

The Moloch of Theory

*“People dealing with mathematics do not use,
in order to establish mathematic truth,
any algorithm which can be known to be correct.”*

Roger Penrose

The setup of the economy is a product of competing theoretical visions. Among other things which have been revealed by the current crisis, such as the inefficiencies of the policies for containing the recessive effects, we also find the structural inconsistency at the level of objective-functions of a real and nominal type, on one side, and these and the objective-function of the competitive market, on the other side. The context of the problem is assured by the fact that adversely defined theories provide essentially different axioms for the understanding of the functioning of the economy on the real and nominal levels, while the competitive market theory does not mediate the disputes and does not eliminate the alterations.

Circumscribing objective-functions with regard to output, though it seems to present a basis of a common denominator, does not lead to the harmonizing of the explicative rules in the areas of meanings (phenomena and effects) of the three objective-functions. The production function, as a formalization of the real economy, holds solutions of an extensive and/or intensive content which express growth. The objective-function of the real economy is dependent on the degree of permeability to the effects of the objective-functions of the nominal economy and those of the competitive market. In a primary (perhaps even primordial) way, the real economy invents the space for the nominal economy and for the competitive market. The performance of the real economy presupposes as a natural given the prompt (and positive) answer to demands coming from the nominal economy and from the competitive market.

Classical Economics has established this axiom through the theory of general equilibrium. Keynesianism has invented the most nuanced explicative model for the functioning of the three-part ensemble of economy. It must be mentioned that within the spectrum of meanings of the theory of equilibrium the output problem is permanently associated with the problem of the social finality of the three-part economic ensemble. In a subtle way, the classical vision bet on the sociality of output.

After all, classical Economics has as fundament the functional realization of the contradiction between the primal cause of an individual nature and the ultimate cause of a social consistency.

By keeping the order of preeminence and of prevalence, classical Economics has conceived its epistemic architecture centered on the real economy. The measuring unit of performance was extracted (and abstracted) from the substance which fills the space between reasonable needs and available resources.

In essence, in these limitations of sense, Economics respects the rule of the common sense. The theory of general equilibrium signified the most refined explanation – based on common sense – for the three objective-functions.

The great rift, equivalent to the exit from the logic of the common sense, took place when the order of preeminence and of prevalence among the three-part functions began to be constructed starting with the objective-function of the nominal economy. The climax of the separation was reached at the moment in which the monetary economy has surpassed the real economy in the amount of preferences for the methods of success. The premises were laid by the assumption of monetary theory regarding the neutrality of money and the construction of the methodological and institutional arsenal pertaining to indirect government.

The most advanced form of the new economic order emerged at the moment when the economic preference for fictitious money set the tone on the internationalized financial market. The significant result was that financial speculation stood out as an efficacious activity and the autonomy of the monetary economy was institutionalized.

The historical milestone of the separation is represented by the elimination of the gold-standard, the last methodological formula through which keeping the relation of equilibrium between the real and monetary economies was attempted. It is the milestone after which economic crises were initiated exclusively from the territory of the monetary economy.

From that moment on economic rationality has been judged by rules different from the previous ones, which emerged from common sense. The speculation has contaminated the real economy with the propensity toward rent-seeking, while on the territory of the market it supported the extension of the underground economy. Speculation has enforced competition in the area of the irrational fight for the absolute efficiency. The model of the casino-economy was imposed as standard.

The result was that the individual fundament of the primal cause has been transferred for the ultimate cause as well. The direct expression can be found at the level of the real economy in the resuscitation of self-consumption, at the level of the monetary economy in the growth of the stock of fictitious money and at the level of the competitive market in the rising relevance of the black market.

What seemed an innovation at theory-level has transformed in a Moloch at life-level.

Marin Dinu

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Some Issues Concerning Romanian Investors' Behaviour. Results of a Survey

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Abstract. *This study emphasizes different characteristics of Romanian investors, as a result of a survey. It offers information regarding some demographic characteristics, but, also, some financial issues, such as their interest in public offers, sources of information, investment criteria, attitude toward risk, etc.*

Keywords: capital market; investors; behaviour; market growth; Romania.

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REL Code: 11G.

1. A story in perspective: the Caritas case in Cluj-Napoca and the financial crisis that started in 2007

Several reasons can support the study of capital market investors' behaviour. Among these can be identified arguments concerning marketing, as some clues in order to improve relationships between customers and brokerage companies. In the same pragmatic manner, there can be also identified certain methods possible to be used by the interested companies in order to obtain financing on the financial market. At a macroeconomic level, economic growth can be reached by ensuring the access of as many investors as possible to financial markets, under the assumption that performer economic entities will be financed. From an academic point of view, the analysis of the evolution of assets listed on the stock market in relation with investors' behaviour may represent an issue of interest.

The performance of an economy depends significantly on the efficient allocation of financial resources. The importance of capital market in financing companies differs, depending on the financial system characteristics, but remaining a constant presence for all market economy countries (Dragotă et al., 2008). Moreover, a maxim suggests the stock market represents a „barometer of the whole economy”, of course as long as we discuss about economies with developed capital markets. More commonly, it is usually claimed that the investors are rational and risk adverse, characterized by homogenous anticipations etc., hypothesis mentioned in any financial assets and portfolio management basic book (Dragotă, Dragotă, Dămian, Mitrică, 2003). However, some of these assumptions seem to be rejected when applied in real-life.

For an economy that fails in reaching its potential, as is the case of Romania, it may be symptomatic that in most of the cases it is a pronounced interest for obtaining financial resources (see, for example, the presence of slogan declarations from Romanian officials, meant to encourage getting funds, preferably external), without having the same interest for the manner these resources are used. Inefficient allocation of financial resources will lead to a slower economic growth, or even negative growth. Even after the anticommunist revolution in 1989, inefficient companies or even inefficient sectors are still present in Romania, while certain viable opportunities continue to be neglected.

It is hardly possible to claim that Romanian people are not interested in investing. On the contrary, after 1989, Romanians have proven on several times an exuberant interest for investment opportunities of the moment; interest developed through an excessive optimism and a tendency for copying the investment behaviour of other agents (see the similitude to Shiller, 1984). These opportunities had many forms, from Ponzi schemes to investments in seemingly profitable banks.

An interesting case study of Romanian investor behaviour revealed the Caritas phenomenon, one of the most important “assistance games”, concept that in fact designates a Ponzi scheme⁽¹⁾. In the long historical context in which Romanian

economy did not benefit the experience of an authentic market economy (Dragotă et al., 2009), Caritas was organised and launched in 1991 by the company with the same name in Cluj-Napoca. The system promised for investors, in only three months, an amount eight times that of the one initially invested. Caritas attracted a large number of deponents throughout the country⁽²⁾. After functioning for approximately two years, payments were suspended in 1993. The “game” organiser was sentenced in 1995 to a total of seven years in prison for fraud; but after several appeals, the sentence was reduced to one year and a half. A very interesting issue is the string of adhesion manifestations regarding the Caritas “phenomenon”, described by Bălaşa (2008). The creator of the “game” was considered by a large number of persons, at the time the scheme was functioning, as a public benefactor, with almost religious features. Some of the public authorities (see the mayor of Cluj-Napoca) have clearly sustained the scheme, even though nobody identified the sources of added value, as a consequence of investing in profitable projects the amounts collected. In the same context, it is worth mentioning a study which glorified the Caritas phenomenon, named “The Caritas Phenomenon or The Salvation of Romanians through themselves” (authors: Dan Zamfirescu and Dumitru Cerna, Ed. Raza Vânturilor, 1993). Furthermore, an organisation was established to protect Caritas (The Pro Caritas Association, which had as purpose “to reject and oppose, through all legal and democratic instruments, the attacks against this beneficial system” – see Bălaşa, 2008).

From an economical point of view, Caritas represented a scam – the funds procured by Caritas were not invested in profitable projects and no added value was generated in such case. From a financial point of view, the scam did distribute some financial resources, and a few investors actually benefiting after Caritas. At the time, Cluj-Napoca reached a local inflation as a result of the available increased earnings, generating almost 200,000 millionaires from the game (Bălaşa, 2008). Taking advantage of the naivety of other players, in some cases, Caritas determined people to sell even their own houses in order to invest their money in the “game”, in the hope of the multiplied promised amounts, as illustrated by mass media of the time.

Judging from this perspective, some important issues which can also be found in the case of the global financial crisis in 2007 can be underlined: (i) *total lack of interest from the investors towards the use of invested funds*. Concerning to this issue, it is clear that the Caritas investors were expecting the invested amounts to suffer several multiplications, realising though that the money resulted from other investors' budgets. Even though, mathematically speaking, it was plainly obvious that the system would collapse, in some of the most fortunate cases the investors were hoping to withdraw the money invested right before this moment. On the other hand, most of the investors kept re-investing the earnings from the game, which disproves this scenario. (ii) *The existence of a mental demarcation between real economy and financial investments*: the investors expected considerable earnings, even though the source of these earnings was non existent in the real economy

(nobody was producing added value investing the collected funds). This situation may have been caused either by the interest in speculating the naivety of other investors, or by self naivety. (iii) *investors' lack of interest for control*. The entire loss of investment by Caritas could have been reduced to almost 80% of the original amount invested if the system would have accomplished its own regulations. However, the investors did not question the Caritas activity, nor monitor it. Such situations can also identify numerous causes that triggered the financial crisis which began in 2007. Significantly, in context, mass media does mention a Ponzi Game (see for example Frank, Efrati, Lucchetti and Bray, 2009).

It can be noticed that, in the context of numerous unpleasant experiences in which the involvement of authorities has often been ambiguous, Romanian investors became suspicious in their relationship with the financial system. This sentiment is augmented by the fact, from a historical point of view, Romania did not have the benefit of an authentic market economy (Dragotă et al., 2009), which leads the majority of investors to consider this type of experience to be more of a rule than an exception.

All these characteristics raise several questions regarding the manner the investors in Romania are able to understand the available information, which can be related to other studies for more developed capital markets. Therefore, if the investor is traditionally defined to be rational and risk adverse, Shiller (1984) emphasizes the important role of fashions in influencing capital markets: the investors enter on capital markets in the periods when this action is most popular (even in the case of games such as Caritas, Romanian people were following the trend of investing in such games). In the same context, Poterba and Summers (1986) noticed the persistence of volatility on the capital market, which also raises several question marks concerning the possibility of an efficient allocation of financial resources.

This study presents the results of a survey addressed to the investors on Romanian capital market. The questions have taken into consideration not only aspects regarding the capital market, but also other components of the financial market. This study can present an overview of the behaviour of Romanian investors, under the condition that the number of the case studies in this field are somehow limited.

The rest of this paper is structured as follows. Section 2 presents the literature review. Section 3 describes the basic characteristics of Romanian investors. In Section 4 are presented Romanian investors' characteristics from the financial point of view. The last section concludes the study.

2. Previous studies regarding the investors' behaviour on Romanian capital market

Classical finances assume the capital market efficiency. In this hypothesis, there are taken into account the informational efficiency, but, also, the allocative and the operational requirements for efficiency. In general, it is considered that investors on capital markets are rational and risk adverse. However, there are certain phenomena on the market that seem to disprove such normative assumptions, which have been revealed in many studies, among those behavioural theories play an important role. Similarly to the hypothesis of an environment without friction force in physics, efficient market hypothesis can be considered useful for a better understanding of the phenomena, but not always sufficient. Therefore, situations like the financial crisis involve certain factors which are relatively neglected in the general trend of theories, even the fact that the economical decisions are taken by humans, subjective through their own nature, has been noticed in several studies in the past (Allais, 1953, Shiller, 1984). Contextually, for the case of Romanian capital market was put into discussion even the capacity of investors to make a proper asset valuation (Dragotă, Mitrică, 2004).

The approach adopted in this study is not new. Among the studies that analysed this situation can be mentioned Vasilescu and Vătu (2004a, 2004b, 2004c), which are the result of a questionnaire addressed, in march 2003, to a total of 74 investors, both native Romanian and foreign, of different professions and age categories. Even though the sample is limited, the studies are able to describe the investors' behaviour on Romanian capital market. Vasilescu and Vătu (2004a, 2004b, 2004c) showed that, at the time, investors subjected to the questions: (i) did not had considerable experience in capital investments (half of them started investing one year in advance, and only 32.43% since 1997, which meant that they had only six years of experience); (ii) in the investment decision, the majority of the investors were targeting incomes resulted from positive variations of the stock prices, on a period less than one year (49.52% were targeting the price growth on a period less than one year, and only 27.63% gains from dividends); (iii) most commonly used information sources were the accounting balance sheet, articles in the specialised press and financial advisors recommendations; however, some of the investors were using as a source of information only the daily stocks' prices; (iv) the most important indicator on which investments' decisions were made was the liquidity, followed by the asset's volatility.

A different study, but with a similar approach, was offered by a specialised company for Romania's capital market studies, Prognosis.ro – Capital Market Research, the press release being given on 7th of January 2008. The survey was made online with a sample of 361 active investors in Bucharest Stock Exchange (*Bursa de Valori din Bucureşti, BVB*). From this point of view, the choice of subjects may determine a selection bias: it includes only internet users that choose to reply to the

online survey entering the site, which may influence the results. On the other hand, the clear advantage of the survey is the size of the sample (the biggest number of subjects in such a survey to date). From the point of view of the investors features, it is worth mentioning: (i) the majority were 26-35 years old; (ii) most of them graduated university studies; (iii) almost one quarter of the subjects started investing in BVB one year prior to the survey, re-confirming the lack of experience founded by Vasilescu and Vățui (2004a, 2004b, 2004c), over 60% had three years experience, and only 10% where active investors since before 2000 (over eight years of experience). (iv) only 16% of the investors were relying mainly on the brokers' advice when making a transaction decision. Over 70% of the respondents made transaction decisions mainly after a personal analysis of the share quotations and the financial results of the issuers (Prognosis.ro – Capital Market Research, 2008).

3. Basic characteristics of Romanian investors

The database used a survey that analysed the responses of 148 active investors on the capital market in Romania, questioned between 20th March 2008 and 20th January 2009. It must be mentioned that in this study, like in the previous ones (Vasilescu, Vățui, 2004, Prognosis.ro – Capital Market Research, 2008), the sample is modest. This is the main reason why the results have to be interpreted cautiously. Indeed, even if there are a large number of passive investors, as a result of the mass privatisation program, estimated at 8-9 million, the number of active investors is estimated to be around 9,000-10,000.

This study offers information concerning the manner the stock market investors' options are made, their attitude towards risk, the instruments used for protection against risk, information sources as well as the frequency the investors use them, their predictions towards the expected returns, etc. Also, there are offered demographic information such as profession and position, the level and nature of studies, age and, also, their experience in the capital market in Romania. The respondents received a questionnaire containing 17 questions, either directly or through electronic mail. The questionnaire was only addressed to the individual Romanian investors.

Regarding the age of the subjects, half of the investors were 25-34 years old, the percent of investors below 50 years old being around 90%. One remark is that only 9.46% of the respondents were above 50 years old. This situation may denote relatively conservative behaviour regarding investments on capital market for this age category, which can be also related to the fact that in 1995, the year Bucharest Stock Exchange was established, their basic education was finished. In the same time, the potential number of investors is high, 19.59% of the responders being under 24 years old. The result confirms the conclusions obtained by Prognosis.ro - Capital Market Research (2008).

As in Prognosis.ro - Capital Market Research (2008), it can be confirmed that, from an educational point of view, the majority of the investors has superior studies (89.19%) and even graduates of post-Bachelor degrees (9.46% from the respondents). It can be also noticed that most of the investors were graduates of economical studies (68.92%), while some had technical studies (23.97%).

Regarding the field of activity in which the investors operate, a very important part is present in the financial-banking system (81.76%). It can be mentioned that this number is superior to the number of investors with economical studies. Smaller percentages can be found in fields like information and energy systems (both with 7.43% of the respondents).

The experience of the investors represents another interesting issue. Therefore, 95.95% of the respondents claim to have invested since less than six years ago, while 83.78% claim to have invested in less than the past four years (only 4.05% of the respondents had an experience of more than four years). This result can be corroborated with the results obtained by Vasilescu and Vătui (2004a, 2004b, 2004c) and Prognosis.ro - Capital Market Research (2008), which emphasized the relative lack of experience of the investors. Therefore, it can reach the conclusion that, for numerous agents, the investment in the capital market represents only an experience for life, in most cases singular or for a very limited period, and not a stable investment alternative.

Moreover, the classical hypothesis that assume investors have a long-term investment horizon (infinite in theory) may be disputable. Of course, it can be argued that the transfer of the assets, from one agent to another, can determine, as a trend, a correct valuation of them. However, taking into consideration also the results of Vasilescu and Vătui (2004a, 2004b, 2004c), which reveal that the majority of investors speculate the market and are not interested in dividends, we remain sceptical to the stock evaluation methods, without being able to infirm the conclusions of Dragotă and Mitrică (2004).

The majority of the respondents (99.32%) invested in stocks, the most common financial asset on Bucharest Stock Exchange. In fact, only one respondent did not own such an asset in his portfolio. The interest for the portfolio diversification can be easily remarked, mutual fund investment (78.38% of the respondents), banking deposits (70.27%), derivatives (63.51%) and bonds (25.68%) being taken into account. Also, there are considered investments in alternative assets: over half (54.05%) of the respondents invested in buildings and 40.54% invested in land ownership. From this point of view, it seems that the unpleasant investment past experiences, which affected the economies of a significant number of investors, have inspired the use of the diversification principle introduced by Markowitz (1952).

Another interesting aspect is the dissociation between the portfolio investors and those that perform direct investments: only one of the respondents performed direct investments as well, which can lead to additional arguments concerning the speculative character of most of the transactions on the capital market in Romania.

This situation seems to confirm a constant vision of Romanian investors, which, even after 15 years following the Caritas experience, make a clear distinction between direct and financial investments.

Regarding the investors' profile from a financial point of view, several general features can be identified: (i) information; (ii) initial public offers; (iii) selection criteria; (iv) perception toward risk. The main results are presented in Section 4.

4. Romanian investors' characteristics from the financial point of view

(i) Concerning the sources of information, from 148 subjects, 95.27% claim that the main source is the internet, thus confirming its present dominant position. Also, almost 75% of those questioned are considering the brokers' opinion; so, in this case, the broker acts as a financial consultant. Almost more than half of the respondents are also using financial (related) TV and press articles as sources of information. Quite interesting is the fact that only 8% of those who answered are considering financial opinions from friends and family – a possible explanation being that they rather would use well documented information than subjective opinions. Considering the lack of experience in the field is for fact, using the brokers' opinion and acting as such is considered to be a positive aspect. However the conclusion of the study issued by Prognosis.ro - Capital Market Research (2008), claimed that only 16% of those questioned at that time were using brokers consulting services. This can raise questions about our optimistic finding. It is possible that there is a significant difference between the two populations used for the survey, which implies further analysis regarding this issue.

Concerning the frequency of data collected, most respondents, respectively 70% of them, are paying close attention to the daily evolutions of the stock markets, while the remaining 30% claim they are monitoring them weekly. There wasn't any respondent claiming that they watch the evolutions of the shares prices and the news on the market with a monthly frequency. Taking this into consideration, it cannot be stated that the integration of information in prices can be speculated. In fact, previous studies confirmed in the past that the market responds promptly to different events (Dragotă, Toader, Vlăsceanu, 2003, Dragotă, Dragotă, Stoian, 2004).

The investors prefer to use specialized broadcasts and web casts as main source of information. Only six of the subjects (4.05%) are claiming that they also use in their decisions financially related publications/books and articles. A possible explanation of the phenomenon can be the desire of the investors to have access to real live data. On the other hand, it is quite possible that general and fundamental analysis aspects to be neglected by the subjects of the survey. So, if it is considered that the investors usually prefer information that most of the times are not thoroughly/rigorously checked, it can be possible that the manipulation of the market to be relatively convenient.

This result can be interpreted in a different manner. Considering the fact that the majority of those who responded to the survey are college graduates, one can assume that not even the publications/books used in the university programs were considered. One possible reason may be insufficient or even lack of “investment targeted” disciplines from the educational system of Romanian universities, questionable quality of teaching materials and/or distrust in the education system in Romania.

(ii) Another target of the study is the analysis of Romanian investors' interest for IPOs. This aspect may contain valuable information concerning the potential of Romanian Stock Market to finance the economy, especially because the listing of most of the companies on BVB is not the result of an interest for funding the company, but rather to insure a secondary market.

60% of the subjects have never participated to an IPO, while only 19% have participated once, and 21% more than once. However, this state can not be considered alarming since most of the respondents have about two years of experience in the market, and during this period the number of IPOs was significantly reduced, the only two cases of large companies listed being Transgaz (TGN) and Transelectrica (TEL). Also it has to be mentioned that this two listings were issued not necessarily to finance the corporations, but rather to transfer/transit from national ownership to individuals, which can once more show the clear separation between investing on the stock market vs. funding and investing in real economy. Thus, during November 2000-May 2008 period, BVB recorded only 18 IPOs', out of which 9 ended unsuccessful/unsuccessfully (Voicu, 2009).

