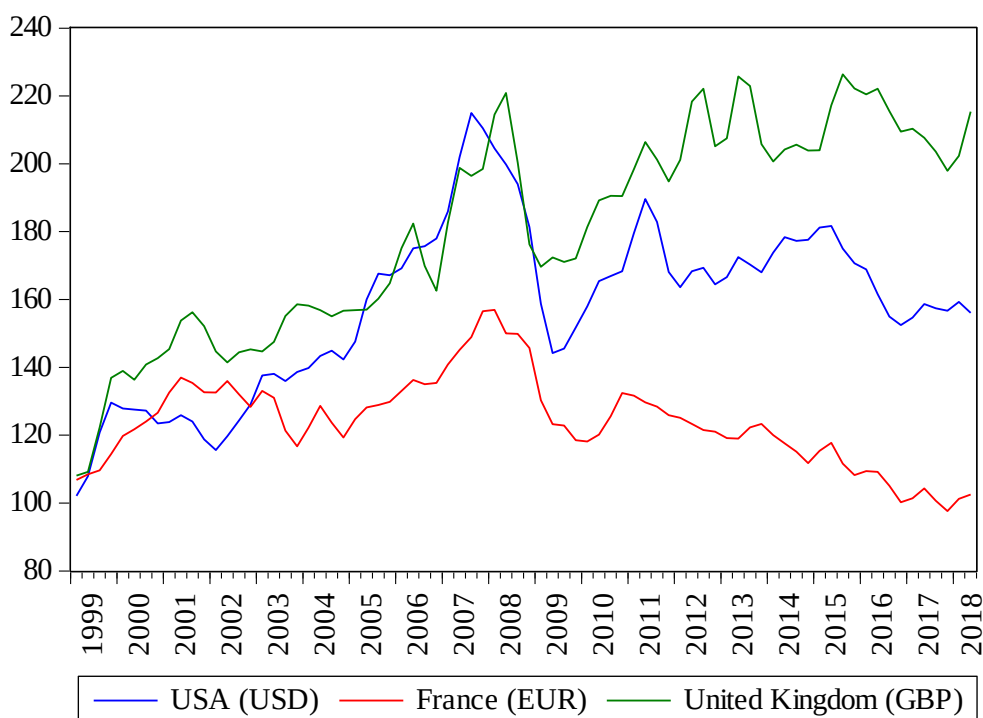
Although there are some remarkable studies, however the literature concerning art markets cointegration aren't so rich. (Worthington and Higgs 2003, 649) obtained that "there is a stationary long-run relationship and significant short and long run causal linkages between the various painting markets and between the equity market and painting markets", during 1976 to 2001. Goetzmann, Renneboog and Spaenjers (2011) found a "cointegrating relationships between top incomes and art prices, both for the total 1908-2005 period and since 1945" (Goetzmann, Renneboog and Spaenjers 2011, 20). (Ballesteros 2011) use cointegrating analysis (and Error Correction Model) to tests the efficiency in the Art Market. Recently, Marisa Lerer & Conor McGarrigle (2018, 5) found a "rise of artistic production in response to financial crisis".

## 2. Data and Methodology

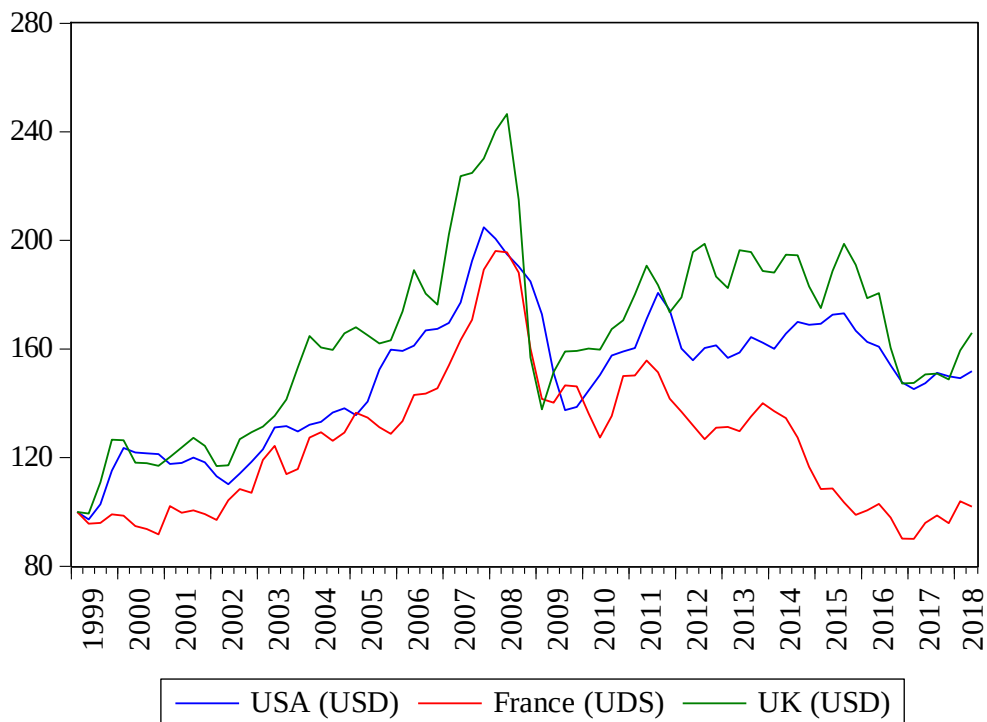
In analysis, we use the Artprice data concerning the Art Price Index for USA, France and United Kingdom. The data are available on <http://imgpublic.artprice.com/pdf/agi.xls> (accessed on 2018, August 15). These indices are depicted in Figure 1. The data from Artprice.com concerning the art market price index are offered in United States dollar (USD) for United States of America (USA), in euro (EUR) for France and in Great Britain Pound (GBP) for United Kingdom. In our analysis, we used both the unchanged Artprice.com data and the data converted into USD, through using the exchange rates calculated by the European Central Bank (European Central Bank, Statistical Data Warehouse, available at <http://sdw.ecb.europa.eu/browse.do?node=bbn71> (accessed 2018, May 6).