In more than 70% of the cases, a key role in the decision of investing in an IPO belonged to the brokers, who advised the respondents to do so. 20% of the investors claim that the decision of participating at an IPO was a personal hunch, and only 5% of the subjects claim the decision was made based on a personal financial analysis. In addition to that, another 3% admit that the media recommendations determined them to participate at the IPO.

99% of those who participated at IPOs preferred the energetic sector. Only one respondent considered the aspect as being irrelevant.

(iii) The most important criteria in selecting a specific asset in constructing the portfolio is the profitability, 64.86% from the respondents giving the maximum score. 51% of the subjects gave liquidity a 4/5 score, placing it second on the list of criteria for selection. The third criteria considered by the investors is the risk attached to the respective issuer. Previous performance and sector of activity are considered to be less important. It is noteworthy the swap between liquidity (considered more important) and risk, which may consist as another clue to the speculative behaviour of the investors. This aspect was revealed also in Vasilescu and Văţui (2004a, 2004b, 2004c), which concluded that liquidity is a landmark in decision making for selecting a share.

(iv) Regarding the subjects' perception of risk, almost 80% of those questioned define it as being the variation of the shares trading price. Only 19% are considering risk to be the possibility of the issuer to go bankruptcy, while 17% associate risk with the probability of not receiving any dividends in cash. Among the respondents, 7.43% of the investors define risk as a possibility for the share to be unlisted, and only one respondent have seen risk as a possible nationalization. This can be understood as a confidence in the further development and evolution of Romania's market economy.

Despite the Credit Crunch, the respondents were quite optimistic and confident about their investments. 72% of the subjects consider that there is little chance that they will not recover their initial amount invested. Much less (approximately 20% of the respondents) are considering there is moderate chance that they will not be able to recover their initial investment, and even fewer were those who believe that there is a large probability of that to happen.

The main reasons that could lead to the situation of not recovering the initial investment, according to the respondents, were related primarily to unfavourable development of the company, and to the poor evolution of the issuer's sector as a whole. Risk factors with a moderate importance are considered to be the poor evolution of the economy as a whole, and the raising of taxes/increasing fiscal pressure. Factors such as changing of the political factors and a possible nationalization were not a particular concern for respondents.

5. Conclusions

This study provides some clues on the behaviour of Romanian investors on the stock market. Although the number of respondents is relatively low, it may emphasize some key aspects. Thus one can notice the level of education but also the relatively little experience in the field for most investors. Also the main sources of gathering information used by the investors may be of uncertain quality.

The main investing strategy of the questioned subjects is highly speculative – (buy and sell), which may raise questions concerning the potential of the stock market to finance the local industries and the national economy. Basically there is dissociation between the idea of investing on a financial market and investing in the national economy. Perhaps to remedy this situation, it would take a set of shares aimed at including information (in respect of education) of the investors.

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and Stock Exchanges, from for their help in distributing and collecting the questionnaires. The remaining errors are ours.

Notes

- (1) Even the name of the corporation was chosen so that it produced confusion among investors, Caritas also being the name of a charity foundation.
- (2) According to some of the researchers the estimated number of participants was 400,000 (Enache, 2009); however, different studies claim that the number is much higher, a total number of participants being close to 6 million.

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Study Regarding the Influencing Factors of the Romanian Small and Medium-Sized Enterprises' Internationalisation Process

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Abstract. *In the framework of the globalised and more and more integrated markets, there are accentuating new rules in the competition game. Hence, in general, internationalisation is becoming an inevitable stage in the strategic evolution of the small and medium-sized enterprises (SMEs), and implicitly for those from the Romanian economy. The internationalisation process is analysed from the perspective of the factors which initiate and/or potentiate it. The empirical study takes in consideration, on one hand, the identification, from a multitude of factors existing in the international business literature, of the antecedents which influence directly the internationalisation process of the SMEs in Romania, and, on the other hand, the determination of factors with the highest impact on export performance of these enterprises.*

Keywords: controllable factors; internationalisation process; small and medium-sized enterprises; experience in foreign markets; export performance.

JEL Code: M21.

REL Codes: 7C, 14K.

1. Introduction

In the present times and contemporary world, the contributions of the small and medium-sized enterprises (SME) regarding global exports are highly significant. Although a noteworthy number of them, mainly those originating from the less developed countries, are in the impossibility to perform on international markets. In these conditions, the present paper aims to identify and classify the controllable factors, with direct influence upon export performance and implicitly upon the internationalisation process of the Romanian SMEs. The out carried demarche intends to assure a better understanding of the export behaviour of these enterprises in order to improve their performance on the foreign markets.

2. Literature review

In the contemporary economic environment, the most remarkable trends are represented by the internationalisation and the globalisation of businesses. In these conditions, the internationalisation process of SMEs, perceived exclusively as the commercial type external expansion toward different foreign markets, is differentiated by the time factor. For Global Border type SMEs appears an early internationalisation compared to their inception moment. The entrepreneur/manager, conditioned by his competencies, innovative level and inclination toward risk taking, must combine resources, to assure for the enterprise a competitive advantage, while the organisational structure is adapted to the existing business environment. The other SMEs are differentiated through the time needed to start their international activities (McNaughton, 2000, pp. 100, 110) and by the speed of their international development (Jones, 1999, p. 16), depending on the knowledge gained from foreign market experiences. In both situations, the internationalisation process requires the mobilisation of a set of resources and competencies, in the circumstances in which entering new foreign markets impose for SMEs to be innovative in order to generate performance in time. In these conditions, if we refer exclusively to the factors which determines SMEs to export and implicitly to perform on foreign markets, the factors can be linked, on one hand, to the characteristics of the managers or entrepreneurs, to the international marketing strategies, to the characteristics of the enterprise and its knowledge regarding international businesses, and on the other hand, the characteristics of the business environment in which the enterprise evolves. In the international business literature there is a distinction between factors, in the sense of their classification in controllable and uncontrollable, depending on if the export results are or not under the influence and control of the enterprise and of the entrepreneur or manager (Zou, Stan, 1998, pp. 342, 343, Nazar, Saleem, 2009, p. 105). Consequently, the controllable factors are internal to the enterprise, being related to (Nazar, Saleem, 2009, pp. 106-109):

(i) the manager's/ entrepreneur's characteristics – attitudes and perceptions regarding exports (commitment for export activities materialised in successful marketing strategies; perceptions regarding the competitiveness of the products to be exported; the

advantages offered by the export activities and the barriers in front of the export activities; international and client orientations); export behaviour (entrepreneur's/ manager's implication in export sales planning, in the presentation and adaptation of the products to be sold on foreign markets); competencies, skills (international experience, foreign language proficiency, the entrepreneur's/ manager's education level);

(ii) the SME's international marketing strategy – international marketing research (the enterprise's capability to run marketing research in order to develop); segmentation and foreign market targeting (segmentation strategies and target segment identification); marketing mix adaptation (products – strengths, adaptation, warranties, after-sales services; price – adaptation and discounts; distribution – direct/indirect channels, distribution networks, network adaptations, delivery time; promotion – usage of the promotional mix and its' adaptation);

(iii) the enterprise's characteristics and international businesses knowledge – the size of the enterprise (overall sales, number of employees) and technological intensity (technological level); external contacts and foreign network creation (contact with the foreign clients, relations with foreign entities); information regarding foreign markets; export planning; export marketing strategy planning and implementation.

As we can observe, each factor may be classified in more categories. Further, each category represents a series of empirically tested variables from the literature, everything being synthesised in a representative theoretical model (Nazar, Salem, 2009, pp. 106, 110). It must be mentioned the fact that, within the prior empirical verifications, some factor categories, like the competencies of the managers/entrepreneurs, the characteristics of the enterprises and their knowledge regarding international businesses, has concluded in ambiguous results regarding their influence on the SMEs export performance (Zou, Stan, 1998, pp. 346, 347).

In the international business literature there existed fewer preoccupation toward the identification, analysis and empirical verification of the uncontrollable external factors, which determines the SMEs internationalisation by exporting and conditioning their performance in this context. With all these, there was settled that the uncontrollable factors regards (Zou, Stan, 1998, pp. 349, 351): (i) the business environment and the characteristics of the industry within which the enterprise evolves (the technological intensity and the instability level of the industry); (ii) the characteristics of the national market (national policy regarding exports, market attractiveness) and of the targeted foreign markets (attractiveness, competitiveness, commercial, geographical and psychological barriers).

3. Research hypotheses

In accordance with the international business literature, the controllable factors which influence the SME internationalisation by exporting and their performance on foreign markets are: the characteristics of the managers/entrepreneurs; the international marketing strategies; SME characteristics and their knowledge about international businesses. The proposed study aims to verify if there exist positive relationships

between the prior enounced factors and the export performance of SMEs in Romania. In this sense, there are enounced the three research hypotheses:

Hypothesis 1: There is a positive relationship between the characteristics of the SMEs' managers'/entrepreneurs' and the export performance of these enterprises.

Hypothesis 2: There is a positive relationship between the SMEs' international marketing strategies and their export performance.

Hypothesis 3: There is a positive relationship between the SMEs' characteristics and international business competencies and the export performance of these enterprises.

4. Research methodology

4.1. Scale development

The variables of the factors/constructs were operationalised starting from the scales used in prior empirical research improved through a few modifications (Table 1).

Table 1

Scales used for variables defining each construct

Factor/construct	Variable	Items of the scale
Manager's/ entrepreneur's characteristics	Attitudes and perceptions toward export	Manager's/entrepreneur's perception toward export barriers
		Manager's/entrepreneur's perception toward the (to be exported) product competitiveness
		The manager/entrepreneur travels frequently in foreign countries to realise international businesses
	Behaviour toward international business	The manager/entrepreneur considers the most attractive growth opportunities on foreign markets
		The manager/entrepreneur considers vital the adaptation of the products to the foreign market trends
	Competencies, skills	Manager's/entrepreneur's foreign language proficiency and experience in international businesses
		Manager/entrepreneur is preoccupied with the amelioration of his international business competencies
International marketing strategy	Enterprise's capability to conduct international marketing research	Enterprise's capability to use marketing research in its development
	Segmentation, foreign market targeting and marketing mix adaptation	Foreign market entry rate
		New products introduced first/directly on foreign markets
		Enterprise's orientation toward small segments (niches) in numerous markets in the same time
		Adaptation level of the products to foreign markets
SME's characteristics and international business knowledge	Size of the enterprise	Overall sales value
	Technological intensity	Technological level
	International business knowledge of SMEs	Contacts of the enterprise and external network creation
		Enterprise structure
		Information regarding foreign markets
SME's export performance	International sales - value	

All the included variables were measured by five-point Likert scales, ranging from strongly disagree to strongly agree. For each variable, the scale included a diverse number of items.

4.2. Sampling and data collection

The investigated population is represented by SMEs with international activities from four Romanian counties (Bihor, Timiș, Mureș and Harghita).

The chosen research method is a questionnaire based sample survey. All the enterprises from the sample were independent and operating in diverse activity sectors, in order to obtain a complete and general outlook. The questionnaire was set after the literature review regarding international business and entrepreneurship. Data were collected in the natural business setting of the SMEs by the means of a one wave self-administrated mail questionnaires, by including in the survey packet also a cover letter besides the questionnaire. Participation was voluntary and respondents were assured confidentiality. Via e-mail were posted and sent 175 questionnaires, from which 30 were returned with properly completed replies. The response rate of 17.14% is considered valid, compared to the number of enterprises which responded favourable to the invitation. In order to obtain pertinent responses from specialists with vision about the international businesses of the enterprise, as key respondents for the questionnaire the manager/entrepreneur of the each sampling SME were selected.

4.3. Characteristics of the sample

Our sampling plan sought to ensure that enterprises in diverse activity sectors were included, covering both low and high technology environments. The SMEs included in the sample has diverse activity areas: three enterprises cultivating, processing and commercialising agricultural products (10%); an enterprise realising stone ware, ceramics and pottery (3.33%); seven wood processing enterprises realising furniture, sculptures, ornamented doors and gates (23.33%); four enterprises fabricating chemicals and plastic products (13.33%); six enterprises manufacturing textile products and footwear (20%); an enterprise producing electronic products (3.33%), two enterprises manufacturing and commercialising musical instruments (6.67%); five enterprises in ITC (16.67%), an enterprise offering research and consultancy services (3.33%) (Figure 1).

The analysed SMEs were founded between 1993 and 2007, in this sense there are no significant statistical asymmetry, eventually a slight inclination toward younger enterprises. From the employee's perspective, their number varies from 3 to 107, in average 32-33 employees, the enterprises being heterogeneous from this perspective too.

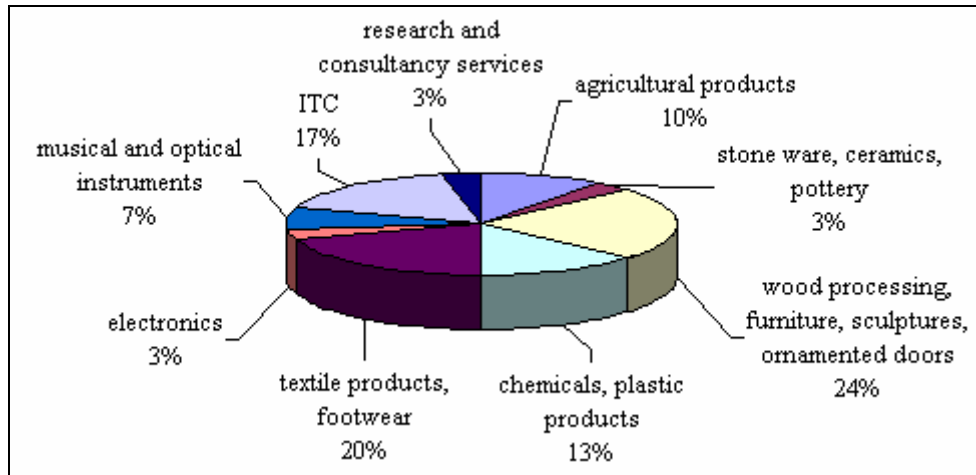


Figure 1. Distribution on activity sectors of the sample SMEs

Regarding the international activity of the surveyed SMEs, if we take in consideration the internationalisation level, determined quantitatively by the international sales ratio to overall sales, the enterprises has between 1.22% and 97%, in average 51%. The value is similar for the ratio calculated through the obtained profits. Regarding the number of foreign markets on which the SMEs are active, this varies significant, from a single country to 23, the average being 9 countries.

In the considered sample, the SMEs are divided in the next configuration: 26.67% are micro-enterprises, 46.67% are small enterprises and 26.67% are medium sized ones.

4.4. Data analysis

The data processing, based on the filled questionnaires, was made using SPSS 12 and assumed the coverage of the next stages:

(i) The study of scale reliability

The scales used in the research are the finality of a qualitative analysis and the adaptation of the scales highlighted in the literature. In these conditions, it is imposed their reliability study. All items were examined for internal validity. Starting with the fact that a scale is considered reliable if the value of Cronbach-alpha exceeds the threshold of recommended 0.7 (Nunnally, 1978, p. 245), it was necessary to realise an exploratory factor analysis (principal components extraction method). After the elimination of the variables with factorial loading less than 0.5, Cronbach-alpha was recalculated and a confirmatory factor analysis was realised. A confirmatory factor analysis was conducted to all refined variables have acceptable, high reliability coefficients, ranged from 0.713 to 0.860.

(ii) Testing the research hypotheses

In order to test the validity of the research hypotheses were realised via a linear regression, by taking in consideration the significance level (p), the unstandardized value of the regression coefficient (β), calculated value of a t test (t). It is considered those hypotheses are valid if $p < 0.05$, β has high values and t exceeds the critical value of the Student repartition, in our case 2.045 for a degree of freedom of 29.

5. Research results

As the consequence of the data analysis, the next results were obtained:

(i) The applied scales are reliable

The study methodology for the reliability of the scales was applied for each and every construct. After the exploratory factor analysis there were items with factor loadings less than 0.5, consequently eliminated. Following the confirmatory factor analysis, all the maintained items had factor loadings over 0.5 in all the cases, being obtained reliable scales with Cronbach-alpha higher than 0.7 (Table 2).

Table 2

Reliability indicators of the measuring scales

	Initial Cronbach alpha	Initial factor loading	Final Cronbach alpha	Final factor loading
<i>Manager's/entrepreneur's characteristics</i>	0.599		0.713	
<i>Attitudes and perceptions toward export</i>	0.718		0.718	
Manager's/entrepreneur's perception toward export barriers		0.764		0.764
Manager's/entrepreneur's perception toward the product competitiveness (to be exported)		0.834		0.834
The manager/ entrepreneur travels frequently in foreign countries to realise international businesses		0.800		0.800
<i>Behaviour toward international business</i>	0.150			
The manager/entrepreneur considers the most attractive growth opportunities on foreign markets				
The manager/entrepreneur considers vital the adaptation of the products to the foreign market trends				
<i>Competencies, skills</i>	0.756		0.756	
Manager's/entrepreneur's foreign language proficiency and experience in international businesses				
Manager/ entrepreneur is preoccupied with the amelioration of his international business competencies				
<i>International marketing strategy</i>	0.634		0.860	
<i>Enterprise's capability to conduct international marketing research</i>				
Enterprise's capability to use marketing research in its development				
<i>Segmentation, foreign market targeting and marketing mix adaptation</i>	0.675		0.746	

	Initial Cronbach alpha	Initial factor loading	Final Cronbach alpha	Final factor loading
Foreign market entry rate		0.645		0.645
New products introduced first/directly on foreign markets		0.999		0.999
Enterprise's orientation toward small segments (niches) in numerous markets in the same time		0.289		
Adaptation level of the products to foreign markets		0.567		0.567
Global approach of products and prices on foreign markets		0.118		
Rapid adaptation to the changes in the competitors' cost and price structure		0.547		0.547
<i>SME's characteristics and international business knowledge</i>	0.671		0.794	
<i>Size of the enterprise</i>				
Overall sales value		0.864		0.849
<i>Technological intensity</i>				
Technological level		0.243		
<i>International business knowledge of SMEs</i>				
Contacts of the enterprise and external network creation		0.707		0.720
Enterprise structure		0.089		
Information regarding foreign markets		0.690		0.698
<i>SME's export performance</i>				
International sales - value				

(ii) The verification of the hypotheses was realised using a simple linear regression. From the result analysis, synthesised in Table 3, it may be ascertained:

- there is a positive relationship between the characteristics of the SMEs' managers/ entrepreneurs (independent variable) and the export performance of these enterprises measured by the means of international sales value in 2008 (dependent variable), in the conditions of $p < 0.05$ ($p = 0.047$), β has a high value ($\beta = 0.242$), and $t > 2.045$ ($t = 2.090$);
- there is no positive relationship between the SMEs' international marketing strategies (independent variable) and their export performance measured via the value of international sales in 2008 (dependent variable), because $p > 0.05$ ($p = 0.154$), β has the lowest value ($\beta = 0.239$) and $t < 2.045$ ($t = 1.470$);
- there is a positive relationship between the SMEs' characteristics and international business competencies (independent variable) and the export performance of these enterprises measured by the value of international sales in 2008 (dependent variable), in the conditions of $p < 0.05$ ($p = 0.001$), β has the highest value ($\beta = 0.614$) and $t > 2.045$ ($t = 3.937$).

Table 3

Results of research hypotheses testing				
Hypothesis	β	t	p	Results
1. There is a positive relationship between the characteristics of the SME' managers'/entrepreneurs' and the export performance of these enterprises.	0.242	2.090	0.047	Valid hypothesis
2. There is a positive relationship between the SMEs' international marketing strategies and their export performance.	0.239	1.470	0.154	Hypothesis not valid
3. There is a positive relationship between the SMEs' characteristics and international business competencies and the export performance of these enterprises.	0.614	3.937	0.001	Valid hypothesis

β – standardized coefficient of the regression;

t – calculated value of the statistic t test;

p – significance level.

Consequently, hypotheses 1 and 3 are validated, in the conditions in which hypothesis 2 is not validated.

6. Conclusions and research limitations

From the conducted research it was observed that the controllable factors which influence positively the export performance and implicitly the SMEs' internationalisation process from the analysed sample are: the characteristics of the SMEs' managers'/entrepreneurs' and the SMEs' characteristics and international business competencies.

The international marketing strategies applied in practice by these enterprises do not correlate positively with the sales value on foreign markets. The realised empirical tests in the international business literature regarding the characteristics of the SMEs' managers'/entrepreneurs and the characteristics and international business competencies of SMEs presented ambiguous results regarding to their influence on SMEs export performance. In this context, it must be considered the size of the sample and the ratios by activity sectors of SMEs from the sample. The majority of the questioned enterprises realise products addressed for a reduced customer segment (niche). Also an important part of these enterprises are manufacturing products with low level of processing or offering services at command. Consequently, the results of the research can't be generalised. An increase of the sample heterogeneity and of its size may drive to the validation of the entire number of the proposed hypotheses and could generate more convincing results, generalised at the level of Romanian SMEs. Additionally, the consideration of the uncontrollable factors influence on export performance of SMEs from our country will represent the object of a future research demarche.

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Models with Simultaneous Equations for Local Development

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Abstract. *This paper presents a model based on simultaneous equations with statistical determined parameters for describing the evolution of important issues relating to local development. The main issues considered are public and private business development environment, employment, demography, social comfort, etc. Parameter estimation with simultaneous equations model was done by procedures implemented in EViews using empirical data sets from city Braila, Romania, for the period 2000 to 2005. Applying the Durbin-Watson test, results were compared for the simultaneous equations model where the parameters were estimated by two-stage least squares method.*

Keywords: simultaneous equations models; local development; systemic models.

JEL Codes: O18, C30, C51.

REL Code: 10B.

Introduction

The procedures used by analysts in their effort to offer a clear vision as possible, the processes and phenomena that occur in an economic or administrative system, in order to increase efficiency and improve its performance, are included in the modeling process.

This type of process requires obtaining some very useful models, especially when it is not possible to carry out experiments to evaluate the system, its performance and to analyze behavioral changes that make its leadership difficult.

When it comes to local development, the literature shows multiple types of models aimed to surprise as faithful as possible the existing realities at the local communities level and highlighting the economic laws that approximate this reality. Relevant synthesis are presented from this perspective in Matei (2005), Constantin (2001), Matei and Anghelescu (2009), Matei, Anghelescu and Săvulescu (2009) etc.

Given the complexity of specific local development processes and phenomena, the authors focused on making use of statistical models with simultaneous equations.

In the literature there are some applications of models with simultaneous equations for social phenomena analysis, while for the parameters estimation are being used data sets resulting from statistical surveys. One example in this sense is Kaufmann (2002), Bai and Wei (2000), Kaufmann et al. (1999), Andrei, Matei and Oancea (2009), etc. For exemplification, the last cited paper defines a simultaneous equations model for studying issues related to corruption and public sector health services performance.

I. Modeling local development systems specific aspects

Local development systemic approaches started both from more general concerns of social systemic but also from similar models used in administrative or economic theories or those relating to regional development, etc.

Among the relevant work supporting this approach we underline Chevalier (1986), Timsit (1986), Decleris (1992), Landry and Lemieux (1978), Buckley (1967) and Matei (2003, 2008).

This paper analysis perspective follows both general ideas mentioned in the previous works and also more modern approaches on cybernetic systems models, administrative and systemic models of local development (Matei, 2008, pp. 13-14).

In Matei (2008) the suitable systemic analysis of public administration is accompanied by feedback mechanisms based on fundamental public economic theories and findings. This approach draws also from European institutions preoccupations concerning the assessment and impact of local and regional development programs and projects.

I.1. Economic and social models

Management processes systemic approach requires a careful and thorough system investigation with the aim of its representation by models in order to achieve high efficiency in attaining system's objectives.

The model can be defined as *"an isomorphic representation of objective reality and represents a simplified rigorous and fundamental description in the sense of the represented system (phenomenon/process) logical structure that facilitates the discovery of links and laws that are very difficult to find other ways"* (Păun, 1997, p. 133).

In Klein's, Welfe and Welfe's (2003) view, the model *"is a schematic simplification that removes non-essential issues in order to highlight the content, form and operation of a more complicated mechanism"* (Klein et al., 2003, p. 13).

Therefore, the essence of modeling method is to replace the real studied process with a more easily reached model.

The models are found both in the economic and the social sphere. A social model consists of simplifying hypothesis, approximate but sharp relations, and a specific explanation of reality. Finally, *"this model does not represent reality but only a simplified picture of reality that man is able to understand"* (Klein et al., 2003).

A more closely picture of the administrative phenomena and acts outlines the administrative system model as *"a cybernetic-administrative model"* (Matei, 2003, p. 53) according to which the public administration is seen as *"an evolutionary process from continuous requirements, attributes and relationships that allow optimal operation"* (Alexandru, 1999, p. 47).

Given the features and complexity of phenomena and processes taking place in these systems, defining the model concept, located in the economic, social and administrative systems, raises new problems and stresses controversy. The essential elements that can not be ignored in the modeling process are:

- dual quantitative and qualitative essence of social-economic phenomena and processes that require the avoidance of unilateral economic approach;
- different development of socio-economic phenomena, both in space plan (from an administrative-territorial unit to another), and in time (from one period to another);
- economic and social phenomena and processes explanation is influenced by group interests, aspirations and choices, being determined by their conduct;
- mathematical formalization is not the only possible abstraction form, but a higher level of scientific abstraction that draws us most closely to certainty borders, since the hypothesis are appropriate and can be applied in practice.

Consequently, a model approximates the objective reality based on a conceptualization that comprises a core-theory, expressed by descriptive or mathematical representations and normative acts that reveal the phenomenon essence in accordance with a pattern of thought, namely observations and measurements derived from descriptions, facts ordering, data comparison, regularities set upon data processing, etc.

The literature presents an important number of economic development theories and models. This phenomenon is generated by the underdevelopment complexity

problems, by countries efforts to overcome this situation, by the trends of economic and political emancipation of industrialized countries, and also by the bottlenecks that may arise in the development process of the concerned industrialized countries. In this regard, some theories focus on internal factors (endogenous) and others stress the importance of external factors (exogenous).

In this situation, an analysis of the two forms of development is need. *Exogenous development* strategies and policies aim, in particular, to resolve employment and supporting the new business problems, while *endogenous development* incorporates, in its broadest sense, factors that may contribute to local economic development: material resources, including those offered by environment, transport and telecommunications infrastructure, etc. To promote local development means to coordinate these factors and put them in the service of local community members.

For this reason *“it must be distinguished between the spontaneous development and stimulated development by public authorities based on the endogenous potential, as well as between endogenous and self-development”* (Constantin, 2000, p. 100).

We must also bear in mind that endogenous development policies are not limited to the secondary sector and could extend to the primary one, but also to the tertiary, depending on the specific analyzed area or localities. However, in relation to this differentiation, solving local development problems can be achieved simultaneously focusing endogenous and exogenous factors.

1.2. Model options. Data sources problem

In relation to the many theories and models that seek to highlight the local development process, it is difficult to choose a particular model, especially, as the Romanian society knows extensive changes due to transition to a market economy. The study of economic and social processes in the counties or municipalities (communes, towns, cities) is affected by the existence of some constraints.

In this case, one of the most important restrictions to overcome is to provide data needed to estimate the selected parameters.

Referring to models with simultaneous equations, one major problem relates to defining the list of instrumental variables used in estimating parameters involved in the model. We mention that the literature does not offer a consistent approach in choosing the list of variables.

If at national, regional or even at county level there are certain chronological series on the territorial-administrative units (commune, town, city), they are restricted or entirely absent. Thus, data collection action for this type of model was rather difficult. Therefore, in these conditions, we chose to use an econometric analysis by addressing the data simultaneously in time and space, an action that allows increasing the number of observations used in the model.

Another limitation encountered in studying the processes of local development lies in the lack of local separate compartments to collect the necessary data to periodically adjust the local development strategy. Following these restrictions to

ensure consistency and good specification, the constructed econometric model is a relatively small model sizes.

Given these circumstances and taking into account the fact that statistical data series are of relatively small scale for local authorities at communes, cities and some municipalities level and, as such, do not allow us to build a model of social-economic development, we considered necessary and appropriate to build an econometric model specific to Braila city.

1.2.1. Overall structure of the model

The structure comprises the following components:

- model variables
- model parameters
- model equations
- data sets (primary information).

a) Model variables and parameters

The proposed model includes statistic interdependent variables. The types of variables used in this model are:

- *endogenous variables*, also called *result variable* or *resulted effect*, are those variables whose values are determined by one or more exogenous variables. Endogenous variables are obtained by solving the model, and on this basis, they are also called *dependent*;
- *independent variables*, also called *factor variables* or *influencing factors*, are those variables whose status and evolution depend on the studied external system factors. These are always *explanatory variables*, meaning their value is predetermined, known in advance, or is determined by entering primary data. We must note that not any explanatory variable in the model is exogenous.
- In turn, exogenous variables may be:
 - *predetermined* or explanatory – variables whose values are known a priori and are used to explain the status and the evolution of endogenous variables;
 - *delayed variables* – variables that can be emphasized by retrospective, or, in other words, existing variables evolution is dependent of similar variables in past periods;
 - *residual variables*, also called *errors* that occur in the model as the sum of all unknown influences;

The proposed model also comprises its *parameters*, called the *regression coefficients*, real and unknown quantities, which appear in the model in different expressions along with variables. Parameters are the process subject of statistical estimation and testing.

The model focuses primarily to quantify factors determination influence of some economic, social, demographic and spatial-urbanity indicators at Braila city level. Also, it underlines at this level the conditioning variables related to: business

development (total number of companies), public transportation (number of bus trips, number of tram trips), development of public affairs (running costs of the local budget, capital expenditures for public utility services), gross domestic product (demography, population density, the average life span), social comfort (the amount of heat distributed in the city, the number of existing houses), etc.

The model includes in its structure 36 variables, 20 of which are exogenous, and 16 are endogenous. All variables are calculated at local level (municipality). The symbols used and their significance are presented in Table 1.

Table 1

The variables symbols used in the model and their meanings

Symbol	Meaning	Variables Type
AG_ECON	Total number of companies	exogenous
WATER	The amount of total distributed water (thousand c.m.)	exogenous
$a_1, a_2, \dots, a_n$	Econometric determined coefficients	endogenous
BUS_TRIP	Number of trips related to a bus/minibus (per 1000 inhabitants)	exogenous
TRIP_BUS	Number of bus trips	endogenous
TRAM_TRIP	Number of trips related to a tram (per 1000 inhabitants)	exogenous
TRIP_TRAM	Number of tram trips	exogenous
CURRENT_EXPEND	Current expenditure of local budget (thousand lei)	exogenous
EXPEND_SUP	Capital expenditure for public services (thousand lei)	exogenous
DECED	Deaths	endogenous
DENSITY	Population density (inhabitants per/km ²)	endogenous
AVERAGE LIFE SPAN	The average life span	exogenous
EN_TERM	The amount of heat distributed (Gcal)	exogenous
GAS	The volume of natural gas distributed (thousands c.m.)	endogenous
HOUSES	Number of existing housing	exogenous
BIRTHS	Number of live births	exogenous
NR_TRMV	The number of trams in stock	exogenous
NR_BUS	The number of bus/minibuses in stock	exogenous
BEDS	Number of beds in hospitals	exogenous
PENSIONERS	Number of pensioners in the city	exogenous
GDP	Gross domestic product (million lei)	endogenous
GDP_LOC	Gross domestic product per capita (lei RON)	exogenous
DEPART_DOM	Local resident departures	endogenous
POP_ACTIV	Active population of the city	exogenous
POP_MUN	The total population of the city	endogenous
R_DECED	Death rate (per 1000 inhabitants)	endogenous
R_BIRTH	Birth rate (per 1000 inhabitants)	endogenous
R_BED	Rates number of hospital beds (per 1000 inhabitants)	endogenous
R_PENS	Pensioners rates (per 1000 inhabitants)	endogenous
R_DEPART	Local resident departure rate (per 1000 inhabitants)	endogenous
R_EMPLOYEES	Rates of employees (per 1000 inhabitants)	endogenous
R_ARRIVALS	Rates settling residence in the village (1000 inhabitants)	endogenous
EMPLOYEES_ADM	Number of employees in public administration	endogenous
EMPLOYEES	Number of employees (per 1000 inhabitants)	endogenous
UNEMPLOYED	The total number of unemployed	endogenous
ARRIVALS_DOM	Arrivals residing in the locality	exogenous
OWN_REVENUE	Own revenues of local budget (thousand lei)	exogenous

1.2.2. Model equations and identities

Model equations are designed to connect between endogenous and explanatory variables. The types of equations used in the model are:

- behavioral equations;
- definition equations;
- balance sheet or equilibrium equation;

Identifying equations represented a model specific stage because it includes multiple equations for analyzing socio-economic activities in Braila town, from 2001 to 2005.

The model consists of 17 equations, and, of these, 9 are *behavioral* equations and 8 are *definition* or *equilibrium* equations. The chosen model is structured in blocks of equations, each containing specific equations.

The *first block* consists of eight equations, of which two equations are behavioral (R_EMPLOYEES and AVERAGE LIFE SPAN) and six equations of equilibrium (R_BIRTH, R_DEPART, R_ARRIVALS, R_PENS, R_DECED and R_BED) and seek to analyze the local demographic variables.

Structured form of block equation is as follows:

$$R_EMPLOYEES = a_{11} + a_{12} * R_BIRTH + a_{13} * R_DEPART + a_{14} * R_ARRIVALS$$

$$AVERAGE\ LIFE\ SPAN = a_{21} + a_{22} * R_PENS + a_{23} * R_DECED + a_{24} * R_BED$$

$$R_BIRTH = BIRTHS/1000 * POP_MUN$$

$$R_DEPART = DEPART_DOM/1000 * POP_MUN$$

$$R_ARRIVALS = ARRIVALS_DOM/1000 * POP_MUN$$

$$R_PENS = PENSIONERS/1000 * POP_MUN$$

$$R_DECED = DECED/1000 * POP_MUN$$

$$R_BED = BEDS/1000 * POP_MUN$$

The *second block* includes six equations, of which 4 are behavior equations (EMPLOYEES, SOMERI, POP_ACTIV and EMPLOYEES_ADM) and two are equations of equilibrium (TRAM_TRIP and BUS_TRIP) and analyze local labor market.

The structure of the equations system that highlights local labor market, is as follows:

$$EMPLOYEES = a_{31} + a_{32} * TRAM_TRIP + a_{33} * BUS_TRIP$$

$$UNEMPLOYED = a_{41} + a_{42} * RATA_PLECARI + a_{43} * RATA_SOSIRI + a_{44} * GDP_LOC$$

$$\text{POP_ACTIV} = a_{51} + a_{52} * \text{POP_MUN} + a_{53} * \text{GDP}$$

$$\text{EMPLOYEES_ADM} = a_{61} + a_{62} * \text{OWN_REVENUE} + a_{63} * \text{CURRENT_EXPEND} + a_{64} * \text{EXPEND_SUP}$$

$$\text{TRAM_TRIP} = (\text{TRIP_TRAM} / \text{NR_TRMV} * 1000) / \text{POP_MUN}$$

$$\text{BUS_TRIP} = (\text{TRIP_BUS} / \text{NR_BUS} * 1000) / \text{POP_MUN}$$

The *last block* consists of three equations, all behavioral, and reveals the utilities provision, housing issues in relation to the number of traders, the unemployed and the local GDP.

Equations that compose this block have the following form:

$$\text{HOUSES} = a_{71} + a_{72} * \text{AG_ECON} + a_{73} * \text{GDP_LOC} + a_{74} * \text{UNEMPLOYED}$$

$$\text{DENSITY} = a_{81} + a_{82} * \text{EN_TERM} + a_{83} * \text{GAS} + a_{84} * \text{WATER}$$

$$\text{GDP_LOC} = a_{91} + a_{92} * \text{HOUSES} + a_{93} * \text{OWN_REVENUE}$$

1.2.3. Model validity

The model is solved by the two-stage least squares method (MCMMP-2) (Pecican, 2005, p. 322). The chosen alternative is frequently applied in practice (Andrei, Bourbonnais, 2008, pp. 305-312), both because of the outcome quality and because it is less laborious (implying lower processing costs) compared to other alternatives. MCMMP-2 application is necessary because in the model appear circularities. However, the method advantage also consists in mitigating the autocorrelation phenomenon of residues.

According to the chosen method, the first phase (stage) implies the ordinary method of least squares (classical) for each equations model, achieving thereby estimated parameters vectors $a_1, a_2, a_3, \dots, a_g$. The estimations thus obtained are introduced into the reduced area equations to obtain the adjusted values for each of the endogenous variables related to exogenous variables evolution.

In the second stage, statistical values of the endogenous variables model are replaced with values adjusted in first phase independent of the disturbance and the method of least squares is applied to estimate parameters of each equation.

Solving the model was possible using the software package EViews. The coefficients values of model equations, based on a specific Braila town statistical data, in the period 2001-2005, together with significance tests are shown in Table 2.

Table 2

The coefficients values of equations model

	Coefficient	Standard deviation	t-Statistic	Probability	R-squared (R ²)
a ₁₁	391.0415	196.6041	1.988979	0.2966	0.654709
a ₁₂	-8.736079	16.16709	-0.540362	0.6846	
a ₁₃	4.263381	4.436007	0.961085	0.5126	
a ₁₄	-11.83660	10.45436	-1.132216	0.4606	
a ₂₁	56.25880	0.169200	332.4998	0.0019	0.999902
a ₂₂	-0.004946	0.000546	-9.061887	0.0700	
a ₂₃	0.889994	0.014420	61.71799	0.0103	
a ₂₄	0.654579	0.007936	82.48737	0.0077	
a ₃₁	312.1570	28.34757	11.01177	0.0081	0.775478
a ₃₂	0.042654	0.016279	2.620193	0.1200	
a ₃₃	-0.114599	0.052645	-2.176816	0.1614	
a ₄₁	9551.164	7533.859	1.267765	0.4252	0.973272
a ₄₂	-1539.797	898.5682	-1.713611	0.3363	
a ₄₃	2793.408	1561.229	1.789237	0.3245	
a ₄₄	-0.237357	0.534305	-0.444235	0.7339	
a ₅₁	-87217.24	26385.32	-3.305521	0.0806	0.984094
a ₅₂	0.975084	0.112235	8.687916	0.0130	
a ₅₃	2.583090	0.597837	4.320726	0.0496	
a ₆₁	1456.040	20.30109	71.72223	0.0089	0.995836
a ₆₂	0.026195	0.002630	9.958481	0.0637	
a ₆₃	-0.007440	0.001024	-7.268484	0.0870	
a ₆₄	-0.072579	0.005831	-12.44689	0.0510	
a ₇₁	77131.90	150.1683	513.6365	0.0012	0.999026
a ₇₂	-0.013680	0.011382	-1.201987	0.4418	
a ₇₃	0.129590	0.013152	9.853228	0.0644	
a ₇₄	0.024047	0.006952	3.459180	0.1792	
a ₈₁	-1749.727	991.9967	-1.763843	0.3283	0.988181
a ₈₂	-0.008661	0.002004	-4.322721	0.1447	
a ₈₃	0.000274	0.001478	0.185297	0.8834	
a ₈₄	0.812144	0.092067	8.821225	0.0719	
a ₉₁	-610918.7	152578.2	-4.003971	0.0571	0.993762
a ₉₂	7.870874	1.965725	4.004056	0.0571	
a ₉₃	0.046978	0.026952	1.743022	0.2235	

The analysis of the errors in the above table indicates that they provide information characterizing the performance model in the sense that the probability that the coefficient value is insignificant is almost zero, whatever coefficient is selected.

Moreover, there were also been taken in the analysis the calculated statistical tests for econometric relations validation.

R² test highlights the extent to which factorial variables have the variation of the result variable. The maximum value of this indicator is 1, and achieving this value means the existence of functional dependencies.

The verification of disturbances' independence related to its value was made by Durbin-Watson test. The presence of errors' autocorrelation determines that the estimation of parameters to be inefficient and significance tests of the estimator are not

valid. The absence of errors autocorrelation test status is indicated by Durbin-Watson around the 2.5 value, with a calculated deviation, plus or minus, depending on the number of statistical observations and the number of explanatory variables in each equation of the model. If we consider that the Durbin-Watson test value is found between the two limits with a 95% probability, the residues in the model equations do not show the phenomenon of order I autocorrelation. The data to be presented underline that all equations defined in the model complies with this condition.

This indicates that none of the equations presents the autocorrelation of errors phenomenon, so the estimated values of model parameters are calculated correctly. Therefore, the estimators are effective.

As such, the proposed model raises the spatial autocorrelation problem since the relatively short series do not permit applying such tests.