**Figure 1. Art Price Index for main western Art Markets**

a) Art Market Price Index in national currency



b) Art Market Price Index in US dollars



Source: EViews outcomes, relied on:

- Artprice Index (Quarterly data, Base 100 in January 1998) concerning Art market price index in USD for USA, EUR for France and GBP for United Kingdom, data available at <http://imgpublic.artprice.com/pdf/agi.xls> (accessed 2018, August 23).
- European Central Bank (Statistical Data Warehouse) for exchange rate (EUR/USD and GBP/USD), data available at <http://sdw.ecb.europa.eu/browse.do?node=bbn71> (accessed 2018, August 23).

The globalization of the art markets made the main features of the most important national markets (USA, France and United Kingdom) to be similar: strong upward trend until 3rd quarter of 2007 and a sudden fall during the crisis period (2007q4 - 2009q2). From the end of 2009, Art Markets are coming back, regained the upward slope for USA and United Kingdom and attenuated the downward slope, for France.

For all countries, the standard unit root tests [Augmented Dickey-Fuller, Phillips-Perron, Kwiatkowski-Phillips-Schmidt-Shin (KPSS), Elliott-Rothenberg-Stock DF-GLS and Elliott-Rothenberg-Stock Point-Optimal, Ng-Perron] indicate that the price index series for the art market are non-stationary (Annex 1), namely, they are first order integrated, denoted  $I(1)$ . On the other hand, for all series, breakpoint unit root tests reject the hypothesis of non-stationarity (Annex 2).

### 3. Cointegration analyses

#### 3.1 Art market price index for US (USD), France (EUR) and United Kingdom (GBP)

To test the cointegration relationships between the art markets indexes it was determined, in the first step, the order of VAR model. By applying the VAR lag order selection criteria, Schwarz information criterion suggested lag = 4 and all the other criteria have selected lag = 7. For lag = 3, even

if the residuals are not heteroskedastic, however the model does not mitigate the serial correlation (at lag from 1 to 12). For lag = 7, the VAR Residual Serial Correlation LM Tests does not reject the null hypothesis (there is not the serial correlation), at a lag of at least 12. At the same time, VAR Residual White Heteroskedasticity Tests (levels and squares) does not reject the null hypothesis (there is no heteroskedasticity) at 0.5569 level. Following these, we opted for lag = 7.

If we stated lag intervals = 6 for differenced endogenous in Johansen System Cointegration test specification, the outputs (Annex 3, table A) suggest the possibility of one cointegration relationship, for two group of the assumptions:

- a) no deterministic trend in data, intercept (but, no trend) in cointegrating equation, and no intercept, nor trend in VAR part,
- b) linear deterministic trend in data, intercept both in cointegrating equation and in VAR part, no trend in cointegrating equation, nor in VAR part of model.

We tested for cointegration in both the groups of specifications.

Model (a): no deterministic trend in data, intercept in cointegrating equation

$$\text{USA} = 1.06015 \cdot \text{France} + 0.82149 \cdot \text{UK} - 123.10208$$

[3.734]                      [6.898]                      [-2.971]

(t-statistics in brackets, below the coefficients). Estimation details:

- ✓ Method: Fully Modified Least Squares (FMOLS),
- ✓ Sample (adjusted): 1998Q2 2018Q2, Included observations: 81 after adjustments
- ✓ Cointegrating equation deterministic: constant
- ✓ Long-run covariance estimate (Pre-whitening with lags = 3 from SIC max-lags = 7, Bartlett kernel, Newey-West fixed bandwidth = 4.0000)

All the coefficients are significant at least 0.01 level. The Wald test does not reject the hypothesis that the coefficients are both equal to 1: the probability associated to F-statistic is 0.3214 [F-statistic value is 1.1518, with df = (2, 78)], and the probability that corresponding to Chi-square statistic is 0.3161 [Chi-square statistic is 2.3036, with df = 2].

Despite these performances, the cointegration tests are not conclusive. Hansen Parameter Instability Test does not reject the null hypothesis, that the series are cointegrated, at 0.2 level. The same, Park's Added Variables Test does not reject the null hypothesis of cointegration at 0.2515 level. Conversely, the residual-based tests are not consistent. The Engle-Granger tau-statistic test does not reject the null hypothesis of no cointegration (unit root in the residuals) at 0.2265 level, but Engle-Granger z-statistic reject this hypothesis (at 0.022 level). Similarly, both tau-statistic and z-statistic Phillips-Ouliaris tests do not reject the null hypothesis of no cointegration (unit root in the residuals) at 0.3197 and 0.3016 significance level. Obviously, the Engle-Granger and Phillips-Ouliaris tests are simply unit root tests applied to the residuals obtained from cointegration equation estimated through OLS. But, a little doubt remains.

Furthermore, in VEC (Vector Error Correction) specification (lag = 7, in short-run dynamics), the cointegrating equation is near to the one described by the previous relationship, but  $\beta$ , the coefficient of cointegration (the speed of adjustment), although negative (-0.0332), however it is not significantly different from zero, at the standard significance level (t-stat = -0.6048).

Model (b): linear deterministic trend in data, intercept and no trend both in cointegrating equation and in VAR part

$$\text{USA} = \underset{[3.565]}{0.87673} \cdot \text{France} + \underset{[6.608]}{0.68160} \cdot \text{UK} - \underset{[-2.053]}{73.67141}$$

(t-statistics in brackets, below the coefficients).

In addition to the previous model, we have included the trend as additional deterministic regressor. All the coefficients are significant: at least 0.01 level, the first two and at 0.05 level, the last. Both Hansen' Parameter Instability Test and Park's Added Variables Test do not reject the null hypothesis (the series are cointegrated), at a significance level greater than 0.2. The Engle-Granger tau-statistic test does not reject the null hypothesis of no cointegration (unit root in the residuals) at 0.2507 level, but Engle-Granger z-statistic reject this hypothesis (at 0.0257 level). As with the previous model, both tau-statistic and z-statistic Phillips-Ouliaris tests do not reject the null hypothesis of no cointegration (unit root in the residuals) at 0.3197 and 0.3016 significance level. do not reject the hypothesis.