II. Model variables interpretation and dynamic

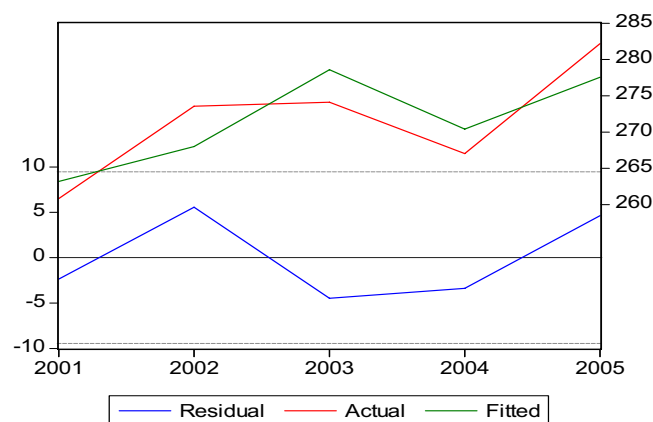
The computation and dynamics in the period under review, is as follows:

1. Estimation equation:

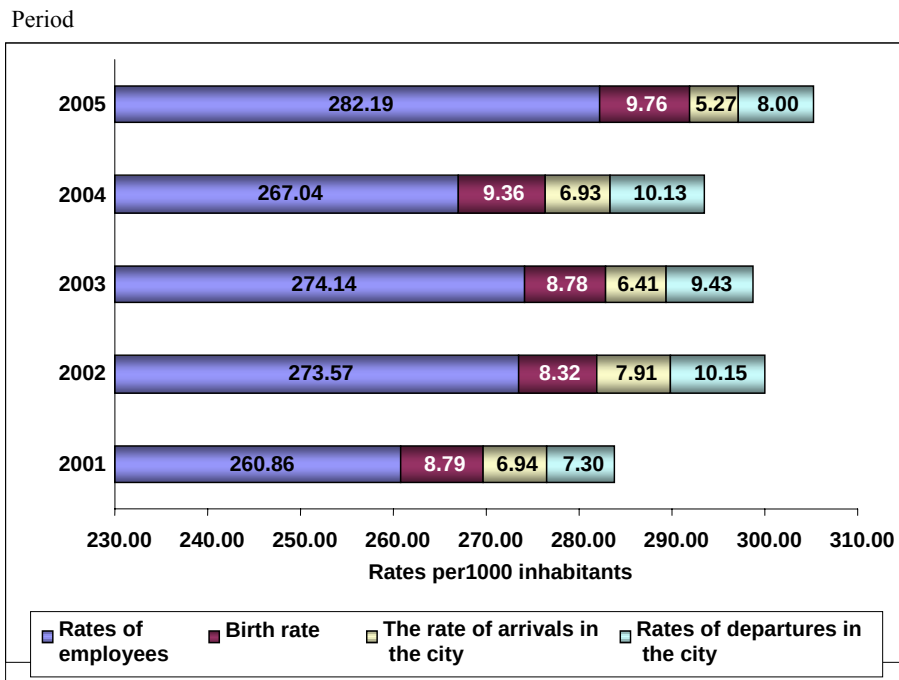
$$R_EMPLOYEES = a_{11} + a_{12} * R_BIRTH + a_{13} * R_DEPART + a_{14} * R_ARRIVALS$$

R-squared	0.654709	Mean dependent var	271.5569
Adjusted R-squared	-0.381166	S.D. dependent var	8.041777
S.E. of regression	9.450938	Akaike info criterion	7.320667
Sum squared resid	89.32022	Schwarz criterion	7.008217
Log likelihood	-14.30167	F-statistic	0.632035
Durbin-Watson stat	2.559047	Prob(F-statistic)	0.702555

Graphical representation of the calculated measured values and residual values for this model equation is as follows:



However, the dynamic evolution of these parameters is as follows:

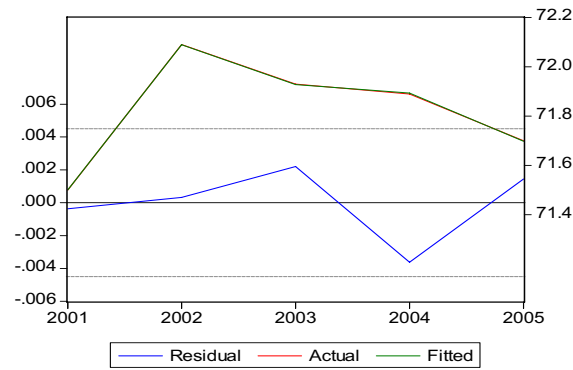


2. Estimation equation:

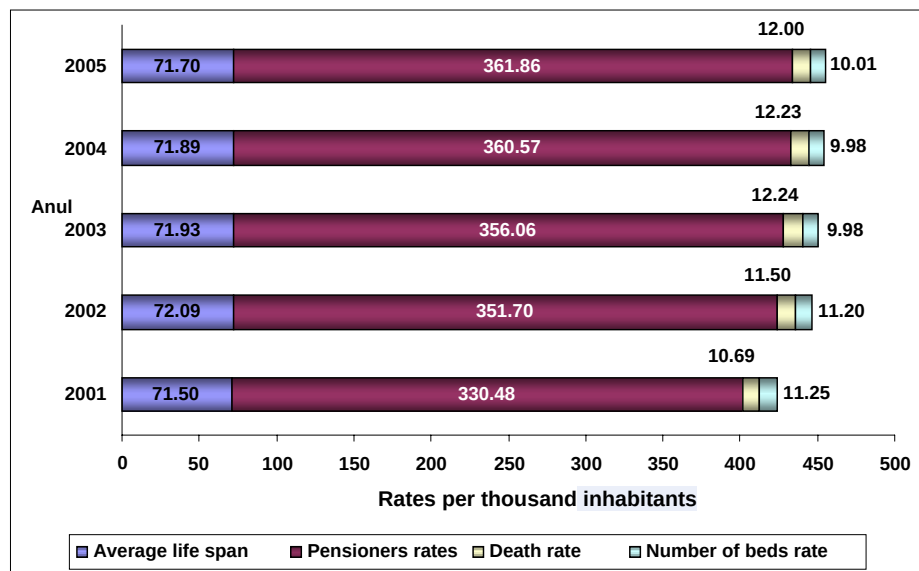
$$\text{AVERAGE LIFE SPAN} = a_{21} + a_{22} * R_PENS + a_{23} * R_DECED + a_{24} * R_BED$$

R-squared	0.999902	Mean dependent var	71.82200
Adjusted R-squared	0.999608	S.D. dependent var	0.227310
S.E. of regression	0.004502	Akaike info criterion	-7.978042
Sum squared resid	2.03E-05	Schwarz criterion	-8.290492
Log likelihood	23.94511	F-statistic	3398.834
Durbin-Watson stat	3.133220	Prob(F-statistic)	0.012608

Graphical representation of the calculated measured values and residual values for this equation is:



As far as the dynamic evolution of these parameters is concerned, the situation is as follows:

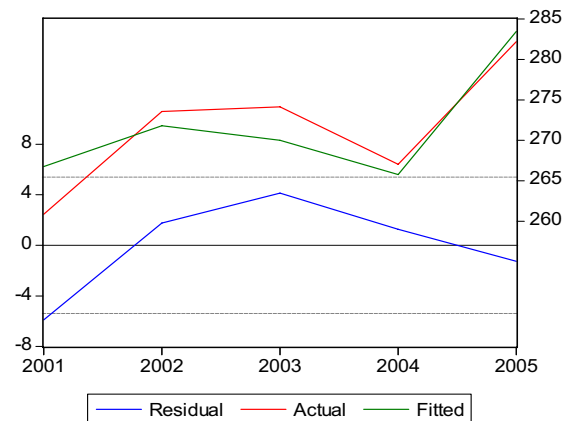


3. Estimation equation:

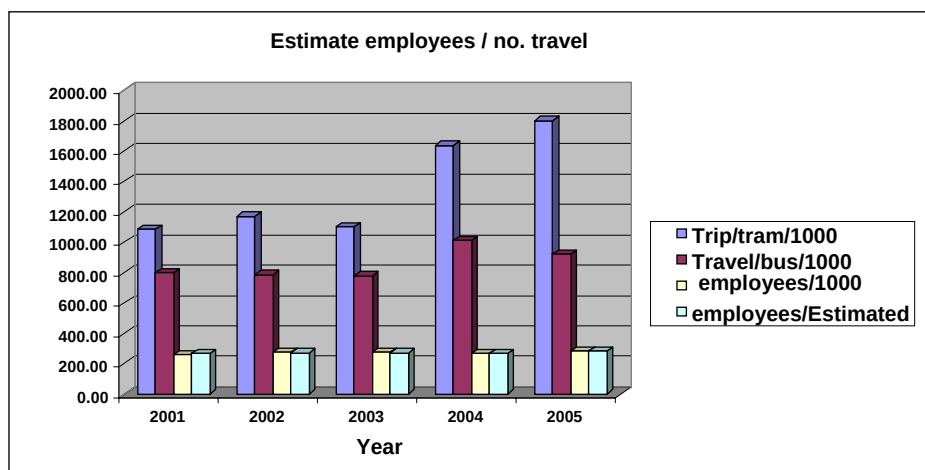
$$\text{EMPLOYEES} = a_{31} + a_{32} * \text{TRAM_TRIP} + a_{33} * \text{BUS_TRIP}$$

R-squared	0.775478	Mean dependent var	271.5569
Adjusted R-squared	0.550955	S.D. dependent var	8.041777
S.E. of regression	5.388860	Akaike info criterion	6.490254
Sum squared resid	58.07962	Schwarz criterion	6.255917
Log likelihood	-13.22563	F-statistic	3.453898
Durbin-Watson stat	1.356345	Prob(F-statistic)	0.224522

Graphical representation of the calculated measured values and residual values for this equation is:



Also, the dynamic evolution of these parameters is as follows:

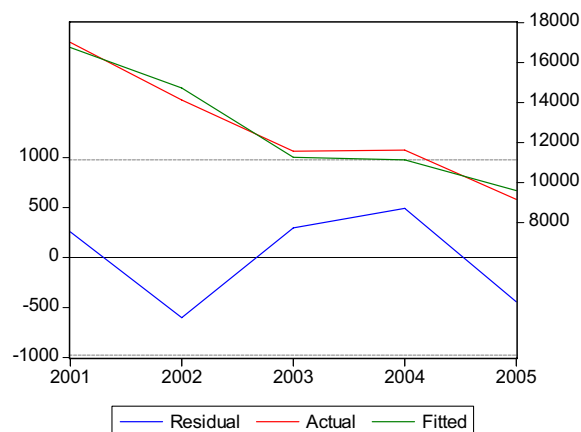


4. Estimation equation:

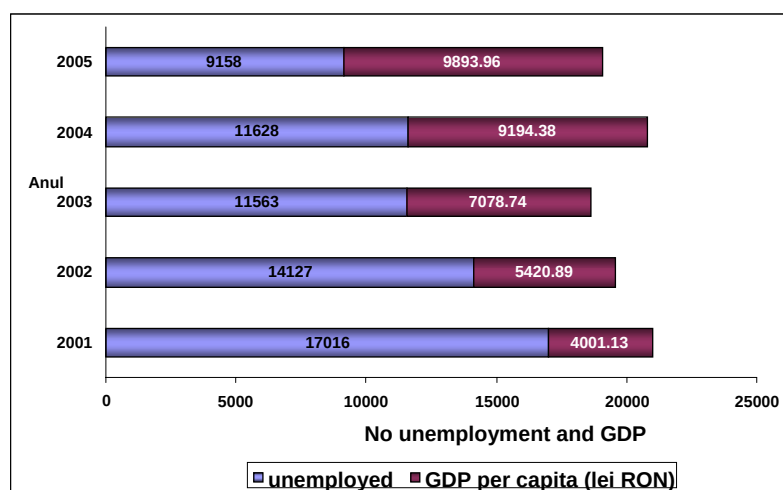
$$\text{UNEMPLOYED} = a_{41} + a_{42} * R_DEPART + a_{43} * R_ARRIVALS + a_{44} * GDP_LOC$$

R-squared	0.973272	Mean dependent var	12698.40
Adjusted R-squared	0.893089	S.D. dependent var	2985.460
S.E. of regression	976.1632	Akaike info criterion	16.59570
Sum squared resid	952894.7	Schwarz criterion	16.28325
Log likelihood	-37.48925	F-statistic	12.13810
Durbin-Watson stat	2.573804	Prob(F-statistic)	0.207226

Graphical representation of the calculated measured values and residual values for this equation is:



However, the dynamic evolution of these parameters has the following form:

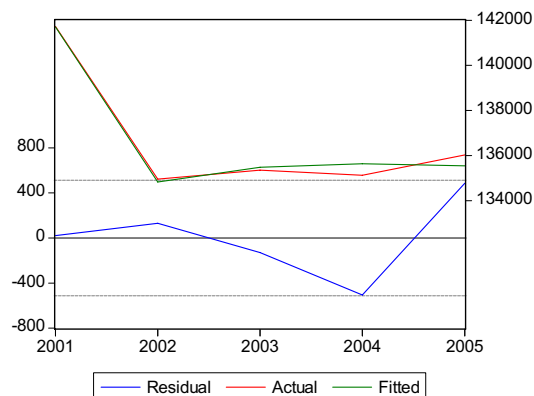


5. Estimation equation:

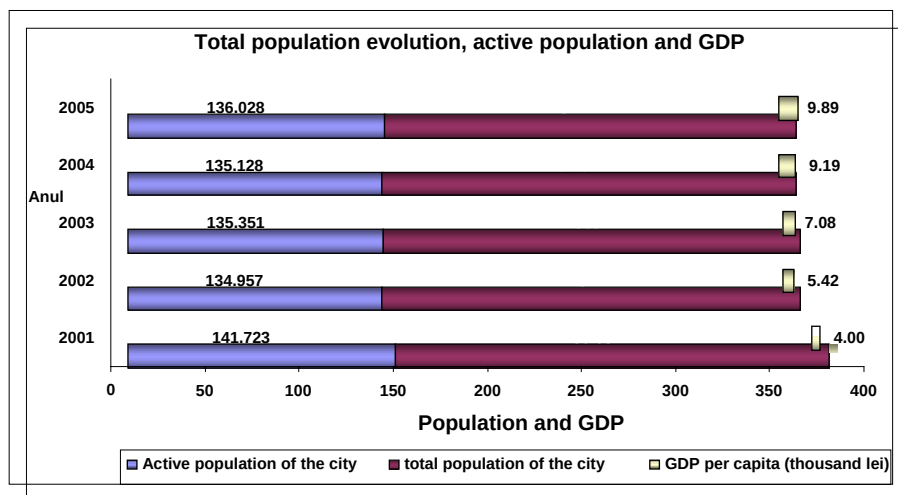
$$\text{POP_ACTIV} = a_{51} + a_{52} * \text{POP_MUN} + a_{53} * \text{GDP}$$

R-squared	0.984094	Mean dependent var	136637.4
Adjusted R-squared	0.968187	S.D. dependent var	2871.914
S.E. of regression	512.2384	Akaike info criterion	15.59917
Sum squared resid	524776.3	Schwarz criterion	15.36483
Log likelihood	-35.99792	F-statistic	61.86784
Durbin-Watson stat	2.289873	Prob(F-statistic)	0.015906

Graphical representation of the calculated measured values and residual values for this equation is:



On the dynamic evolution of these parameters, the situation is as follows:

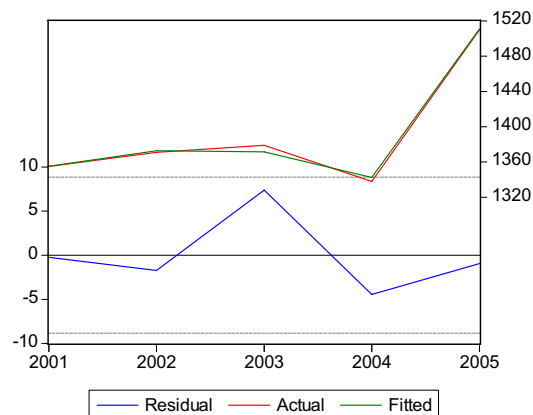


6. Estimation equation:

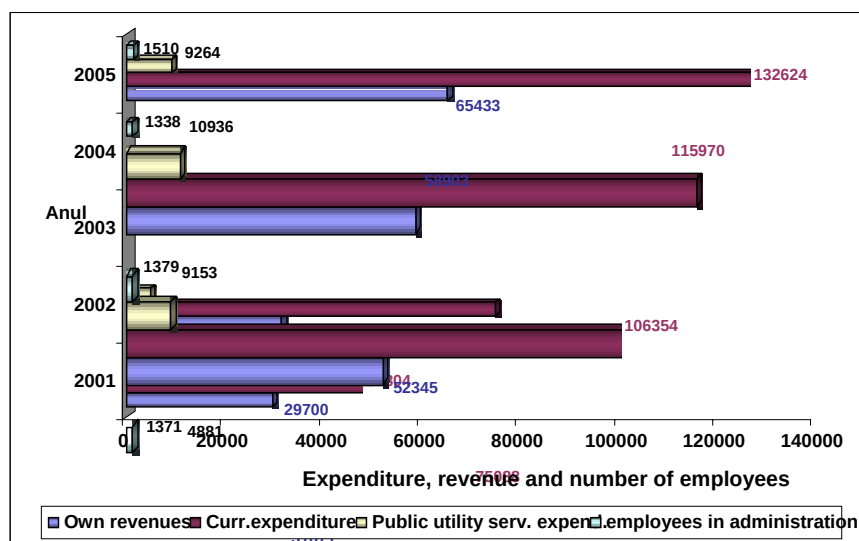
$$\text{EMPLOYEES_ADM} = a_{61} + a_{62} * \text{OWN_REVENUE} + a_{63} * \text{CURRENT_EXPEND} + a_{64} * \text{EXPEND_SUP}$$

R-squared	0.995836	Mean dependent var	1390.600
Adjusted R-squared	0.983345	S.D. dependent var	68.57332
S.E. of regression	8.849792	Akaike info criterion	7.189227
Sum squared resid	78.31883	Schwarz criterion	6.876777
Log likelihood	-13.97307	F-statistic	79.72064
Durbin-Watson stat	3.036388	Prob(F-statistic)	0.082102

Graphical representation of the calculated measured values and residual values for this equation is:



The dynamic evolution of these parameters is as follows:

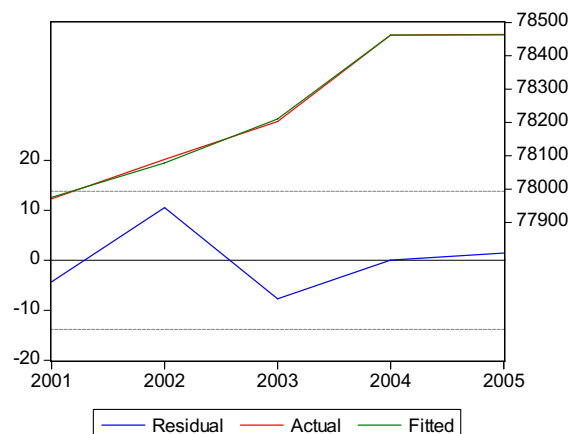


7. Estimation equation:

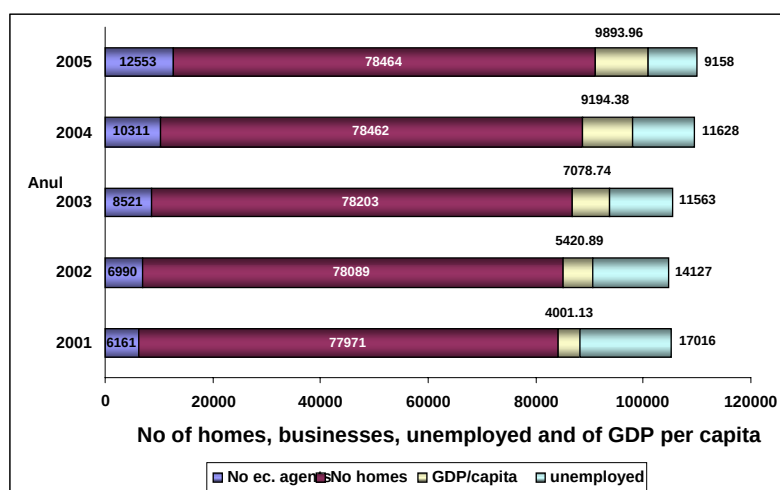
$$\text{HOUSES} = a_{71} + a_{72} * \text{AG_ECON} + a_{73} * \text{GDP_LOC} + a_{74} * \text{UNEMPLOYED}$$

R-squared	0.999026	Mean dependent var	78237.80
Adjusted R-squared	0.996103	S.D. dependent var	221.3407
S.E. of regression	13.81740	Akaike info criterion	8.080296
Sum squared resid	190.9205	Schwarz criterion	7.767847
Log likelihood	-16.20074	F-statistic	341.8104
Durbin-Watson stat	3.219927	Prob(F-statistic)	0.039735

Graphical representation of the calculated measured values and residual values for this equation is:



The dynamic evolution of these parameters is as follows:

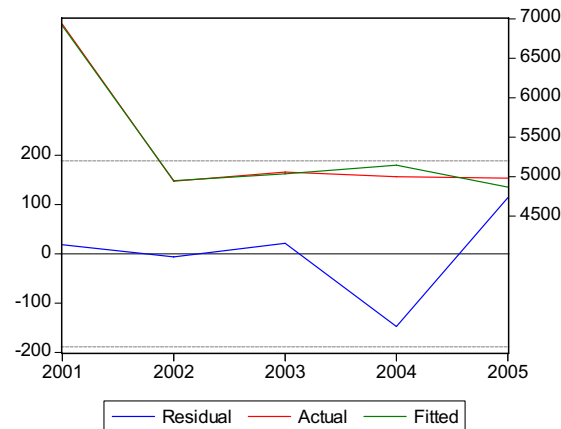


8. Estimation equation:

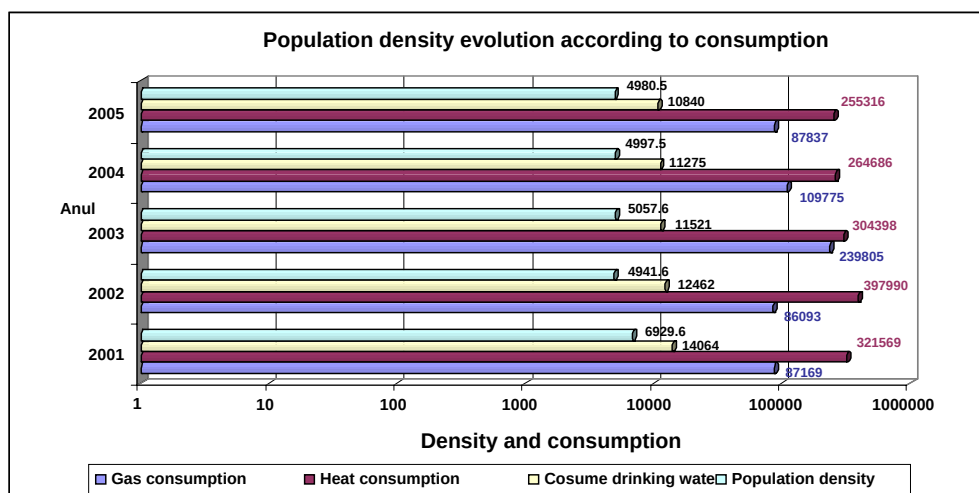
$$\text{DENSITY} = a_{81} + a_{82} * \text{EN_TERM} + a_{83} * \text{GAS} + a_{84} * \text{WATER}$$

R-squared	0.988181	Mean dependent var	5381.360
Adjusted R-squared	0.952725	S.D. dependent var	866.5007
S.E. of regression	188.4025	Akaike info criterion	13.30560
Sum squared resid	35495.52	Schwarz criterion	12.99315
Log likelihood	-29.26400	F-statistic	27.87017
Durbin-Watson stat	2.760990	Prob(F-statistic)	0.138147

Graphical representation of the calculated measured values and residual values for this equation is:



The dynamic evolution of these parameters is as follows:

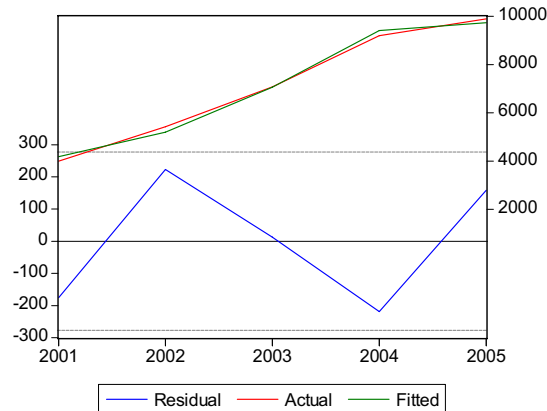


9. Estimation equation:

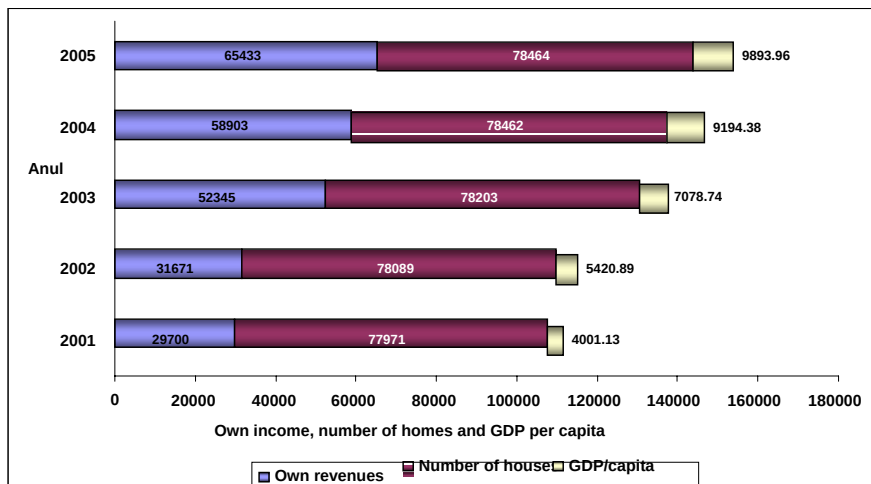
$$\text{GDP_LOC} = a_{91} + a_{92} * \text{HOUSES} + a_{93} * \text{OWN_REVENUE}$$

R-squared	0.993762	Mean dependent var	7117.819
Adjusted R-squared	0.987523	S.D. dependent var	2480.620
S.E. of regression	277.0851	Akaike info criterion	14.37024
Sum squared resid	153552.4	Schwarz criterion	14.13590
Log likelihood	-32.92559	F-statistic	159.2964
Durbin-Watson stat	2.596121	Prob(F-statistic)	0.006238

Graphical representation of the calculated measured values and residual values for this equation is:



The dynamic evolution of these parameters is as follows:



III. Results and conclusions

The used model fails to make an eloquent picture of trends and important factors correlations for the development of the town Braila, Romania.

Testing parameters was carried out in stages, and finally they validate the built model.

However, the results are consistent with the theory and economic practice of the specific analyzed domain. The model obtained by replacing the coefficients with parameters estimators is convergent after several iterations and has the following form:

$$R_EMPLOYEES = 391.0415 - 8.736079 \cdot R_BIRTH + 4.263381 \cdot R_DEPART - 11.83660 \cdot R_ARRIVALS$$

$$AVERAGE \quad LIFE \quad SPAN = 56.25880 - 0.004946 \cdot R_PENS + 0.889994 \cdot R_DECED + 0.654579 \cdot R_BED$$

$$\begin{aligned}
R_BIRTH &= BIRTHS/1000 * POP_MUN \\
R_DEPART &= DEPART_DOM/1000 * POP_MUN \\
R_ARRIVALS &= ARRIVALS_DOM/1000 * POP_MUN \\
R_PENS &= PENSIONERS/1000 * POP_MUN \\
R_DECED &= DECED/1000 * POP_MUN \\
R_BED &= BEDS/1000 * POP_MUN \\
EMPLOYEES &= 312.1570 + 0.042654*TRAM_TRIP - 0.114599*BUS_TRIP \\
UNEMPLOYED &= 9551.164 - 1539.797*RATA_PLECARI + 2793.408*RATA_SOSIRI - 0.237357*GDP_LOC \\
POP_ACTIV &= -87217.24 + 0.975084*POP_MUN + 2.583090*GDP \\
EMPLOYEES_ADM &= 1456.040 + 0.026195*OWN_REVENUE - 0.007440*CURRENT_EXPEND - 0.072579*EXPEND_SUP \\
TRAM_TRIP &= (TRIP_TRAM/NR_TRMV*1000)/POP_MUN \\
BUS_TRIP &= (TRIP_BUS/NR_BUS*1000)/POP_MUN \\
HOUSES &= 77131.90 - 0.013680*AG_ECON + 0.129590*GDP_LOC + 0.024047*UNEMPLOYED \\
DENSITY &= -1749.727 - 0.008661*EN_TERM + 0.000274*GAS + 0.812144*WATER \\
GDP_LOC &= -610918.7 + 7.870874*HOUSES + 0.046978*OWN_REVENUE
\end{aligned}$$

As far as the relations between the presented model variables are concerned, we find that their specification can be supported both by theoretical arguments and also by practical arguments. The estimation benefits are based primarily on the fact that they allow both the assessment of their influence and also their intensity.

The results of endogenous model variables are detailed in Table 3.

Table 3

The measured/calculated values dynamic of the local development model variables

INDICATORS	PERIOD					
	2001		2002		2003	
	Measured value	Calculated value	Measured value	Calculated value	Measured value	Calculated Value
R_EMPLOYEES	260,856	263,203	273,570	268,010	274,135	278,609
AVERAGE LIFE SPAN	71,5000	71,5004	72,0900	72,0897	71,9300	71,9278
EMPLOYEES	260,856	266,750	273,570	271,809	274,135	270,008
SOMERI	17016,0	16759,8	14127,0	14728,3	11563,0	11266,0
POP_ACTIV	141723	141702	134957	134827	135351	135481
EMPLOYEES_ADM	1355,00	1355,25	1371,00	1372,74	1379,00	1371,62
HOUSES	77971,0	77975,3	78089,0	78078,5	78203,0	78210,7
DENSITY	6929,60	6911,07	4941,60	4947,85	5057,60	5036,32
GDP_LOC	4001,13	4176,48	5420,89	5197,83	7078,74	7066,33

INDICATORS	PERIOD			
	2004		2005	
	Measured value	Calculated value	Measured value	Calculated value
R_EMPLOYEES	267,036	270,410	282,188	277,552
AVERAGE LIFE SPAN	71,8900	71,8936	71,7000	71,6985
EMPLOYEES	267,036	265,766	282,188	283,452
SOMERI	11628,00	11136,90	9158,00	9601,07
POP_ACTIV	135128	135634	136028	135544
EMPLOYEES_ADM	1338,00	1342,45	1510,00	1510,95
HOUSES	78462,0	78462,0	78464,0	78462,5
DENSITY	4997,50	5144,85	4980,50	4866,71
GDP_LOC	9194,38	9412,97	9893,96	9735,48

Analyzing the Table 3 data one observes that statistical differences between statistical recorded values and estimated values by the model are insignificant. The outcome shows that the model is correctly specified.

However, it is noted that the used assessment method, namely the least squares method, minimizes the sums of deviation squares made for each series separately.

The previous calculations analysis point out that, without adequate statistics, the model can not be extended to cover in detail the correlations needed locally. However, looking through a number of econometric methods for local statistical indicators, it can cause some correlations and mutual or univocal determination between variables.

Favorable obtained results in determining the indicators recommend this type of model to support hypothesis of the macroeconomic model.

Since the length of available statistical series available to calculate macroeconomic indicators is quite short, this issue becomes particularly important at this time.

The model uses a number of variables that reveal a pattern of *local development*, but it can also be used to *predict social-economic phenomena* at administrative territorial units' level. However, to highlight this, there are required the estimations of the amount of exogenous variables in the model, indicating that some of these indicators are relatively stable over the short and medium periods of time (locality area, degree of urbanization, etc.), and some have a higher inertia in the evolution of short-term. For some demographic indicators such as population and natural growth, there are specific methods for forecasting. But the most difficult thing in forecasting is the economic exogenous indicators estimation. Therefore, for underlining the forecasts we consider it necessary to follow two paths:

1. filling the model with other behavioral and functional equations, economically and socially significant, situation that requires a broad base of local statistics, especially from the district's residence; this measure needs to be implemented in the near future;

2. integrating the specific Braila city model in a wider pattern in which there is a permanent information exchange.

We believe that by placing both concepts in the field of scientific research, they can be of real help to local authorities at this level in the local development strategies foundation. Obviously, in this situation it remains necessary to ensure appropriate data structures and to development local sector studies to substantiate the hypothesis (exogenous variables) in these models.

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The Informatics Security Cost of Distributed Applications

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Abstract. *The objective, necessity, means and estimated efficiency of information security cost modeling are presented. The security requirements of distributed informatics applications are determined. Aspects regarding design, development and implementation are established. Influence factors for informatics security are presented and their correlation is analyzed. The costs associated to security processes are studied. Optimal criteria for informatics security are established. The security cost of the informatics application for validating organizational identifiers is determined using theoretical assumptions made for cost models. The conclusions highlight the validity of research results and offer perspectives for future research.*

Keywords: security; costs; models; analysis prediction; efficiency.

JEL Code: C63.

REL Code: 10J.

1. Introduction

The pursued objective is building cost estimation models for informatics security subsystems in distributed informatics applications.

The necessity is given by:

- the increase in complexity in informatics applications (Pendharkar et al., 2008, pp. 1181-1188) which determine measures in database exploitation, usage of executable programs and web site usage;
- the rise in user number and diversity according to (Khansa, Liginlal, 2009, pp. 216-235) which generates measures in accessing the resources of the informatics application;
- data base administration which generates measures in updating, reallocation, and restructuration;
- the development of E-commerce which implies a large volume of information transactions which implies measures⁽¹⁾ in maintaining confidentiality, integrity and availability of information;
- the transition to the new economy which generates the virtualization of business processes, which brings, in turn, an increase in the quantity of data streams transferred online and a change in the nature of company assets from physical to virtual, determining measures in protecting them and the related key transactions at an organizational level (Huang, Hu, 2008, pp. 793-804);
- the accelerated development of technologies used for elaboration of software products which imply more complex security measures which are meant to protect a larger area of assets and transactions.

To this purpose:

- distributed informatics applications that are used in electronic commerce, online payments, enterprise resource planning and stock management are considered;
- data that relates to behavior, maintenance, fixing, optimization and restructuration costs are considered (Kumar et al., 2008, pp. 1853-1867);
- data sets regarding the user and application behavior, level of validation and potential security risks are constructed (Anwar et al., 2009, pp. 13-25, Lu et al., 2009, pp. 4617-4625, Aroba et al., 2008, pp. 1944-1950);
- direct and indirect cost influence factors are determined;
- cost model structures based on different influence factors are determined (Lee, Kim, 2009, pp. 453-475);
- by using different mathematical methods the model coefficients are estimated;
- the models are validated using specific methodologies (Jasmine, Vasantha, 2008, pp. 951-954);
- the models are refined by using quantitative methods and genetic algorithms (Ivan et al., 2008, Vişoiu, 2009, pp. 861-866).

In order to complete a gradual approach a literature review of the most important cost estimation models is done. The accent is set towards informatics security and its part in the increase of software development costs and the decrease in current exploit of informatics applications are analyzed.

Influence factors are identified in order to increase the level of informatics security. Vulnerabilities are analyzed and linear and non-linear models are developed. The next step is developing optimization constructions and finally the model validation using data obtained by the current exploitation of the informatics application for validating organizational identifiers.

In order to complete this paper resources made available through contract no. 47/01.10.2008. in the doctoral school of the University of Economics Bucharest, Romania.

2. Literature review

In the papers dedicated to this subject (Vacca, 2009 [VACC09], Tipton, Krause, 2008 [TIKR08], Stamp, 2005 [STAM05], Pfleeger, Pfleeger, 2006 [PFLE06]) basic concepts of information security are presented. Table 1 presents the coverage degree of the mentioned works.

Table 1

Coverage degree of literature work				
Contents	[VACC09]	[TIKR08]	[STAM05]	[PFLE06]
Cryptography	X	X	X	X
Application security		X	X	X
Network security	X	X	X	X
Internet security	X	X		
Database security				X
Operating system security	X		X	X
Physical security	X	X		X
Security architectures		X		
Risk analysis	X	X		X
Risk management	X	X		
Security management	X			X
Access control	X	X	X	X
Security protocols	X	X	X	X
Insecurity			X	
The economics of security				X
Confidentiality	X	X	X	X
Legal aspects of information security		X		X

There are scientific journals in the informatics security field like:

- Computers & Security, ISSN: 0167-4048, published by Elsevier Advanced Technology;

- International Journal of Information Security, ISSN: 1615-5270, published by Springer New York;
- Journal of Cryptology, ISSN: 1432-1378, published by Springer New York;
- IEEE Transactions on Information Forensics and Security ISSN: 1556-6013, published by IEEE;
- Cryptologia, ISSN: 1558-1586, published by Taylor & Francis;
- IET Information Security, ISSN: 1751-8709, published by Institution of Engineering and Technology;
- ACM Transactions on Information and System Security, ISSN: 1094-9224, published by ACM
- Security and Privacy, ISSN: 1540-7993, published by IEEE;
- IEEE Transactions on Dependable and Secure Computing, ISSN 1545-5971, published by IEEE.

There are conferences in informatics security:

- IEEE Intelligence and Security Informatics, which had, in the 2009, sections relating to the distribution of information and data mining, protecting the infrastructure and emergency response, informatics in the context of terrorism;
- IEEE Symposium on Security and Privacy contained in the 2009 edition sessions about attack and defense methods, informatics security, malware code, information loss, confidentiality, formal bases of information security, network security, physical security and web security;
- ACM Conference on Computer and Communications Security which in the 2009 edition contains sections relating to informatics security, secure system design, techniques of ensuring information security, confidentiality, mobile service security, applied cryptography and system security;
- USENIX Security Symposium includes subjects as authentication and authorization, autonomous methods, grid computing, email related security, virus protection methodologies, cybernetic attack defense mechanisms;
- Computer Security Foundations Symposium hosted sections as protocol design, web security, session authorization, session checking, application security analysis;
- Network and Distributed System Security Symposium includes topics as web attacks, cryptography, confidentiality and integrity.

The presented journals and conferences offer a broad coverage area of actual informatics security and highlight the actual research progress made in this field of informatics.

3. Informatics security

Information is defined⁽²⁾ as facts and ideas that are represented or coded as different data forms.

According to this definition, security is represented⁽²⁾ by the measures taken to protect a system. Security is also considered like a condition of a system which results from enforcing and maintaining measures to protect assets. Security imposes that the resources of a system must not be the subject of unauthorized access, unauthorized changes or accidental, and destruction or loss of protected assets (Vydrin, 2009, pp. 261-275).

Information security can be defined⁽³⁾ as the protection of information and informatics systems from unauthorized access, use, divulgation, interference, modification and destruction in order to ensure:

- integrity⁽³⁾, defined as protection against incorrect information modification or destruction and includes ensuring non-repudiation and information authenticity;
- authenticity⁽³⁾ is necessary to ensure that data, information or transactions are original; non-repudiation⁽⁴⁾ implies the fact that no one is able to deny sending or receiving a transaction; authenticity and non-repudiation are applied in electronic commerce by using digital signatures⁽³⁾;
- confidentiality⁽⁴⁾ is defined as keeping authorized restrictions regarding access and publication, including means to protect private life and personal information;
- availability⁽³⁾ is represented as insuring timely and trustworthy access to information.

In the mention papers (Vacca, 2009, Tipton, 2008) informatics security addresses problems related to:

- informatics security risk by analyzing general concepts related to risk, vulnerabilities and threats (Alhazmi, Malaiya, 2008, pp. 14-22);
- access control highlighting different authentication modalities and user required protocols; the vulnerabilities of control systems are analyzed considering the main types of attack they are subject to;
- cryptography aspects of security systems pursuing network key management, the most efficient encryption methods are identified and the encryption algorithms are described; advantages and disadvantages for each encryption method are presented;
- application security by detailing the newest security methods and presenting the role of application quality in this process;
- Internet security by describing vulnerabilities and threats in the online environment;
- network security by identifying vulnerabilities of transfer protocols and analyzing the threats of network communication;

- wireless network security, presenting aspects relating to vulnerabilities, threats and recommended security policies;
- cellular network security detailing security protocols for radio transmissions, attack modalities of radio networks and defense strategies applied to radio networks;
- ways of increasing the security level by improving code quality, by identifying and eliminating system physical vulnerabilities, user training, by increasing access control systems quality, by improving password management techniques, by increasing the quality of security policies and clearly differentiating user roles, by developing a quality characteristic system associated to the security system and proceeding to improvement of the individual characteristic quality level in order to obtain a global quality increase of the informatics security system;
- management aspects of information security by clearly detailing the main components of a informatics security management system;
- intrusion detection systems and vulnerability evaluation techniques;
- the identification of legal aspects of informatics security by studying laws and regulations imposed globally for better practices in this domain.

Within informatics security systems quality plays an important role, being a major influence factor in the well being of an informatics application. The quality characteristics are placed in a hierarchy based on:

- source code:
 - homogeneity, which is represented by the nature of source code to have the same characteristics and properties in all of the modules belonging to the security system; the use of operators and operands in a similar fashion is desired as using the same kind of formatting in each of the system modules;
 - intelligibility is defined as the characteristic of source code to be perceived easily by developers that did not have any prior encounter with it before; source code intelligibility in security systems is useful due the resource economy it produces by allowing easy understanding of the implementation logic thus rapidly making improvements or modifications to existing code;
 - testability is the capacity of the source code to undertake the testing process easily by covering all logical paths; a high testability level in security systems ensures a minimization of defect numbers and omissions of the system thus improving the global quality level; testability is ensured by the homogenous development of the security system and using logical internal reporting systems for all operations and events encountered in the security framework;
 - maintainability, which if present in a high level minimizes defect fixing application improvement costs, this characteristic is in tightly related to homogeneity and intelligibility of source code;

- data type veridicity thus pursuing the elimination of buffer overflow which leads to the security system corruption; lower and upper limiting of buffers is needed in order to ensure the system is protected from this type failure; enforcing buffer limitation as a standard for all input received by the application is a proven technique for avoiding memory corruption;
- error perception is a characteristic which oversees the level on which the security system reports errors and interprets them correctly; a high level of perception in the security system reduces the costs relating to restoring the informatics application, paying compensations and the cost of reengineering the security system altogether;
- using secret phrases in source code is a known security issue mostly when the phrases take the form of access tokens and are hardcoded for future use; this practice is not recommended as it raises several security hazards that are hard to control;
- interaction with the informatics application:
 - compatibility, meaning using common communication protocols thus maintaining communication between the two entities in the best conditions possible;
 - coexistence, defined as security system's ability to work at optimal parameters within the informatics application; a high level of coexistence increases the reliability degree of the informatics application and minimizes the maintenance costs associated to the security system;
 - accuracy is represented by the exact nature with which the signals emitted by the informatics application are perceived by the security system;
 - securing information is characterized by the security system's ability to protect and ensure the confidentiality of data used and processed in the informatics application;
- user interaction:
 - transfer security in the informatics application by implementing efficient authentication and authorization systems thus ensuring a correct user authentication effort, minimizing identity theft cases and costs with:
 - restarting the security system of the informatics application after a breach;
 - damage evaluation provoked by the unauthorized access in the informatics application;
 - paying compensations due to compromising protected assets;
 - the validity of data inputted by the user; by ensuring a high level of which the attack opportunities are minimized and human-machine interaction is improved; data validity is ensured by implementing validation controls and procedures to prevent the most common and dangerous informatics attacks to which the application is exposed.