To verify the robustness of the analysis, we built a VEC model with the same hypotheses [linear deterministic trend in data, intercept and no trend both in cointegrating equation and in VAR part (the short-run dynamics)]. The coefficient of cointegration (the speed of adjustment) is negative (-0.02295), but it is not significantly different from zero, at the standard significance level (t-stat = -0.3762). This means that, we reject the hypothesis of cointegration.

### 3.2 Art market price index in USD for USA, France and the United Kingdom

We have re-calculated the cointegrating model using series of art markets price indexes, where all the series have been computed in USD.

The Johansen tests identified the cointegrating relationships between the series calculated in USD (Annex 3, table B). If lag specification for differenced endogenous is equal to 1, then we select lag > 1 in VEC model.

The maximum of signification for the cointegrating  $\beta$  coefficient (t-stat = -3.631) is reached in model with intercept and trend in cointegrating equation and no trend in VAR(3) specification. The VEC model shown the following long-run equation:

$$\text{USA\$} = \underset{[2.742]}{0.32127} \cdot \text{France\$} + \underset{[2.494]}{0.30966} \cdot \text{UK\$} + \underset{[3.446]}{0.40811} \cdot t + 41.16139$$

Where:

- ✓ in brackets, below the coefficients, we wrote t-statistics,
- ✓ sample (adjusted): 2000q1-2008q2 (74 included observation after adjustments)
- ✓ \$ stands for the fact that the art market price index series is recalculated in USD).

The coefficient of cointegration ( $\beta$  – the speed of adjustment) is negative (-0.26916) and it is significantly different from zero (t-stat = -3.6312). The probability of no serial correlation (at lags 1 to 8) is 0.7282 (according to VEC Residual Serial Correlation LM Tests) and VEC Residual Heteroskedasticity Test (Levels and Squares) does not reject the null hypothesis (residuals are not heteroskedastic) at 0.1887 level. Moreover, VEC Residual Normality Tests (Lutkepohl) does not reject the null hypothesis (residuals are multivariate normal) at 0.1887 level

A similar relationship can be obtained through cointegrating regression, by using, as estimating method, the Fully Modified Least Squares (FMOLS).

$$\text{USA\$} = \underset{[2.115]}{0.30200} \cdot \text{France\$} + \underset{[2.772]}{0.37481} \cdot \text{UK\$} + \underset{[2.554]}{0.32990} \cdot t + \underset{[3.303]}{36.34855}$$

The (small) differences from the previous equation are caused by the number of included observations (77 after adjustments, as against 74 in VEC model ) and the method used for estimation (FMOLS vs. OLS). Hansen' Parameter Instability Test does not reject the null hypothesis (the series are cointegrated), at a significance level greater than 0.2. Park's Added Variables Test does not reject the same null hypothesis, at a 0.7921 level. The probabilities associate with the residual-based tests (with null hypothesis of unit root in the residuals, that is the series are not cointegrated) are around of 0.10 or less (0.0005 for Engle-Granger z-statistic). This means that, we do not reject the hypothesis of cointegration.

#### 4. Conclusion

If we look at the entire period from 1998q1 to 2018q2, and the art price indices are estimated in different currencies (USD for USA, Euro for France and GBP for the United Kingdom), then the models and cointegration tests do not provide conclusive evidence for the hypothesis that there was a stable long-run equilibrium relationship between the leading western art markets price indices.

Instead: if the indices are calculated in one and the same currency (in our case, in USD), then there is a stable long-run equilibrium relationship between the art markets price indexes of the main western markets (USA, France, United Kingdom). Moreover, the intercorrelations between art markets are positive as sign and significant from an econometric point of view.

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## Annexes

Annex 1: Unit Root Tests for USA, France and United Kingdom Art Price Index, 1998-2018q2

| Unit root test statistic: |                    |                       |        |                 |       |                      |                     |                      |                      |                     |                      |
|---------------------------|--------------------|-----------------------|--------|-----------------|-------|----------------------|---------------------|----------------------|----------------------|---------------------|----------------------|
| Country                   | Series in:         |                       | ADF    | Phillips-Perron | KPSS  | DF-GLS               | ERS                 | Ng-Perron            |                      |                     |                      |
|                           |                    |                       |        |                 |       |                      |                     | MZa                  | MZt                  | MSB                 | MPT                  |
| USA                       | USD<br>1998-2018q2 | Level                 | -2.334 | -2.187          | 0.731 | -0.863               | 19.614              | -1.652               | -0.835               | 0.505               | 13.592               |
|                           |                    | 1 <sup>st</sup> diff. | -4.244 | -3.959          | 0.202 | -3.833               | 0.402               | -48.214              | -4.892               | 0.101               | 0.556                |
|                           | USD<br>1999-2018q2 | Level                 | -1.847 | -2.228          | 0.652 | -0.748               | 18.681              | -1.656               | -0.832               | 0.502               | 13.500               |
|                           |                    | 1 <sup>st</sup> diff. | -4.304 | -3.874          | 0.172 | -4.022               | 0.447               | -42.710              | -4.613               | 0.108               | 0.597                |
| France                    | EUR<br>1998-2018q2 | Level                 | -1.311 | -1.855          | 0.341 | -1.027               | 6.827               | -2.990               | -1.212               | 0.406               | 8.176                |
|                           |                    | 1 <sup>st</sup> diff. | -4.550 | -5.776          | 0.340 | -2.561               | 0.077               | -17.170              | -2.930               | 0.171               | 1.427                |
|                           | USD<br>1999-2018q2 | Level                 | -1.727 | -1.540          | 0.278 | -1.247               | 5.231               | -3.320               | -1.282               | 0.386               | 7.374                |
|                           |                    | 1 <sup>st</sup> diff. | -5.997 | -5.376          | 0.211 | -3.675               | 0.531               | -23.592              | -3.340               | 0.146               | 1.039                |
| United Kingdom            | GBR<br>1998-2018q2 | Level                 | -2.033 | -2.230          | 1.177 | 0.709                | 174.242             | 0.756                | 0.875                | 1.157               | 86.512               |
|                           |                    | 1 <sup>st</sup> diff. | -5.457 | -8.106          | 0.317 | -0.734 <sup>*)</sup> | 4.103 <sup>*)</sup> | -1.270 <sup>*)</sup> | -0.784 <sup>*)</sup> | 0.618 <sup>*)</sup> | 18.906 <sup>*)</sup> |
|                           | USD<br>1999-2018q2 | Level                 | -2.338 | -2.391          | 0.560 | -1.201               | 8.772               | -3.641               | -1.298               | 0.356               | 6.742                |
|                           |                    | 1 <sup>st</sup> diff. | -4.067 | -5.156          | 0.135 | -4.098               | 1.184               | -20.986              | -3.229               | 0.154               | 1.205                |
| Critical value (5%)       |                    |                       | -2.900 | -2.898          | 0.463 | -1.945               | 3.060               | -8.100               | -1.980               | 0.233               | 3.170                |