Informatics security is a necessary requirement for large distributed systems (Dudin et al., 2009, pp. 234-240). It is imperative to develop secure systems in the conditions of an increasing number of threats and threat agents.

4. Influence factors for informatics security

Informatics applications are complex constructions used in defined social and economical contexts. The influence factors are numerous and have diverse effects.

Direct influence factors consist of:

- the target group which is defined as all the individuals that form the collectivity which uses the informatics product; the target group influences security directly through:
 - structural diversity, a collectivity structural analysis being necessary to determine behavioral patterns differenced based on age, sex and education in order for the security system to register user actions and assign a behavioral pattern to application users such that an adaptive security policy system is used to grant or deny privileges to them;
 - dimension such that the security system is correlated to the number of individuals that access the application; this way the security system will work at optimal parameters;
 - the social status in the collectivity, thus if it proves to be true that certain individuals in it are against actions or thoughts that the application owner sees as favorable, a greater amount of effort must be made to ensure an increase in physical and logical security of the application;
- the development process quality has a direct influence on informatics security because:
 - a high level of quality leads to the minimizing the number of defects which in turn reduces the informatics security risk;
 - a low level of quality increases the number of vulnerabilities in the application thus increasing the informatics security risk
- in the development cycle of the security system fixed quality objectives should be followed:
 - homogeneity of source code by developing modules and procedures which integrate totally in the security system;
 - intelligibility of implemented procedures in order to minimize testing, optimization and maintenance time of the security system associated to the informatics application;
 - flexibility of network communication and reporting systems in n order to function with an extended set of report formats thus assuring a high compatibility degree with intrusion detection systems;
 - scalability of components in order to easily increase the adaptability of the security system;
- used development technologies represent an important aspect because they influence the level of informatics security by:

- quality transfer, if the instruments used in the development stage have a high quality level then by using them the developed security system will benefit of a high quality level;
- the degree to which the development assistance tools help the developer make good decisions by providing useful observations at development time;
- the novelty degree of used instruments and tools and their coverage level of the newest informatics attacks thus allowing the developer to bring the performances of the security system to the highest standards;
- the environment in which the informatics product is used and in which the security system activates influences the level of security by the degree of provided physical security;
- hardware elements have a direct influence on the security system by their wear resistance and reliability considering they have to work continuously; performance is another key issue for hardware equipment being necessary to ensure a small response time for each event in the security system;
- dynamic elements of the problem that the informatics application needs to solve, this implies an increased flexibility level to handle new and unforeseen events generated by structural or logical changes in informational transfers required by modifications in the problem structure.

The indirect factors that determine security are:

- complexity, which has an important effect over informatics security (Pocatu, 2004), as the software product's complexity grows so does the number of defects thus decreasing the level of informatics security. Complexity is defined using the following models:
 - Halstead (1977), a model which is characterized by the following equations:
 - the length of code N which is represented by the sum of the operator number N_1 and operands number N_2 :

$$N = n_1 \times \log_2 n_1 + n_2 \times \log_2 n_2$$

where:

n_1 represents the number of distinct operators;

n_2 represents the number of distinct operands;

- volume is the product of the code length with the minimum number of bits needed to store operators and operands:

$$V = N \times \log_2 n$$

where:

$$N = N_1 + N_2$$

$$n = n_1 + n_2$$

- difficulty is defined as:

$$D = \frac{n_1 \times N_2}{2 \times n_2}$$

- the effort for implementing the program is computed using:

$$E = D \times V$$

- cyclomatic is defined by:

$$C = m - n + 2$$

where:

m is the number of arcs in the graph associated to the program;

n is the number of nodes of the graph associated to the program.

In Figure 1 the graphical representation of the influence of direct and indirect factors over informatics security is presented.

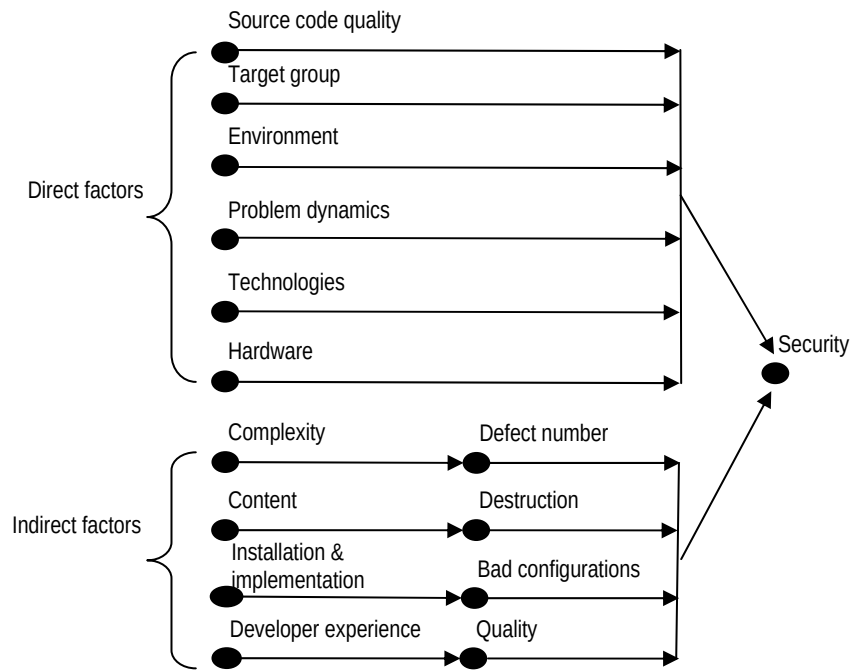


Figure 1. Graphical representation of the security influence factors

The influence factors are an important element in informatics security analysis and in establishing cost model coefficients.

5. Informatics security cost models

A model is a mathematical expression used to describe an economical process using a set of variables and operators in order to quantify the relation between them⁽⁶⁾

In order to build models:

- the way data is collected is analyzed;
- data collecting procedures are established;
- automated data acquisition procedures are developed;
- influence factors are placed in correspondence with variables;
- a specific technology is developed.

Economical models according to some authors (Ivan, Vişoiu 2005) consist of:

- exogenous variables that are associated to factors influencing a process or another variable that results from the model;
- endogenous variables or result variables which are associated to the pursued objective by completing the model;
- data sets collected manually or automatically by using specific procedures of data acquisition;
- the model coefficients which are a result of applying parameter estimation models based on the data sets;
- operators which are used to develop expressions and marking connections between the component factors of the economical model;
- elementary mathematical functions that are part of nonlinear models;
- composite mathematical functions that are used for the elaboration of more complex models.

There are several types of models associated with cost estimation:

- linear models, where mathematical expressions are defined in which the relations between exogenous and endogenous variables has a form like:

$$Ct = \sum_{i=1}^{NF} Ch_i$$

where:

- Ct – total cost of implementing the security system;
- Ch_i – expense no, i;
- NF – number of endogenous variables;

- non-linear models, which contain multiplications, divisions, logarithmic expressions, integrals, square roots and complex mathematical expressions, the analytical form of the nonlinear cost model is:

$$Ct = f(CM, CDS)$$

where:

- Ct – the total cost of implementing the security system;
- CM – model complexity;
- CDS – the cost of developing the security system.

The following cost model is defined⁽⁷⁾:

$$Ct = a_i \times KLoC^{b_i} \times EAF$$

where:

- a_i, b_i – table coefficients attributed according to the project type;

KLoC – number of source code line upon delivery;

EAF – estimated effort coefficient based on data collected using a specific methodology.

In order to develop cost models the variables that influence cost must be determined and separate them into independent and dependent variables; Table 2 presents the correlation between time frames and values of identified factors.

Table 2

Time frame – factors correlation

T	Ch _{Tsec}	Ch _P	Ch _{RBD}	Ch _D	Ch _{PSS}	Ch _T	Ch _{DESP}	Ch _{OPT}	Ch _{VUL}
t ₁	Ch _{Tsec 1}	Ch _{P1}	Ch _{RBD1}	Ch _{D1}	Ch _{PSS1}	Ch _{T1}	Ch _{DESP1}	Ch _{OPT1}	Ch _{VUL1}
t ₂	Ch _{Tsec 2}	Ch _{P2}	Ch _{RBD2}	Ch _{D2}	Ch _{PSS2}	Ch _{T2}	Ch _{DESP2}	Ch _{OPT2}	Ch _{VUL2}
...	...	...	...	...	...	...	...	...	...
t _i	Ch _{Tsec i}	Ch _{Pi}	Ch _{RBDi}	Ch _{Di}	Ch _{PSSi}	Ch _{Ti}	Ch _{DESPi}	Ch _{OPTi}	Ch _{VULi}
...	...	...	...	...	...	...	...	...	...
t _n	Ch _{Tsec n}	Ch _{Pn}	Ch _{RBDn}	Ch _{Dn}	Ch _{PSSn}	Ch _{Tn}	Ch _{DESPn}	Ch _{OPTn}	Ch _{VULn}

where:

Ch_{Tsec} – total expenses with the security system;

Ch_P – expenses with the development team;

Ch_{RBD} – expenses caused by restoring the data base;

Ch_D – security system maintenance caused expenses;

Ch_{PSS} – expenses with designing the security system;

Ch_T – testing activities expenses;

Ch_{DESP} – compensation related expenses;

Ch_{OPT} – optimization related expenses;

Ch_{VUL} – vulnerability minimization expenses.

Security costs are represented by these expenses leading to the expense model:

$$Ch_{Tsec} = Ch_P + Ch_{RBD} + Ch_D + Ch_{PSS} + Ch_T + Ch_{DESP} + Ch_{OPT} + Ch_{VUL}$$

According to Andersen and Choobineh (2008), the informatics security expenses have an important impact in choosing asset security strategies such that cost estimation becomes an essential analysis in selecting the best security system considering environmental conditions faced by the organization.

6. Informatics security optimization

Optimization as a selection process from a set is meant to improve. Considering the set of time frames $M_1, M_2, \dots, M_k$ and the set of options $V_1, V_2, \dots, V_k$ the optimal variant is:

$$V(M_h) = \min_{1 \leq i \leq k} \{V_i\}$$

where:

$V(M_h)$ – optimal variant from $M_1, M_2, \dots, M_k$.

In order to perform optimization in best possible circumstances it is necessary to define optimal criteria through which the improvement of certain characteristics of the informatics security system associated to the informatics application is pursued (Ivan et al., 2008, pp. 39-56). Thus for informatics security the following optimal criteria are defined:

- minimizing execution time of procedures that make up the informatics security system by data processing algorithm optimization, by eliminating unnecessary source code, by analyzing execution threads and directing them to use the shortest path possible;
- maximizing the application efficiency by defining benchmarks for all operations thus identifying critical areas in the security system;
- maximizing the correctness in the informatics security system in order to identify more clearly the threats and attack attempts that the system faces on secured assets;
- minimizing the fixing duration associated to the development work done on defects of the security system.

Source code optimization is meant to improve the quality of procedures and execution time. By optimizing source code the minimization of defect numbers is also pursued thus improving overall system performance through the improvement of the system's quality characteristics. Optimization through increasing the level of the informatics security system's quality is based on:

- testing through which problems in system quality are observed and by reconsidering segments of the development cycle in which they were generated such that solutions for solving them are implemented;
- internal reporting of the security system through which based on test data simulations lower than expected levels of quality characteristics are unveiled;
- running periodical reports in order to monitor the application evolution in current usage conditions thus highlighting the most frequent problems that appear in the informatics security framework;
- the appearance of new technologies which placed in current usage transfer quality to the security system making it more efficient;
- developing new information security techniques that through implementation will improve the overall performance of the informatics security system;
- developer certification in order to find new work techniques better than the ones used before this leads to efficient and less error prone code development;
- software development company certification in quality systems in order to install software development techniques that follow the best patterns and practices in the field throughout the development life cycle.

Increasing the quality of the informatics security system leads to obtaining an improved version of the system that corresponds to a rise in the individual levels of quality characteristics. The new version holds a net superiority over the old one considering its quality characteristics.

Cost optimization according to [WEB05] represents practices, abilities and behavior adopted by an organization in order to reduce expenses, minimize costs, maintain software system quality at a constant level and maintains the growth potential of the company on an ascending trend. Cost optimization at organizational level, at a development team level and at source code level is pursued. The cost optimization process at the organizational level must identify administrative and production areas of the company that register the highest level of expenses and assume plans for minimizing or eliminating the following costs with:

- auxiliary personal that don't contribute to profit generating activities;
- procuring materials and equipment which are not necessary to ongoing business processes and software development processes;
- employee transportation to this purpose identifying ways of minimizing business travel and using alternative Internet based solutions for business communication;
- external suppliers by making auctions and obtaining a better price for needed supplies and equipment.

Cost optimization is meant to minimize cost generating activities and maximize the efficiency of profit generating ones meaning finding alternative, more efficient means of handling business process to existing ones.

7. The cost of informatics security in the organizational identifier validation application

The application for organizational identifiers validation analyses the orthogonality of company names in order to eliminate situations when two companies share very similar names.

In the orthogonality analysis application a vocabulary $VOCDEN = \{D_1, D_2, \dots, D_k\}$ is developed which contains all organization names inputted in the data base.

The following situations are identified:

a) The entity has its name formed from a single word, the analysis is completed by comparing the name of the entity with all other names stored that have only one word, the orthogonality is studied at word level and it is computed for the CI and CB words using:

$$ORTOC(CI, CB) = 1 - \frac{Len(SMC)}{\max\{Len(CI), Len(CB)\}}$$

where:

Len(SMC) – length of the maximum common substring;
 Len(CI) – CI length;
 Len(CB) – CB length.

In order to obtain the SMC string the maximum common substring extraction operator $\otimes$ from the two words CI and CB is defined as:

$$SMC = CI \otimes CB$$

where:

$$\text{Len}(SMC) \leq \max\{\text{Len}(CI), \text{Len}(CB)\}$$

$$\text{so } ORTOC(CI, CB) \in [0,1].$$

The words „test” and „rest” are considered

$$SMC = \text{„test”} \otimes \text{„rest”}$$

$$SMC = \text{„est”}.$$

For the defined words and the computed SMC the ortogonality is:

$$ORTOC(\text{„test”}, \text{„rest”}) = 1 - \frac{3}{4} = 0.25$$

Orthogonality in the organizational identifier validation application is computed using a vocabulary extracted from VOCDEN, $VOC = \{C_1, C_2, \dots, C_n\}$ which contains company names. The following formula is defined for orthogonality analysis:

$$ORTOTOT(CI, VOC) = \min_{i=1, n} \{ORTOC(CI, VOC_i)\}$$

If $ORTOTOT(CI, V)$ is less than 0.75 the name must be reformulated.

b) The entity has a name formed from mere words the orthogonality is established by vocabulary and word analysis.

Vocabulary level analysis is established first in order to determine the correspondence between texts and validation necessities of the application for orthogonality computation.

In order to analyze the orthogonality of two texts T_1 and T_2 two vocabularies V_1 and V_2 are defined based on the alphabetical sort of the words that compose the two texts. The vocabularies are defined the sorted words sets $V_1 = \{C_{11}, C_{12}, \dots, C_{1n}\}$ and $V_2 = \{C_{21}, C_{22}, \dots, C_{2n}\}$ where C_{1i} corresponds to the word on position i in vocabulary V_1 and C_{2j} corresponds to the word j of V_2 . For the computations done on the two sets the operator $\setminus$ defined in the set theory is used defined as below on sets A and B .

$$B \setminus A = \{x \in B \mid x \notin A\}$$

If after computing the text orthogonality one of the following equations is true:

$$V_1 \setminus CC = \{\emptyset\}$$

$$V_2 \setminus CC = \{\emptyset\}$$

where:

CC – set of common words.

Then the orthogonality is represented by the formula:

$$ORTOT(V_1, V_2) = 1 - \frac{NCC}{\max(NrCV_1, NrCV_2)}$$

where:

NCC – number of common words;

$NrCV_1$ – number of words in vocabulary V_1 ;

$NrCV_2$ – number of words in vocabulary V_2 .

If both equations are true it results that the vocabularies are identical and the orthogonality is 0.

If both equations are below are true:

$$V_1 \setminus CC \neq \{\emptyset\}$$

$$V_2 \setminus CC \neq \{\emptyset\}$$

where:

$CC = \{CC_1, CC_2, \dots, CC_k\}$ the subset of common words.

The individual orthogonality of words contained in the vocabularies V'_1 and V'_2 is computed. The vocabularies V'_1 and V'_2 are computed as:

$$V'_1 = V_1 \setminus CC$$

$$V'_2 = V_2 \setminus CC$$

Each word C_{1i} in vocabulary V'_1 is compared to each word C_{2j} contained in vocabulary V'_2 in order to determine the maximum common substring SMC . The orthogonality is computed using the following method:

$$ORTOC(C_{1i}, C_{2j}) = 1 - \frac{Len(SMC_{ij})}{\max\{Len(C_{1i}), Len(C_{2j})\}}$$

where:

$Len(SMC)$ – the length of the maximum common substring;

$Len(C_{1i})$ – the length of word i in vocabulary V'_1 ;

$Len(C_{2j})$ – the length of word j in vocabulary V'_2 .

Thus the values presented in Table 3 represent the individual orthogonality of the words.

Table 3

ORTOC (V'_1, V'_2) orthogonality				
	C_{11}	C_{12}	...	C_{1n}
C_{21}	x_{11}	x_{12}	...	x_{1n}
C_{22}	x_{21}	x_{22}	...	x_{2n}
....	...	...	...	...
C_{2n}	x_{n1}	x_{n2}	...	x_{nn}

where:

$$ORTOC(V'_i, V'_j) = x_{ij}$$

In order to keep the word set representative the following sets are defined:

$$Max = \max_{\substack{Len(V'_j) \\ 1 \leq i \leq nrCV'_i \\ j=1,2}} \{V'_j[i]\}$$

And

$$Min = \min_{\substack{Len(V'_j) \\ 1 \leq i \leq nrCV'_i \\ j=1,2}} \{V'_j[i]\}$$

where:

- Max – the vocabulary with the maximum length;
- Min – the vocabulary with the minimum length;
- Max_i – the word on position i of the maximum length vocabulary;
- Min_j – the word on position j of the minimum length vocabulary;
- Len(V'_j) – the number of words in the V'_j vocabulary;
- nrCV'_i – the number of words in the V' vocabulary;
- V'_j[i] – the word on position i in the V'_j vocabulary.

In Table 4 the Max-Min orthogonality matrix is presented.

Table 4

Max-Min orthogonality matrix				
	Min ₁	Min ₂	...	Min _n
Max ₁	X' ₁₁	X' ₁₂	...	X' _{1n}
Max ₂	X' ₂₁	X ₂₂	...	X' _{2n}
...	...	...	...	...
Max _n	X' _{n1}	X' _{n2}	...	X' _{nn}

The formula for computing orthogonality becomes:

$$\begin{aligned} ORTOC(Max_i, Min_j) &= \\ &= 1 - \frac{Len(SMC_{ij})}{\max\{Len(Max_i), Len(Min_j)\}} * \frac{\max\{Len(Max_i), Len(Min_j)\}}{Len(Max)} = \\ &= 1 - \frac{Len(SMC_{ij})}{Len(Max)} \end{aligned}$$

where:

len(Max) – number of characters from the Max word set.

$$ORTOC(V'_1, V'_2) = \sum_{i=1}^n \min_{j=1, n} \{ORTO(Max_i, Min_j)\}$$

In order to define orthogonality for the whole text including text level and vocabulary level orthogonality the following formula is used:

$$ORTO(V_1, V_2) = ORTOT(V_1, V_2) \times ORTOC(V'_1, V'_2)$$

By multiplying the two orthogonality measures the degree of phrase level representativeness of the word orthogonality measure is obtained such that a complete analysis of the two texts is developed.

In order to compute the orthogonality for all names that have the same number of words as the inputted name an extraction is made from the VOCDEN vocabulary into $VOC = \{C_1, C_2, C_3\}$ vocabulary using:

$$ORTOTOT(V_1, VOC) = \min_{i=1, n} \{ORTO(V_1, VOC_i)\}$$

If $ORTOTOT(V_1, VOC)$ is smaller than 0.75 then the name must be reintroduced by the user.

In order to estimate the cost of implementing the security system in the informatics application for validating organizational identifiers the main factors that make up the linear cost model:

$$Ct = \sum_{i=1}^{NF} Ch_i$$

are considered. In Table 5 the parameters associated the auxiliary costs and their estimative values are displayed.

Table 5

Auxiliary costs		
Name	Cost	Use duration
Laptop	4000	28
Wireless router	400	28
Software development assist tools	300	28
Software development tools	1500	28
Office space rent	600	28

Table 6 presents the expenses related to software development activities and application testing.

Table 6

Software development costs			
Activity	Duration(days)	Cost per day	Total cost
Documentation	4	200	800
Developing security software	3	200	600
Testing security software	3	150	450
Fixing security software	2	200	400
Implementation and installation of the security software	4	150	600

The linear cost model is:

$$Ct = CA + Cd + Cds + Cts + Cdes + Ciis = 6800 + 800 + 600 + 450 + 400 + 600 = 9650$$

where:

CA – total auxiliary cost;

Cd – documentation costs;

Cds – security software development costs;

Cts – security software testing costs;

Cdes – security software fixing costs;

Ciis – costs relating to implementation and installation of the security software modules.

8. Conclusions

In order to develop security systems in optimal costs conditions a thorough informatics security influence factors analysis is needed. A quality characteristic system must be developed in order to ensure the correlation between quality and influence factors for informatics security.

The research results are represented by efficient cost models that are tested on real world applications. Cost models are presented with regard to the actual necessities of performing software development for informatics security.

The software product for organizational identifier validation is destined for choosing organization names as clear and as different as possible from the ones already stored in the data base. Orthogonality measures are implemented and tested and a complete analysis of organizational identifiers is done. The application has been tested using real world organization names from the Romanian Chamber of Commerce for which orthogonality levels were established. The results show that the application is performing and the implemented models work as expected.

Cost estimation models were applied to the historical project data regarding the development stages of the security system associated to the application. The experimental results show the correctness of the used influence factors and their correlation with actual costs.

Notes

- (1) See http://www.sans.org/reading_room/whitepapers/awareness/the_need_for_information_security_in_todays_economy_916
- (2) See <http://www.ietf.org/rfc/rfc2828.txt>
- (3) See http://csrc.nist.gov/publications/nistir/NISTIR-7298_Glossary_Key_Infor_Security_Terms.pdf
- (4) See http://en.wikipedia.org/wiki/Information_security
- (5) See http://www.gartner.com/DisplayDocument?doc_cd=166713
- (6) See http://en.wikipedia.org/wiki/Economic_model
- (7) See <http://en.wikipedia.org/wiki/COCOMO>

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The Relationship between Export and Economic Growth in Libya Arab Jamahiriya

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Abstract. *This study investigates the relationships between export and economic growth in Libya. An econometric model has been developed and estimated in order to determine the direction of causality in both, short and long run. The annual time series used for the estimation cover the time period 1980 – 2007.*

The findings indicate that the income, exports and relative prices are cointegrated. The long run bidirectional causality between the exports and income growth has been also proved. The study result indicates that the export promotion policy contributes to the economic growth in Libya.

Keywords: export; economic growth; Libya; cointegration; Granger causality; export led growth.

JEL Codes: F43, C32.

REL Codes: 10G, 16E.

Introduction

This paper uses a theoretically consistent method to test validity of the export-led growth (ELG) hypothesis for Libya. The current discussion is focused on whether a developing country would be better served by trade policies oriented toward import substitution or export promotion (Irwin, 2002, Shafaeddin, Pizarro, 2007, Jayanthakumaran, 1994, etc).

The import substitution strategies seek to promote rapid industrialization of the local production in order to substitute the imports needed to further economic development. Therefore, the government involves import trade barriers as tariffs, import quotas, etc. On the other hand, outward-looking development (or export led growth – ETC) strategies involve strategies supporting manufacturing sectors with a potential comparative advantage. This framework argues that international trade promotes specialization in production of export products, which in turn boosts the productivity level (Helpman, Krugman, 1985, Boomstrom, 1986) and causes the general level of skills to rise in the export sector. Then, it leads to re-allocation of resources from the inefficient non-trade sector to the trade sector and disseminating of the new management styles and production techniques through the whole economy (Feder, 1982, Lucas, 1988, Edwards, 1992). Thus, the entire economy would benefit due to the dynamic spill over of the export sector growth (Giles, Williams, 2000a, 2000b). An increase in exports improves the balance of payment and enlarges the foreign monetary reserves, which consequently enables the increase of investment goods import and facilities necessary for the domestic production growth (Chenery, Strout, 1966). The empirical evidence tends to support the notion that those economies, which actively pursue export promotion policy, have been more successful than those that have pursued import substitution policies.

The validity of the ELG hypothesis has not been proved uniformly. Giles and Williams (2000a) provide a comprehensive survey of more than 150 papers dealing with ELG. It should be noted that their list includes mostly developing countries.

In Arabic countries, the empirical investigation was performed by Abu-Qarn and Abu-Bader (2004) who conducted research covering 9 Middle East and North Africa countries. This analysis did not lead to the clear evidence of ELG hypothesis validity as well. Pop-Silaghi (2009) carried out the analysis using 10 Central and East European countries.

In this paper, we provide a survey of the ELG hypothesis validity in conditions of the Libyan economy.

Overview of Libya exports

The growth of Libyan economy is primarily determined by the oil market development. The discovery of oil (in 1958) has changed the national economy from mostly agriculture oriented to the oil exporting country. Oil sources satisfy

approximately 95% of export earnings, 75% of the government receipts and 30-40% of the gross domestic product (Energy Information Administration, 2002). The nominal value of exports leapt from LD (Libyan dinars) 6489.2 million in 1980 to LD 40972.050 million in 2007.

As we mentioned earlier, most of the foreign currency comes mainly from the crude oil and the oil products export. As the result of this fact, the world oil price directly affects Libyan foreign trade development. The Libyan balance of payment will still be affected by the oil price movements and the overall economic development. Following this, the significant import increase in earlier 1980s (LD 4.3 billion) was induced by the oil price increase. Higher oil prices in 1999 and 2000 led to the export revenues increase that consequently improved macroeconomic conditions and stimulated the overall condition of the economy.

Libya export according to particular industrial branches is given in Table 1.

Table 1

Classification of Libyan export
(value in millions of Libyan dinars)

Item	2005		2006		2007	
	Value	%	Value	%	Value	%
Food products	2.3	0.0	1.0	0.0	0.1	0.0
Raw materials	3.5	0.0	2.5	0.0	1.4	0.0
Oil	30312.2	97.3	34891.2	96.0	39589.1	96.0
Chemicals	825.2	2.7	1224.0	3.4	1173.7	2.9
Manufactured goods	2.3	0.0	215.3	0.6	198.3	0.5
Machinery and transport equipments	2.5	0.0	0.3	0.0	0.1	0.0
Other exports	0.0	0.0	2	0.0	9.8	0.0
Total	31148.0	100.0	36336.3	100.0	40972.1	100.0

Source: Central Bank of Libya, Annual Reports, 2007.

The main trade partner of Libya is the European Union (83.8% of exports and 61.9% of imports). Italy imports approximately 30% of its oil needs from Libya. Libya dominant business partners come mostly from the European Union (particularly Italy, Germany, Spain and France), the United States, China and Turkey.

Model specification

Cointegration modelling jointly considered with the Granger causality methodology are commonly used by ELG hypothesis testing. According to this methodology, all considered time series are assumed to be integrated of order 1. Then, the integration order is tested in the first step. If this assumption is statistically rejected, then the estimation of the long term equilibrium relations among the

integrated time series is performed. Afterwards, the short run equations estimation according to the VECM theory is performed. In the final step of this analysis, the Granger causality test based on the multivariate framework is carrying out.

The short run system of equations is given as follows

$$\Delta \ln(Exp_t) = a_1 + \sum_{i=1}^{p1} b_{1i} \Delta \ln(Exp_{t-i}) + \sum_{i=1}^{p2} c_{1i} \Delta \ln(GDP_{t-i}) + \sum_{i=1}^{p3} d_{1i} \Delta \ln(Exr_{t-i}) + \alpha_1 \xi_{t-1} + u_{1t} \quad (1)$$

$$\Delta \ln(GDP_t) = a_2 + \sum_{i=1}^{q1} b_{2i} \Delta \ln(Exp_{t-i}) + \sum_{i=1}^{q2} c_{2i} \Delta \ln(GDP_{t-i}) + \sum_{i=1}^{q3} d_{2i} \Delta \ln(Exr_{t-i}) + \alpha_2 \xi_{t-1} + u_{2t} \quad (2)$$

$$\Delta \ln(Exr_t) = a_3 + \sum_{i=1}^{w1} b_{3i} \Delta \ln(Exp_{t-i}) + \sum_{i=1}^{w2} c_{3i} \Delta \ln(GDP_{t-i}) + \sum_{i=1}^{w3} d_{3i} \Delta \ln(Exr_{t-i}) + \alpha_3 \xi_{t-1} + u_{3t} \quad (3)$$

where the Exp_t denotes export, GDP_t denotes gross domestic product and variable Exr_t is exchange rate in time t . Coefficient α_j measures the sensivity of the j -th endogenous variable with respect to the deviation from the long-term equilibrium (error) ξ_t . If the estimated regression coefficients of the lagged export variables in (2) are significant, then the alternative hypothesis meaning that export Granger-causes economic growth is accepted. In other words, the ELG hypothesis is supported. Furthermore, if the export is involved in the long-term cointegrating relationship, the ELG hypothesis is supported only if the coefficient of the lagged error-correction term ξ_{t-1} is significant. Then, change of an independent variable may be interpreted as representing the short-run causal impact while the error-correction term provides the adjustment of export and economic growth toward their respective long-run equilibrium. Thus, the VECM representation allows us to differentiate between the short- and long-run dynamic relationships.

Data source

The empirical analysis is conducted using annual observations of GDP, exports, and exchange rate covering the periods 1980-2007. All data were obtained from the Secretariat of Economic and Planning, Central Bank of Libya, Research and Statistics Department Planning and Programming Department/Public Planning Council 1962-2000 and World Development Indicators 2003 CD-ROM. To stabilize heteroscedasticity, data were transformed into their logs.

Estimation and results

Table 2 summarizes the time series unit root test results. In all cases, the null hypotheses of the time series being integrated of order 1 cannot be rejected. However, in case of differenced time series, the null hypothesis is rejected in all

cases. Then, the variables are considered to be non-stationary in levels but stationary in their first differences.

Table 2

Univariate stationarity properties of the time series

Variable	ADF Test (levels)	ADF test (first differences)
<i>ln(Exp)</i>	-1.286	-5.137
<i>ln(GDP)</i>	-0.007	-3.712
<i>ln(Exr)</i>	-1.693	-3.101

The critical values for the variables in levels are -2.954 and -2.615 at 5% and 10% significance level, respectively. The number of lags used in the vector autoregression is chosen based on the Akaike's Information Criterion (AIC).

To investigate the existence of a long run equilibrium relationship between exports and economic growth, we have employed the maximum-likelihood test procedure established by Johansen and Juselius (1990) and Johansen (1991). Based on the Trace test and Max eigenvalue test, we have accepted hypothesis on existence of 1 cointegration equation (both tests at 1 percent significance level), see Table 3.

Table 3

Johansen cointegration test statistics

Unrestricted cointegration rank test				
Hypothesized No. of CE(s)	Eigenvalue	Trace statistic	5 percent critical value	1 percent critical value
None **	0.779006	45.00930	29.68	35.65
At most 1	0.216891	8.778373	15.41	20.04
At most 2	0.114216	2.910782	3.76	6.65
(***) denotes rejection of the hypothesis at the 5%(1%) level Trace test indicates 1 cointegrating equation at both 5% and 1% levels				
Hypothesized No. of CE(s)	Eigenvalue	Max-eigen statistic	5 percent critical value	1 percent critical value
None **	0.779006	36.23093	20.97	25.52
At most 1	0.216891	5.867591	14.07	18.63
At most 2	0.114216	2.910782	3.76	6.65

*** denotes rejection of the hypothesis at the 5%(1%) level

Max-eigenvalue test indicates 1 cointegrating equation at both 5% and 1% levels.

The error-correction term opens up an additional channel of Granger causality so far ignored by the standard Granger (1969) and Sims (1972) tests. The Granger causality can be evidenced through the statistical significance of the t-test of the lagged error correction term(s) or the F-test applied to the joint significance of the sum of the lags of each explanatory variable (Masih and Masih, 1996). Here, the Granger-causality conducted by the t-test of the lagged error-correction coefficient suggests statistically significant long-term bidirectional causation between two

variables, i.e. export causes economic growth and economic growth also causes export.

Table 4

Causality results based on vector error correction model (VECM)

Error Correction:	$\Delta (\ln(\text{Exp}_t))$	$\Delta (\ln(\text{GDP}_t))$	$\Delta \ln(\text{Exr}_t)$
ξ_{t-1}	-0.643 [-3.011]	-0.089 [-2.366]	0.001 [0.017]
$\Delta(\ln(\text{Exp}_{t-1}))$	-0.173 [-0.855]	0.060 [1.695]	0.023 [0.414]
$\Delta(\ln(\text{GDP}_{t-1}))$	0.194 [0.183]	0.223 [1.190]	0.054 [0.185]
$\Delta (\ln(\text{Exr}_{t-1}))$	-1.371 [-1.397]	0.082 [0.471]	0.205 [0.756]
A	0.159 [1.121]	0.063 [2.519]	0.039 [1.013]
R-squared	0.477	0.577	0.062
Adj. R-squared	0.373	0.492	-0.124
F-statistic	4.570	6.830	0.335

Figures in parentheses are t-values.

Conclusion and policy implications

Using annual data on Libya's exports and GDP over the time period 1980-2007, we have analyzed the time series properties of these variables in order to determine the appropriate functional form for testing the ELG hypothesis. The study finds that GDP, exports, and exchange rate are cointegrated. Based on the VECM results, the evidence suggests the strong support for long-run bidirectional causality between export and GDP. Moreover, we conclude that both export and economic growth are related to past deviations (error-correction terms) from the empirical long-run relationship. It implies that all variables in the system have a tendency to quickly revert back to their equilibrium relationship. This fact means that any rise in export growth would have a positive influence on economic development in both the long- and short-runs. The results of this study also suggest that promoting exports via export promotion policies will contribute to economic growth in Libya.

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The World to Itself*

Open Lecture on Global Transition

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Abstract. *In this study I aim at designing an image with more shades of difference upon the globalisation, from its ordinary meanings to the institutional type explicative models. There is no doubt that the enterprise is not as temerarious as it is necessary. The confusions as well as the theoretical counterviews have rational determinants. In a vicious manner, the reasoning of the texts about globalisation most often serves non-epistemic causes. The analysis of the ideas that are in circulation cannot be deprived of the critical perspective. And that happens because, truly, the most significant ideas about globalisation are launched from the geopolitics field. The perseverance of the scientific steps seems to be extremely fragile. What puts a scarce mark on the scientific area of the globalisation issue is a politics parameter: the control of the global powers. Therefore, the confusions' perpetuation has become a defining feature in the debates about globalisation. The stake is to strengthen the image that the globalisation does not change but preserves the powers' control in the world. Namely it represents a kind of continuity of essence in the powers' system, though it creates the impression that is something else, maybe even a qualitative change.*

The right hypothesis from which it must be started when understanding the globalisation is the idea of order. The world in itself can be understood only by relating to the idea of order. Thus, the ordering principle is essential for understanding. The world's evolution is explained through the ordering principle. The history's phenomenology has meaning beginning with the ordering principle. In these highlights, my analysis points out the content of the globalisation as a different reordering of the world. The globalisation is a breach represented by the change of the ordering principle. It has, in fact, approximations in the world. The globalisation is hardly knocking off.

Keywords: ordering principle; harmonious cooperation; globalisation approximation; paradigm change; second modernity.

JEL Codes: P17, P27.

REL Codes: 19D, 19I.

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Introduction

A more and more obvious reality during the past two decades is represented by the evolution towards another model for understanding and solving the problems of the humanity. The economic events, like the financial crises, as well as the political facts, like combating the conflict statuses, have new causes as well as completely different evolutions. The world itself is facing challenges that are testing its limits.

On a daily basis, for instance, it became a habit for the information to be consumed in real time, practically the tendency is to make the search time disappear, as the content of the documentation operation and the selection of any type of knowledge is a matter of the information technology performance (Gates, 2000). In its turn, the space is less and less time dependent, it is delocalizing, a movement supported by the scientific innovation, removing the physical barriers represented by the territorial distances. The geography as such is spiritualizing, creating the ideal bases for the nature to belong to everybody irrespective of its meridian or latitude where it is positioned. At the same time, the society has strong economicisation tendencies, the return being upgraded to a principle of performance assessment in the non-market sectors; deregulation represents an obsession meant to favour competition. A true battle is being subsidised in order to be on the top of the wave, on the tendency's side (Friedman, 2001). In this way, a new polarisation with tensional potential is being recomposed, parallel to the mobility increase of all the production factors, which in turn generates hopes with regard to the prosperity redistribution, but also social, regional, budgetary and other imbalances. Finally, the political decision increasingly moves away from people through professionalisation and bureaucratic concentration, the democracy is moving towards tribalism (Martin, Schumann, 1999), revitalising the community life, the culture is equalising under the pressure of the consumption culture models, the conflicts trouble the cultural contact areas, thus even creating new types of global dangers (Huntington, 1998).

The mosaic of today's world is continuously shaping and rapidly changing. The classical reference points, primarily of knowledge, loose part of their strength; the rule and habit are forced to recoil in terms of different alignments.

More and more often, we talk about the destructuring of the "old economic mechanism" and the powerful emergence of the "new economy", along with other problems and, obviously, with other solutions, different from the ones suggested by the economic theory over time. In general, the world seems to agree that it is in a stage of a new synthesis of the theoretical and practical experience of human kind, in which, beyond doubt, a sensitive matter must be solved, namely that of the evolution's direction towards a new formula of existence (Korten, 2001).

The acuity of the stage specific is amplified by the profound regional changes defined by the post-communist transition and the Western concerns regarding the world's structure after overcoming the bipolar world order. In fact, the signs of the reality change, spotted on a theoretic level, suggest the road to a new world transition, the post-capitalist transition, that together with the other types of transition form what

it could be called the global transition. In other words, the direction that the world is following, at the beginning of the 21st century, towards itself, towards recreating the existence in terms of what resembles us as humans and peoples: our propensity towards the ideal defined by the intersection of reason and human spirit with nature. That is, eventually, and maybe ultimately, the fulfilment of the humanity's dream, of its great thinkers, regarding reaching the perfection represented by the natural union between human nature and mother-nature.

Box 1. *The need for something else...*

"The future cannot be a continuance of the past and there are signs, both external and internal, that we have arrived to a historic crisis moment... The structures of the human society, including some of the foundations of the capitalist economy, are about to be destroyed by the erosion of what we inherited from our human past. Our world risks both an explosion and an implosion. It must change... Anyway, one thing is clear. If the humanity wishes to have an acceptable future, it will not be able to prolong the past into the present. If we will try to enlighten the third millennium on this basis, we will fail. And the price of the failure, namely the alternative of a modified society, is darkness."

(Hobsbawm, 1998, p. 662)

The ideal state proposed by the global transition is the absolute stake that would have to provide coherence to the gestures, facts and thoughts of humans, will and attitude of peoples for overstepping the limitative experiences and the utopian projects. If the target seems to be somehow clear and, maybe, more and more broadly accepted, about the means and ways to follow there are still controversies, both on an international and individual-human level. It is not irrelevant to notice the fact that the misunderstandings caused by the globalisation and the global transition are related to – or especially to – the promoted explanatory model, the success and failure of braking loose from the spell of the “comet tail” type significances of the economic and political order founded upon the adversity and bipolarism that still determine and justify the official attitudes.

The pressure of the explanatory model

So that the globalisation can become a solution to the great problems that torment the humanity, from productivity and economic growth to quality of life and modernity, meaning overstepping poverty and all kinds of discriminations, it must be thought and understood in terms of principles different from those that favoured the old order.

Unquestionably, the principle ordering the statuses of things of the world called modern for more than two centuries, born from the cleavages of the national and industrial revolutions, is related to the adversity's significances: the whole, as a planetary point of reference, was conceived as a mechanical reunion of the parts accomplished by a more potent part or through an exceptional understanding between parts.

Also, the humanity had to permanently confront the reality structured by the actions of one part, regardless of its name, with the aim of controlling more and more parts, even the whole in its entire. The history so far is largely explained on the basis of this ordering principle. Even what the balance of powers was, be it even inside the system of the bipolar world, controlled by two national super-powers ideologically motivated as adverse, meant an illustration of that principle.