\*) Non-stationary at 5%.

Source: EViews outcomes, relied on:

- ✓ *Artprice Index* (Quarterly data, Base 100 in January 1998) concerning *Art market price index* in USD for USA, EUR for France and GBP for United Kingdom, data available at <http://imgpublic.artprice.com/pdf/agi.xls> (accessed 2018, August 23).
- ✓ European Central Bank (Statistical Data Warehouse) for exchange rate (EUR/USD and GBP/USD), data available at <http://sdw.ecb.europa.eu/browse.do?node=bbn71> (accessed 2018, August 23).
- ✓ Notes:
- ✓ Exogenous: constant;
- ✓ Lag length automatic selection: Schwarz Information Criterion
- ✓ Legend
- ✓ ADF – Augmented Dickey-Fuller test (Null Hypothesis is: time series has a unit root)
- ✓ Phillips-Perron test (Null Hypothesis is: time series has a unit root)
- ✓ DF-GLS – Elliott-Rothenberg-Stock DF-GLS test statistic (Null Hypothesis is: time series has a unit root)
- ✓ ERS – Elliott-Rothenberg-Stock Point-Optimal test statistic (Null Hypothesis is: time series has a unit root)
- ✓ Ng-Perron test statistic (Null Hypothesis is: time series has a unit root)
- ✓ KPSS – Kwiatkowski-Phillips-Schmidt-Shin test statistic (Null Hypothesis: time series is stationary)

**Annex 2: Breakpoint Unit Root Tests for USA, France and United Kingdom Art Price Index**

| Country:       | Series in:       | t-statistic | Prob.  | Break date: | Conclusion |
|----------------|------------------|-------------|--------|-------------|------------|
| USA            | USD: 1998-2018q2 | -5.854      | < 0.01 | 2006q3      | stationary |
|                | USD: 1999-2018q2 | -5.866      | < 0.01 | 2007q1      | stationary |
| France         | EUR: 1998-2018q2 | -6.634      | < 0.01 | 2007q2      | stationary |
|                | USD: 1999-2018q2 | -5.790      | < 0.01 | 2007q2      | stationary |
| United Kingdom | GBP: 1998-2018q2 | -5.904      | < 0.01 | 2006q3      | stationary |
|                | USD: 1999-2018q2 | -5.192      | 0.048  | 2008q2      | stationary |

Source: EViews outcomes, relied on:

- ✓ *Artprice Index* (Quarterly data, Base 100 in January 1998) concerning *Art market price index* in USD for USA, EUR for France and GBP for United Kingdom, data available at <http://imgpublic.artprice.com/pdf/agi.xls> (accessed 2018, August 23).
- ✓ European Central Bank (Statistical Data Warehouse) for exchange rate (EUR/USD and GBP/USD), data available at <http://sdw.ecb.europa.eu/browse.do?node=bbn71> (accessed 2018, August 23).

Notes:

- ✓ Null Hypothesis: time series has a unit root;
- ✓ Trend Specification: Trend and intercept;
- ✓ Break Specification: Trend and intercept;
- ✓ Break Type: Innovational outlier;
- ✓ Test critical values: -5.719 for 1% level and -5.175 for 5% level.

**Annex 3: Summary of assumptions in Johansen Cointegration Test: Number of Cointegrating Relations by Model****A. Series "Art market price index" in USD for USA, EUR for France and GBP for United Kingdom**

Lags interval: 1 to 6

| Data Trend:               | None                     | None                  | Linear                | Linear             | Quadratic          |
|---------------------------|--------------------------|-----------------------|-----------------------|--------------------|--------------------|
| Test Type                 | No Intercept<br>No Trend | Intercept<br>No Trend | Intercept<br>No Trend | Intercept<br>Trend | Intercept<br>Trend |
| Trace statistics          | 0                        | 1                     | 1                     | 0                  | 0                  |
| Max. eigenvalue statistic | 0                        | 1                     | 1                     | 0                  | 0                  |

Source: EViews table, *Artprice Index* (Quarterly data, Base 100 in January 1998),

**B. Series "Art market price index" in USD for all the countries (USA, France and the United Kingdom)**

Lags interval: 1 to 1

| Data Trend:               | None                     | None                  | Linear                | Linear             | Quadratic          |
|---------------------------|--------------------------|-----------------------|-----------------------|--------------------|--------------------|
| Test Type                 | No Intercept<br>No Trend | Intercept<br>No Trend | Intercept<br>No Trend | Intercept<br>Trend | Intercept<br>Trend |
| Trace statistics          | 1                        | 1                     | 1                     | 1                  | 1                  |
| Max. eigenvalue statistic | 1                        | 1                     | 1                     | 1                  | 1                  |

Source: EViews outcomes, relied on:

- ✓ *Artprice Index* (Quarterly data, Base 100 in January 1998) concerning *Art market price index* in USD for USA, EUR for France and GBP for United Kingdom, data available at <http://imgpublic.artprice.com/pdf/agi.xls> (accessed 2018, August 23).
- ✓ European Central Bank (Statistical Data Warehouse) for exchange rate (EUR/USD and GBP/USD), data available at <http://sdw.ecb.europa.eu/browse.do?node=bbn71> (accessed 2018, August 23).

Notes:

- ✓ Series: USA, France, UK
- ✓ Sample: 1998 – 2018(q2)
- ✓ Lags interval: 1 to 6 for table A, 1 to 1 for table B.
- ✓ Selected level: 0.05 level\*

## TERRORISM IN THE CONTEXT OF THE DEVELOPMENT OF THE SOCIETY

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**Abstract:** *Terrorism, as a form of emergence of asymmetric warfare, is a major transnational threat, driven by ethnic, religious, nationalist, separatist, political and economic reasons. Terrorism is a special social phenomenon, which at the beginning of the century and the millennium, through its vastness and variety of forms of manifestation, reached a complex, wide-scale feature. This article analyzes the terrorist phenomenon taking into account the characteristic elements of those who have had a great resonance - the common feature of all is the terror element, an element of primary importance having a serious weight in terms of moral and legal.*

**Keywords:** terrorism, terrorism history, sponsor states

**JEL Classification:** K14

### Introduction

The social paradigm of **terrorism** is based on the idea of a link between social or community movements and terrorism, underlining that this phenomenon grows amid the decline or weakening of these movements, not by expressing and directly causing the weaknesses of the reference cause and even more, substituting them artificially, voluntarily, and more and more violently as this substitution is artificial. This paradigm defines the "inversion" that an individual, becoming a terrorist, abusively identifies himself with a social, national, or other cause, giving it a new meaning. What characterizes terrorist organizations around the world is that terrorists have intentions, but they have no principles - neither moral nor political. For them, ideology is mere talk.

Terrorism is inevitably related to power: acquiring and using power to operate a political change. According to the Explanatory Dictionary of the Romanian Language, to terrorize means *to inspire someone's horror through threats or intimidation methods*<sup>33</sup>. Meanwhile, violence is defined as *the use of force by an individual or a group of individuals, in order to prejudice the integrity of a person and/or his(their) property*.

Terrorism does not only produce terror. Moreover, terror is not always the main result of a terrorist act or a terrorist campaign. Terrorism seriously affects both the social structure and the individual as such, being able to distort the code of perception and the images that society members depend on and trust. Uncertainty about the behavioral aberration induced by terrorism can lead to social disorientation and discouragement.

Terrorism, although it does produce individual victims, is a crime against an entire social community. Terror is a natural psychological phenomenon, and terrorism is the conscious exploitation of it. Terrorism has a coercive character, designed to manipulate the will of its direct victims and the target audience. The degree of fear is generated by the very nature of the crime in question, by its mode

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<sup>33</sup> *Explanatory Dictionary of Romanian Language*, Univers Enciclopedic Publishing House, Bucharest, 1998, p.638

of committing or its apparent uselessness and absurdity, by indifference to human life, to material and cultural assets or to the symbols of that society. This justified fear is the source of the potency of terrorism, as the intimacy of society is affected by such a continuing threat. To keep its credibility unaltered, terrorism systematically materializes the potential threat in bloody violence. For this reason, sociologists define terrorism as *the use of undercover violence by a group in order to achieve political goals*.

Terrorism, as a method of action, means the practice of terror. It designates acts that are likely to provoke, in a certain environment, a feeling of intense fear, the predilection of an inevitable evil, in other words, acts of intimidation under all circumstances. It can be added that, viewed as a whole, terrorist offenses are considered to be serious threats, in a concrete case, with the tendency to repeat themselves. Under the notion of terrorism, it does not concern the nature of the action, but the method of execution.

In criminal discipline, terrorism<sup>34</sup>, in the broadest sense, means any crime, whether political or social, whose execution or even announcement, cause a general fear and which by its nature creates a general danger.

In the view of criminalist Donnedieu de Vabres in the characterization of terrorism, the purely political goal is not absolutely necessary. It is a fact of a gang, often an international one, which gives it particular efficacy; the processes they use are likely to cause terror - explosions, railroad damage, etc. Finally, the offense must create a common danger<sup>35</sup>.

Professor J. A. Roux defined terrorism at the Fourth Conference on the Unification of Criminal Law as any action involving the use of dangerous means for persons or goods undertaken to terrorize the population.

In Romania there have been concerns about the definition of terrorism, especially after 2001. The national strategy for preventing and combating terrorism defines terrorism as: all the actions and credible threats of illegal actions that cumulatively fulfill the following essential characteristics: they are premeditated by individuals or different types of social structures, motivated by radically hostile conceptions and attitudes towards other entities, by the perception that relations with them have shaped intolerable situations and the will to act against them in extreme ways; using violent and/or destructive means and methods, programmatically accumulated and learned; directly target individuals and/or important material factors to support social life; deliberately aim at spreading anxiety, insecurity, fear and panic on a large scale, meaning that they are organized and run in such a way as to provide them with a maximum psychological impact and to induce the public to perceive the underlying aims pursued, as well as attitudes/social behaviors favorable to them; they have explicit or implicitly political objectives, aiming at ultimately the influence of an entity - most often the constituted authority - usually beyond individuals directly affected or threatened; they are conducted outside the state of war or outside the scope of the laws of war in the event of armed conflict<sup>36</sup>.

Once the terrorist phenomenon has grown, and Romania has engaged with forces in the international coalition against terrorism, it has become necessary to adopt a law that will allow and combat this phenomenon. This law defines the main threats posing public danger and affecting national security and which have the following characteristics: they are committed intentionally by terrorist entities, motivated by extremist conceptions and attitudes, hostile to other entities against which they

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<sup>34</sup> National Academy of Information, *10th Session of Scientific Communications "Security and Society: Challenges of the Third Millennium*, ANI Publishing House, Bucharest, 2004, p.377

<sup>35</sup> <http://www.assemblee-nationale.fr>

<sup>36</sup> *National Strategy for Preventing and Combating Terrorism*, Romanian Intelligence Service, Bucharest, 2002, p.11

act by achieving specific, political objectives; they target human and/or material factors within public authorities and institutions, the civilian population or any other segment thereof; produce conditions that have a strong psychological impact on the population, aimed at drawing attention to the pursued aims<sup>37</sup>.

Since 1989, international terrorism has posed a threat to the security of the world's states. However, it seems unlikely to qualify this risk as an open threat or to exacerbate its effects. From the point of view of international politics, well-known actions such as: the wave of bomb attacks in France in 1995, the violent disorders in Germany orchestrated by the PKK, Hamas's attacks on Israel, ETA's actions in Spain, the attacks of September 11, 2001, those in London and Madrid or Mumbai and Moscow, despite having a strong echo and challenging politics - were not able to change the will of those countries, on the contrary, they helped to strengthen it.

The power of terrorism originates in the weaknesses of the target country, especially in the asymmetric value of social and political life. Terrorism itself can not really change the political will of a nation unless it is in favor of interests that tend to ignore the rights of those affected. At this stage, we are clearly confronted with the problem posed by international terrorism which, from a political perspective, is perceived as a global outcome, but its physical effects on society are limited, and those of a psychological nature tend to be quickly removed by the broad international public opinion. Therefore, the scientific analysis has been geared towards establishing the political relevance of the different types of terrorism, the causes and modalities of manifestation.

International terrorism, as an expression of indirect confrontation between governments, is more politically encouraging because it erodes international standards through attacks that do not distinguish between regular militaries and innocent civilian. However, it may be more efficient, because the state infrastructure can be discovered and hit by any means.

Currently, the crucial point at the strategic level lies less in the current human and material costs of international terrorism than in its possible solutions, the same as those of guerrilla battles: deregulation and delocalisation. The deregulation of terrorism includes its individualization, intensification of links with criminal organizations, especially at local level, and its extension as a practice of these organizations. Delocalization is synonymous with globalization, with international expansion. These features have posed a direct problem to states about the diffusion of power, a special case being the possession of weapons of mass destruction.

### **Terrorist groups**

American terrorism has had as its emergence point the social movements of the 60s and 70s, especially those concerning the citizens' rights of the black population and against the Vietnam War. These social upheavals have awakened harsh reactions from conservative political forces. The terrorist activities associated with civil rights movements began with bombings, ambushes, robberies organized by Black Panthers, The Black Liberation Army, and Ku-Klux-Klan.

After the end of the Vietnam War, the American left-wing left its ideological base. Since 1980, extreme left-wing terrorism has been represented by Machteros, Weather Underground, The Sam Mcville-Jonathan Jackson Brigade, FALN, BLA, many of these clusters merging into the United Freedom Front, Armed Resistance Unit and The May 19 Communist Organization. The extreme terrorist right remained after the 1980s represented by KKK, the American Nazi Party and the National Alliance<sup>38</sup>.

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<sup>37</sup> Law no. 535 on the Prevention and Combating of Terrorism, Romanian Official Gazette, Part I, no. 161/08.12.2004, p.2

<sup>38</sup> Anghel Andreescu, Niță Dan, *Op. cit.* p.52

*Terrorism in Greece* began to manifest itself in 1975, shortly after the overthrow of the military dictatorship regime.

Among the major terrorist organizations in Greece, the most popular are: Independent Left (1972), November 17 (1974), PAK and ASPIDA.

Ideology and frustration: *Third world*. In order to fully understand the contemporary terrorist phenomenon<sup>39</sup>, it is not enough to analyze it solely under its insurgent strategy, which would - as we have shown - presuppose a predetermined, politically motivated plan to finally secure the takeover of power. In many situations, terrorist actions are considered to be so irrational because they seem to have no political motivation, not being determined by a tangible purpose.

*Terrorism in Italy*. In Italy, terrorism seems to have been defeated<sup>40</sup>. Between 1969 and 1996, 14,569 attacks took place in Italy. These have been committed both by right-wing and left-wing terrorists, as well as by international terrorists. The record of this impressive number of attacks includes 415 dead and 1,181 injured. But the attacks reached a climax in 1979, when 2,513 took place, dropping to 30 in 1996.

The psychological and motivational dimensions of terrorism in Italy can be more easily analyzed if we are particularly concerned with left-wing terrorists who tend to extract their motivations from common sources with others. Instead, right-wing terrorists, such as the Palestinians, who carry out terrorist acts on Italian territory in order to achieve goals unrelated to the Italian political scene, are very different, have a wide variety of motivations, ideologies and goals.

"Terre d'asile": *French terrorism*. Since 1982, the French authorities have faced for the first time fierce criticism of the laxity with which they deal with the issue of international terrorism.

The French position on terrorism has its explanations. First of all, France has a long tradition of receiving refugees. Currently, over 120 different nationalities live in this country, the number of foreigners surpassing 9% of the French population. Since 1945, more than one million emigrants have received French citizenship, about 200,000 of them having a political refugee status.

### **The underlying causes of terrorist activities**

The socio-political climate in which the terrorist organization operates is one of the causes, in the sense that it may include variables of general culture (history, tradition, literature, religion) that are assimilated differently by members of society through various social structures resulting formal ideologies.

Terrorists act through stress and uncertainty, aspects that lead to the formation of particular or hard-to-change beliefs and concepts. So, mental stress and ideological determination inherent in terrorism fosters a set of beliefs that inhibit flexibility and social openness. So, terrorists can be considered to have a rational motivation for formed beliefs, which are not usually assimilated by most members of the community.

A significant element of the belief system is representation or the formal image, both on the person's own or another person, as well as on the world. Representations are, as a rule, stereotyped, preconceived or rigid, simplifying reality. The dehumanization or deification of the enemy dominates the terrorist's thinking<sup>41</sup>.

Most left-wing revolutionaries consider themselves victims and not aggressors, considering that they are the representatives of the exploited, they are the ones who can discern the truth and not the masses, only they can identify the social danger the masses do not see. Thus for terrorists there appears to be a need

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<sup>39</sup> Anghel, Andreescu, Niță, Dan, *Op. cit.* p.59

<sup>40</sup> *Ibidem*, p.62

<sup>41</sup> PhD Prof. Tudor, Cearapin, *Op. cit.* p. 81

to maintain the conviction that someone else is responsible and that their actions fall within the standards of moral behavior. Once established, the belief system will resist change. In the case of human abductions, terrorists are involved in making decisions that result in immediate, rapid consequences. Not only do terrorists accept personal risk but they also involve the destiny of their organization that can be endangered.

The variety of methods is determined by the variety of beliefs. The specific circumstances of a terrorist group, isolated from society, under constant threat and danger, lacking valuable information and channels of communication and fanatical confidence in rigid tricks and inflexibility about their relationship with the world, suggest that the ability of terrorists to adapt to reality is limited.

Investigating the causes of terrorism *is not an attempt to legitimize it; on the contrary, it is meant to bring to light the germs which, in most conditions, generate it*<sup>42</sup>.

This is also the conclusion that emerges from UN resolution no. 3034 of December 18, 1972, which asks to investigate solutions that would eliminate the underlying causes of violence. *It seems normal to me*, said Eric Suy, Chairman of the Commission of the Sixth General Assembly of the United Nations in 1972, *to investigate the causes of terrorism, to study and resolve them*<sup>43</sup>. The problem of failure to prevent and suppress terrorism stems from the fact that there is no clear understanding of the causes that lead to acts of terrorism. Governments and the international community are unable to reach a point of view on this phenomenon and have therefore failed to control it so far. In essence, terrorism is the radical expression of a profound conflict. It appears as a flurry of actions based on dissatisfaction, frustration, hopes, emotions and unrealized goals.

The analysis of the international terrorist phenomenon highlights other causes, which are specific for the beginning of the millennium: political and military conflicts in some states and areas of the world, dominated by contradictory interests, of which an important place is the opened or secret fight for power, undertaken by internal and external circles and forces, especially by criminal or terrorist organizations; the ever-increasing expansion of Islamic fundamentalism and the intensification of the struggle, including by terrorist means, for the removal of secular political regimes from power and the establishment of Islamic essence leaderships; the continued use of state terrorism, internally and internationally, or the "sponsorship" of terrorist organizations or groups for their own benefit by secret services or interested circles; social conflicts in various states of the world, caused by internal situations of various nuances (religious, political, economic, xenophobic, racist, extremist, nationalist, separatist, etc.); the unlimited possibilities for cooperation between terrorist organizations and groups, even of different nuances and ideologies, with structures of international organized crime; increased violence of criminal phenomena (violence, organized crime, narco-terrorism, drug and arms trafficking, illegal migration, etc.) and their increasing interference with terrorist activity; the power gap or insufficient structuring of the institutions that have attributions in the fight against serious criminal phenomena, a situation especially encountered in the former socialist countries; lack of coordination at global, regional and local level of anti-terrorism measures needed to combat this phenomenon; the more and more intense and detailed dissemination of terrorist acts through the media, which offers the desired publicity to authors and terrorist groups, and can also determine other elements to act in a similar way; the weakening of control and even its loss, by the competent bodies of the states, on the specific provision of weapons, ammunition, military equipment, and even radioactive, chemical and bacteriological materials; the disintegration of former conventional or special armies, mainly belonging to the former socialist states, which made some specialists within them to serve terrorist organizations and groups.

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<sup>42</sup> E., David, *Op. cit.* p.169

<sup>43</sup> <http://www.un.org>

### **Causes highlighted by the UN Special Committee**

The Special Committee on International Terrorism, set up at the United Nations on December 18, 1972, in its Resolution 3034 of the General Assembly, was tasked with studying the causes of this phenomenon and drafting recommendations on practical measures to suppress acts of violence and terror. The Committee pointed out that the main causes of the escalation of terrorist acts are social, political, racial, fundamentalist-religious, nationalist, economic etc.

Following the establishment of these causes, the international community has drawn up a series of resolutions, conventions and protocols. Thus, UN Security Council Resolution 1269 (19 October 1999) highlighted the vital role of the UN organization in strengthening international counter-terrorism cooperation and highlighted the importance of strengthening cooperation between states, regional and international organizations.

Analysts believe that the most important causes of contemporary terrorism are ethnic nationalism and extremist ideologies (such as those in some states of Latin America or the former Soviet space), the dream of independent states (as IRA terrorists, Armenia) and, more recently, the recrudescence of religious fanaticism in the East and South Asia.

It is well known that the most frequently pursued elements in the analysis of a terrorist attack are: the perpetrators of the attack, the motivation, the target, the mode of operation, the response of the protection and guard systems, the number of victims, the volume of damage and, possibly, the media impact. Although the means by which an assault is committed are usually mentioned (the type of weaponry, explosive devices, trapping machines, poisons, white guns, etc.), the way they are procured, their costs and, in particular, the suppliers are, most of the times, omitted or treated with superficiality.

A good example of logistical sponsorship of terrorist activities is Somalia. In the interethnic conflict, subsequently degenerated into civil war, as well as during the intervention of the forces of the international coalition (UN peacekeeping forces), there was a very strange situation. Medium or high intensity shootings lasted invariably from Saturday morning until Thursday afternoon. On Friday, with a few exceptions, there was a total silence. What was the explanation? Friday at noon, two huge cargo planes without national signatures used to land at Mogadishu airport, from which the crates with weaponry and ammunition were quickly unloaded, various military equipment which, transferred in the trucks already waiting to be dispatched, were distributed to the parties in conflict. And, of course, the fights were starting again the next day. Who supplied this equipment? What was the method of payment? What were the sponsors goals? It is now known that during Mohamed Siad Barre's pro-Soviet rule, Somalia was one of the territories estimated to have significant uranium reserves. But the state of conflict is still ongoing, which raises new questions about motivation.

The issue of terrorism logistics is extremely complex and is carefully studied by various national and international bodies, the target being the fracturing of this "trophic chain" to support criminal organizations. Under certain circumstances, often involving diplomatic relations, transnational corporations and geopolitical or geostrategic reasons, anti-terrorist forces can not directly intervene on an organization hosted on the territory of a state, even though they know their sponsors, training bases or paths of supplying logistic support. In this situation, it is necessary to prepare a "scenario" that would allow this goal to be tackled without attracting the reproach of the international community.

In organizing terrorist activities, money generally comes from activities that are themselves serious crimes: smuggling, extortion, rewards for the release of hostages (captured specifically for this purpose), drug trafficking, tax evasion. To these are added funds obtained from members' contributions, from donations of "charitable" philanthropic societies or from private individuals interested in escalating terrorist actions.

Equally important is the procurement of the necessary logistics, their storage and preservation, sometimes even the production of weapons, explosives and other substances indispensable to

committing the terrorist act. In some cases, these are obtained by attacking military or police forces by hijacking some of their means of transport (airplanes, ships, car convoys).

In recent years, the weapon used by the many terrorist groups has diversified substantially, with today's instruments of high precision and efficacy (optical devices, electronics, laser, Semtex type non-detectable explosives, state-of-the-art rocket launchers etc. They are stored in places specially arranged in time, of maximum safety, difficult to spot by police or anti-terrorist services.

Regarding the means of transport used to carry out the attacks, they are either purchased from the market - when they are to be destroyed during or after the attack, or simply stolen - to confuse the investigators.

The population pays its apparent silence with additional financial efforts to enable the acquisition, preservation and modernization of logistics necessary for the special services involved in the fight to counteract and combat this malignant phenomenon.

### **Terrorism sponsored by some states**

Iran has been and remains the main support of terrorism in the world, which it has publicly adopted as an instrument for the spread of Islamic fundamentalism.

By way of example, it is known that Libya has openly encouraged terrorist groups to hit the targets in the West and Israel, in order to establish a new panarabian order in the Near East, having Gaddafi as ruler. Later, he has reduced his terrorist actions to stop UN sanctions, but they are surface measures, as the entire Libyan terrorist infrastructure has remained intact.

Syria has supported some of the most extremist Palestinian terrorist groups, such as Abu Nidal, to pursue the goals of President Hafez al-Assad. The targets of terrorism were: Israel, Egypt, Jordan, modern Gulf states and Western countries. In recent years, they have reduced their aid, both because of the US warning and the changes that took place in the Near East.

North Korea provided support to left-wing (communist) foreign terrorist groups.

Cuba trained guerrilla units fighting in Honduras and Salvador, receiving funds for this purpose from the Russian Federation, but not as much as the former USSR. He helped some South American terrorist groups and sheltered the Red Army members. The Castro regime supported armed factions in Latin America, Havana supplying foreign subversive groups with weapons and ammunition.

Sudan - Although it has cooperated in US anti-terrorist efforts before September 11, 2001, there are still suspicions about the Sudanese government supporting certain terrorist groups such as Hamas and Palestinian Islamic Jihad.

Afghanistan remained at the end of the war with the USSR with over 23 camps, where Arab, Kashmiri, Tajiks and other militants are currently preparing for many areas of the world. Most camps are located south and east of Kabul. The training in these camps focuses on tactics and techniques for leading terrorist and insurgency operations, the use of sophisticated weapons, improvised explosives. Hundreds of Afghan veterans have been involved in the violence that has hit Algeria, Egypt, the US, Bosnia, etc.

Not accidentally in 2001, after the removal of the Taliban regime in Afghanistan, through UN Security Council Resolution no. 1386, one of the largest Allied operations in the history of the North Atlantic Alliance, namely the International Security Assistance Force (ISAF), was launched. Although originally a multinational force under the aegis of the United Nations limited to securing the security of the capital of Afghanistan, Kabul and its environs, NATO took command of the operation in 2003, which now extends the authority of the Afghan government throughout the country and establishes a climate security conducive to economic reconstruction and rule of law.

It is clear that the expansion of ISAF across Afghanistan has been an essential component of the strategy for this state, including provincial reconstruction teams (PRTs), with the ultimate goal of promoting stability and reforming the security sector.

In May 2003, at a meeting of the International Islamic Front held in Pakistan, a coalition of eight fundamentalist groups, headed by Osama bin Laden, unveiled an unequivocal message to the US: *We will hit American interests worldwide, to force the United States to retreat from the Gulf and lift the embargo against Iraq. We will mercilessly strike civilians and soldiers*<sup>44</sup>.

Modern transport networks help terrorists identify new targets, the vulnerability of these means, including the possibility of escape. Modern financial systems allow for the good financing of operations. Explosives and weapons have become accessible to any state or individual; on black markets, nuclear, chemical and biological means can be obtained as well.

The situation of national minorities, the existence of instabilities or inconsistencies in internal or external politics, the exacerbation of the role of religion, the weaknesses of the institutions of some states in preventing and suppressing terrorism are factors that have a great impact on the effectiveness of terrorist actions.

The analysis of the most important terrorist actions carried out in recent years demonstrates that they have been executed on the basis of plans directed and funded by states or circles interested in destabilizing or obtaining profits of different nuances. The characteristics of current terrorism are: the invisibility of the author, the attacks being most often subsequently claimed by telephones or announcements; the unpredictability of the terrorist act; uncertainty about the target; lack of control over the effects of the attacks.

## Conclusions

Concluding, it can be said that terrorism of this early millennium expresses a defective and violent mechanism of endangering democratic values, and the development of organized, native and cross-border crime can not only lead to favoring classical terrorist cores but also to generate mafia-style terrorism, with specific expression on the national territory. The traditional profile of the terrorist has changed substantially, becoming a person with a good education, often licensed. However, the psychic features of the common terrorist remain the same: a man dominated by hatred; is believed to be the avant-garde of a revolution; profoundly antidemocratic; dissatisfied with society or family; selfish, immoral; choleric, violent temperament; acting godless, but faithful in the cause for which he fights; with fixed ideas; unhappy, lonely; mentally ill, misfit<sup>45</sup>.

Starting from the fact that international society has not reached a common understanding of the terrorist phenomenon, some authors have argued that defining the notion of terrorism is impossible, any attempt to define it failing from pure tautology. The response of the international community against terrorism encompasses the full range of actions (political, diplomatic, economic and military) focusing on both causes and impacts. The high-risk terrorist threat persists until an effective policy alignment on terrorism, trafficking of human beings, drugs and weapons, corruption, money laundering and organized crime is achieved.

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<sup>44</sup> <http://www.state.gov>

<sup>45</sup> PhD Prof. Tudor, Cearapin, *Op. cit.* p.56

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