The individual, group, national and supranational problems were solved after their own logic generated by the principle of adversity and control, which the part is succeeding in exercising upon the whole. The undeniable consequences of this world ordering principle were the amorphous confrontation and the ideological mutilation of freedoms.

The last decade of the 20th century revealed the waste of this order and amplified the will to embrace a single explanatory model of the world. In other words, a universal option was expressed in order to overstep the principle in which a part has the possibility to control the whole and to advance towards a different formula, in which the whole is more than the sum of the parts, and the parts tend to behave in line with the whole. Ideationally, it is about defying the limits, something else in a functional way. In fact, we are on the verge of overstepping the last manifestations of the national and industrial revolutions that generated the conflicting cleavages between nations and countries and, inside the nations and countries, mainly between work and capital, on eminently ideological reasons. The new world ordering principle assumed by the globalisation moves the emphasis from the ideologically defined values, like the nation, state or social class, and introduces, on the history's stage, other values and actors. It is clear, even on a common perception level, that in the early globalisation nowadays the main actors start being different from the national economies, the power is held by someone else than a state, the specific economic and political order does no longer rely on the balance of forces and does no longer accept the agreements that limit freedom. The actors are the global financial institutions, the enterprises of global reach, the different investment funds, the unrestrained "electronic herd" (Friedman, 2001) etc. The economies are perceived as an "economic location" (Lafontaine, Müller, 1998), where the markets are already liberalised, the trade is to a large degree unrestrained, entering and exiting the system of the economic agents is an open question and a matter exclusively solved in terms of performance, where the free movement of capital, labour, services and persons takes place.

All these new forces act beyond and often regardless of the rules, claims or agreements imposed by the nation-states, by the borders meant to favour the control on a territory. They are the ones constraining the governments, the countries as a whole, to model their strategies, change their means and conceptions if they want to succeed again. Even the regional decisions are coordinated by the presently deciding factors in accordance with the rules brought by the global actors, as it happened in South-East Asia with the financial crisis in 1997 (Stiglitz, 2003). The ones setting the rule of the game today in the world are the globalisation's actors, and the parts, still mostly nation-states, behave as such, even for surviving. The territory on which it is not manifested, from which it leaves or which the global "electronic herd" avoids,

(Friedman, 2001) is condemned to underdevelopment. In extremis it is about forced adaptation, of reorganising the priorities and objectives, of changing the values beginning with the demands of liberalisation fulfilment aiming at sustaining the global development and modernisation. This is why, even if it is currently an ideal for the general status of things, the globalisation gains ground as a strategic option for more and more regions.

Box 2. A premonition...

"On long-term, the world politics must become more and more unfavourable to the concentration of hegemonic power in the hands of a single state. Thus, America is not only the first and the only superpower truly global, but also, probably, the last one.

This is happening not only because the nation-states gradually become more and more permeable, but also because the notion of power becomes more diffuse, more devised and less limited by the national borders. It is possible that also the economic power becomes more dispersed... Other powers – Europe, China, Japan – will more or less get closer to America's level."

(Brzezinski, 2000, pp. 231-232)

Hence, the globalisation is a tendency of reordering the world so to exceed the limits of the old order. Of course, is not a royal path, all kind of obstacles are at sight. As a matter of fact, we are in the stage where the last consequences of the situation in which the world became a single-pole are consuming, in which they are trying to turn to maximum account the geo-strategic advantages of a single state which is considered a winner of the "cold war", in which the problems of the humanity are being unilaterally handled aiming at "integrating" into an influence area the self-proclaimed single centre, in fact a late reflex of the adversity principle according to which the balance and order are ensured through the dominance of one part upon a whole.

What the globalisation is not

Braking up with history

Paraphrasing Mark Twain who was referring to the impossibility of changing the weather, we can say that everybody talks about globalisation, but nobody does something relevant in order to understand it. The globalisation analysis shows that we are facing faked and ideological perceptions of the phenomenon, but also with conceptions that set the rules of understanding, though they are inadequate, obsolete or just false. We actually are in a stage in which the globalisation is taken for a remedy that begins to be considered worse than the malady, without clear arguments showing that the meanings of both the remedy and the malady were understood. There is not another manner to explain the violent attacks against all the globalisation is supposed to be, the resume of the states' tendency to limit themselves to reaching their own interest, as, for example, there is an excessive debate about competitiveness and less

about free will for example (Friedman, 2001). Globalisation came, in this manner, to be identified with the universalisation of poverty, dependency, and criminality. Also, one tries to assimilate globalisation into the significations' domain of some history practices, derived from the adversity principle, emphasised by the capital-labour cleavages from the 19th century.

Ignoring the explainable globalisation model gives anyone freedom to identify globalisation with the processes from the nearer or more distant universal history, thus is annulling the globalisation specific, its ultimate meaning.

From this point of view we identify at least *three inadequate approaches*:

Firstly, there is the interpretative model through which *the globalisation is considered a problem of progressive concentration of the national economies with the aim of creating a coherent world economy*. The explanatory support is obviously inspired by the mechanical trick from Lenin's theses on imperialism. Namely, relentlessly, the interdependencies between economies are increasing, the international division of labour deepens, a global market is created, on which, somehow controlled, the national economies are competing. This model's agent is represented by the national economy. The aimed economic order depends on the national control of the international competition. The state is powerful if it has a competitive economy. The development model is based on export, rendering valuable the Ricardian competitive advantages.

Nevertheless, history cannot be, as this interpretative model suggests, an additional collection of economic national entities. The understanding proves to be a perfect utopia for a global economic unit. If this true monad shall exist, it cannot be the expression of the rationalistic principle according to which the whole is the mechanical sum of its parts. The conclusion is that the globalisation cannot only be internationalisation, not even sublimation of the internationals, as it neither can be imperialism, be it called Americanisation or, in the French version, mondialisation, victory of one state's exclusive interests. On this path we cannot overstep the history neurosis, and the solutions come to infinitely repeat the systems of global organisation based on adversity, enforce a global mechanism of new imperialisms reinvention, exclusively conflictual. The world economy designed in this manner contains in itself the anti-globalisation essence, and until now it generated rules and institutions blocked by adversity.

Secondly, *the globalisation does not prove to be a trend of a purely cross-national nature enforced by firms or transnational companies that knew how to render valuable the technological advantages*. The inspiration of this interpretative model does not move away from the Marxist origin of interpreting the development of the production forces. In fact, almost without exception, what is now being written on the world economy topic aims at this interpretative model. The theoretical obsession of progress is the engine of this vision. The countries are powerful if they have strong companies elsewhere in the world. The national economy justifies itself only as an economy of the transnational companies and generating commercial flows in the world economy.

The national emblem is the transnational company. The chance of success in development is the currency contribution of the transnational companies. A country is powerful if it has transnational companies that import domestic product from other countries and regions. It is the economy of the super-profitable mass production. Anyway, this direction represents the foreshadowing of the fact that only the return justifies any energetic effort. On this direction the modern utopias were born, in which man is replaced by the machine, the economy becomes inhuman or the mass-gathering collectivise the individual tastes, and the professions fail in specialisations. The whole becomes an attribute of the elite, the freedom puts no price each on individual's judgement.

The supreme principle is that the parts must rationally reconstitute the whole.

Though it stimulates, this interpretative model does not justify the understanding of globalisation as an effect of interdependencies' increase because simply the globalisation is not that, as the cross-national phenomena, like poverty for instance does not reside in globalisation. Additionally, the globalisation is not only the cross-border freedom.

And thirdly, *the globalisation cannot be the excess of a single mega-trend*. The expansion of the capital markets, for example, even the autonomisation of the financial markets, does not represent the normal globalisation model. The French speak about mondialisation, imposing the interests of the American capital, the Anglo-Americans speak about globalisation as supremacy of the model centred on financial speculations and the extreme mobility of the financial capital. In this views, the national economies become investment emplacements, deregulation becomes a condition, the monetarist-type distance governing is claimed as the ideal recipe, the most capitalised is the most powerful and for this it dictates the rules of the game. The economicisation begins to be aggressive, the social protection looses ground, the state becomes minimal, the supra-state agreements are eminently economic, and the evolution's direction is towards the "off-shore" economy. The results is that the market triumphs and the society always looses, the extremes risk having no mediation, the game of freedom and judgement, as structure values, is taken by power and prosperity, the pragmatism quickly joins the political fairness and together they push matters towards the social engineering and the decision control, as the democracy becomes useless giving space to the dictatorship of the elite minorities. We find here the sum of the economic crisis determinants that began in 2007 as a simple "turbulence" of the financial markets (Greenspan, 2008).

Box 3. *What globalisation is not*

- Globalisation is not a new imperialism.
- Globalisation is not a world Americanisation.
- Globalisation is not mondialisation.
- Globalisation is not a sublimation of yesterday's or today's internationals.

- Globalisation is not just internationalisation.
- Globalisation is more than the effect of the interdependencies' increase.
- Globalisation is not just the answer to the problems considered to be global.
- Globalisation is more than the product of the need to unify the markets.
- Globalisation does not explain any cross-national phenomenon (poverty, criminality etc.).
- Globalisation is not the triumph of the deviant forms of liberalism.
- Globalisation is not just cross-borders freedom.
- Globalisation is not a new socialisation, this time on a planetary scale.
- Globalisation is not a structure to ultimately save the universal vocation of the collapsed communist project.
- Globalisation is not at all the product of the history's neuroses thoroughly unconsumed.

It is clear that in this manner the essential ruptures between the economy and the society take place, the field of utopian structure is reopening, hence the humanity is polarising. There is, on one hand, the inclusion (namely wealth, centre, power, culture, 20% versus 80%) (Martin, Schuman, 1999 etc.) and, on the other hand, the exclusion (namely poverty, periphery, dependency, ignorance, 80% versus 20% etc.).

The logic structure of this model emphasises the fact that the globalisation cannot be, unless it risks to be a new failure, a structure meant to ultimately save the universal vocation of failed projects of collectivism and ideological constructivism, it cannot even be the strategic answer to the identity crisis of post-capitalism. The globalisation's quintessence does not represent in any way the product of the fully unconsumed history's neuroses.

The globalisation has a logic of its own that it has not learned in any preliminary stage because it could not have applied it, as it is not a practice of the past.

Beyond ideologies

The three above approaches have each raised theoretical counterreactions. In fact, the three interpretative systems, being ideologically build, received, as it was normal, the same kind of retorts. This is how we explain, for example, the theoretical structures about globalisation meant to exhibit the fears through the paroxistical critics of all models.

The general characteristic of the interpretative models, destined to reject any alternative, deny change and accept old comforts, is that they hide the ideological subordination. Obviously, in essence, on this line a real explicative model is not obtained, but one that critically falsifies the three above presented models, and they are in fact ideologically endorsed approximations.

From the alternative models we mention the theoretical structures that presented zero growth as the global order solution to the demographic explosion to resource exhaustion, as a sign of the death of capitalism, culture's uniformisation, as the apocalyptic conflict's reason and so on. We must notice that in the ideational benchmarks of these theoretical structures is impossible to design the world's

interpretative model, define the functional trends, and approximate the coherent strategies. The critical, alarmist models are originated in the mind obsessed by contraries and irreducible counterposition. This approach manner points out the fact that something durable can be built not only through critical separation from an alternative, because the activity is exhausting and failing if it does not refer to the entire complex of evolutions. The globalisation will be a reality or will not be at all, only if, as a theoretical referential, will be protected against the contamination with the malady of the partiality replacing the whole. The globalisation is destined to overstep the “nor-neither” variant of the ideological options, as it is a new synthesis, a global one, which has the anti-fragmentation character in its first stage. It is known that alterity to part, as the alternatives’ critique to the above explicative models, is also the part; the whole, the global as alternative is not to the part, but to all the parts with functional claims in themselves. Values like the state, nation, sovereignty are dared to recoil; they are even called into question in view of the globalisation. The globalisation functions as a whole of the polycentric diversities, and not of the centrifugal and autonomous parts.

Of course, the anti-globalisation attitudes are also ideological, often supported by representative circles of one deviant explicative model. Additionally, the anti-globalisation attitudes aim at the institutional manifestations supported by these models. Surprisingly enough is that the reaction against globalisation identifies exactly the absence of globalisation or the globalisation’s deviations.

An equally delicate aspect is confusing the globalisation with its technical-informative supports, thus developing a type of teleology of the production forces, destined, in the view of its coryphaeus, to multiply someone’s economic power – usually a country’s – until it is received as global (Friedman, 2007). Nothing more misled for the simple fact that the economy is globalising through the action of its specific agents, as we have seen these being other than the national states. Neither the communications, nor the transports etc., with all their spectacular evolution, create globalisation, these simply being consequences of the global actors that have global financial power, global ideas and global practices. The globalisation seems a stage of the world economy’s integration only for those hanging on to the national state as an exclusive actor of the global market and to the sovereignty as a matrix of the territorial, ethnical, cultural etc. identity.

Finally, the globalisation cannot be an economic fact unless it is of the consequence’s nature because something else is explaining and favouring it, something that it is, as we will show below, the main aspect. At most we can accept that the globalisation can be the expression of the triumph of the economic liberalism, but in order to admit this truth we must exclude the deviant forms of liberalism, the ones that have generated the casino or the “off-shore” economies and have transformed the economy into an objective in itself, out of the social (Krugman, 2009).

What globalisation is

Removing the fundamentalisms

So many things about globalisation are being said and written so that anywhere in the intellectual world an understanding blockage is about to happen. The visible sign of this truth is the very management crisis, of any perspective, the globalisation's project. In fact, it is about a deformation of the understanding mechanism, so that the globalisation has a double deviant meaning: it is either limited to what everybody believes it is, namely a kind of line of chaos, or it is the approximation of what it is "officially" said that it is, namely a model that makes any other model useless, except the politically "correct" one. It must be underlined that in between the total freedom of interpretation, as a stake of the uncertainty that represents the rule of the recent world, and the freedom sublimation in the interpretation of the model without alternative, which announces itself as the world's variant that wants with no rest possible in the future (as a last consequence of the adversity principle based on which an ambitious part rules over the whole), the hypotheses of an always ideologically deformed globalisation find room. This is an explanation for why we are witnesses of the reproduction of a multitude of perceptions regarding the globalisation, contradictory, but also contrary, exclusive, but also centripetal, fragmentary, but also emergent.

The analysis shows a curious thing: the two interpretative extremes, as it happens in fact with all the theoretical and attitudinal extremisms and fundamentalisms, do not definitely block the understanding and do not plainly open the ultimate dispute for imposing the globalisation model as the world's accepted constitution. Obviously, in can be talked about an apparent neutrality, deceiving anyhow, because the extremes easily become inflamed due to dissatisfactions in relation to the solutions attributed to the globalisation.

The special situation, in which Romania is standing, in an alert transition to another economic mechanism and to another formula of power management, aiming at overstepping the avatars of the communist model and exiting the post-communism, registers quite many conceptions adhesive to the epistemological consequences of the successive explicative models of the global order in the last century. It is a reality that in our country inertia can be seen when overstepping the generational models inculcated to education, the model's propensity being thwarted by the formulas of imitation. There is no doubt that this feature feeds the deviant visions, including upon the globalisation. The theoretical convictions, but especially the ideological concept that operates *post factum* feeds the adherence reserve to an interpretative model into one direction or another. In a suggestive way, confirmed in our country by the historical attachment for form and the institutionalised decline of the fond, as now also marginal vectors of the globalisation are consuming, no different than like an explicative model of the contemporary world, but significantly with ingredients and of a Marxist evolutionism, and a neo-liberal fundamentalism. The political passions for concepts like "the third way", "mixed economy", "the middle way", "the Swedish model" or the extreme alignment itself ("the Chinese experiment" versus deregulation,

“interventionism versus indirect governance”) betray the potential of contamination with scientific debatable ideas of any explicative model.

Despite of a broadly spread belief among the intellectuality, including the academic environment, the globalisation is not a logical consequence, as it is neither the conclusion reached by the history dispute, namely that the theory and the knowledge, so far, about the society's course do not compose neither logically, nor mechanically the explicative model of globalisation. For this we cannot state, like it customary is, that the globalisation is expressed in its essence by the sum of parts because the sum of parts is simply more than the whole.

Apodictically, it can be said that the globalisation opens a breach in the way of accumulating history: the whole is more than the parts, while the parts tend to imitate the whole. It is a new mechanics of the rebalances between the competition forces, in and between justifications and responsibilities, between majority and minority etc. That is the true power of the globalisation, which practically is unlimited. In the pluridimensional space structured in this way, with multiple tensions and far away from balances, the logic of the Manichaeistic thought and ideological vision upon the world loose their relevance and this happens because they cannot anymore ensure the cultural perceivable structure of the explicative model.

We are, beyond doubt, on the brink of a conceptual deadlock, so that we cannot explain anymore what is happening: the globalisation resembles the relentless sensation about something that has sent into the present its substance, which is significant only in the future time, but is assaulting us as if the present were irrepressible. It is known that the epistemic situation between what truth is and what conjecture (futurollogical) is complicates man's conceptual relation. In practice, it is another interpretative model that includes both the truth and the conjecture as fully complementary operational values (Popper, 2001). The relationism seems to extend on directions in which the error is minimised with complete chances. Essentially, the human nature becomes total because it includes all the intermediary or approximated cognitive stages in order to complete the explanation and to operationalise the implementation.

The fact in itself is not a theoretical improvisation but it is just the state of grace of our conscience that the human existence assumes the global convergence of the irreducible diversity of man towards a redefinable whole through formulas of individual discernment harmonization. Without resuscitating the extremes, be them collectivist, or individualist, the new ordering of the existential values, moral, political, economical and institutional, represents something absolutely different for the human experience and tends to be, if the alternative would be accepted, the experience without an altered rest.

This is why the globalisation becomes the way of functioning of the global economy in a global society that establishes global decision structures in order to solve the global problems. All the parts are conditional, and the primordality ratio is naturally reinstalling, the society regains its decision power, and the economy returns to the middle natural condition. The long period of decline of the hierarchies into

human values, also through the transformation of the economy and the degree of spending in a purpose in itself, do not represent anymore a nightmare because it lost its excesses' algorithm through the reinclusion of the economic into the social.

Conceptual delimitations

The meanings induced to the globalisation – all against the value options – are abundant but do not fully clarify. Exceptionally, in highly active intellectual circles, the globalisation becomes globalation (Friedman, 2001). Namely, everything is conceived as a process of value extension to a single model attached to the centre, progressively including the systems' peripheries by exporting tradition replacing standards, meant to culturally and behaviourally standardise. It is obvious that such a vision fits the American projects of global hegemony enforcement (Chomsky, 2003).

The options of seeing globalisation as glocalisation (Beck, 2003), namely a functionalist interference of powers in their global and local constitution, with the intention of not completely annulling the democracy's valences, keeping responsibilities for both levels, in the "and-and" way, tries to moderate the hegemonic vision, mediate between uniform and diverse, between the invariable rule of political correctness and individual freedom and judgement.

Both the globalation and the glocalisation are formulas that emphasise some conceptual aspects, which unfortunately are captive to the pre-global paradigm. We could say that, relieved of the ideological connotations, these visions approximate defining elements for the globalisation. In the same category we also find the metaphorical definitions of globalisation, of the "global village" type (McLuhan, 1997).

Ulrich Beck's (Beck, 2003) venture to operate distinctions between globality, globalisation and globalism deserves to be remembered.

If the globality, as a trans-historical concept, in which there can be found, among others, mutual problems of the humanity, like poverty, criminality, pollution, development etc., but also something related to the mutual content of the human action field (industrialisation, scientific and technical revolution, knowledge based economy etc.), seem to be often mistaken for globalisation, globalism is essentially a deviant globalisation, with fundamentalist features (market's imperialism, hegemonism, mondialism etc.). The globalisation is more than globality, especially in its dimension of managing the global powers, meant to provide real solutions to the global problems on another channel, of a post-nationalist or supra-state nature. It is known that, in the pre-global status of humanity, solving the global problems – as the globality's content – was tried through the international, the intergovernmental cooperation, underlined by the observance of the sovereignty principle as a generating support of adversity. The globalisation addresses global problems as instruments and agents belonging to supra-state structures of post-nationalist type. The globalism – as an altered expression of globality, as well as globalisation – leads to the last consequences of the adversity principle, when one part controls all the other parts of the global system, subliming the adversity principle. The globalism's ideology seizes the globalisation's meanings, and even manages to present itself as real globalisation. It is certain that the globalisation consumes the manifestation forms of the adversity principle. It proclaims a new

ordering principle, of the inclusive harmonic competition in a whole that is more than its parts (Dinu, 2004).

Hence, the globalisation is a historical type, essentially different, of global power management (economic, ecologic, scientific, military, cultural, political etc.). It can be said that, with regard to globalisation, we are in the situation of reordering the world aiming at overstepping the old order's limits (Dinu, 2004). Essentially, it is being passed from what is destroying by force with the aim of conquer, subdue, purge, exterminate or hegemonise, to the creating destruction aiming at freeing, unchaining, allying, diversifying, developing or consensualising. The globalisation has the deep meaning of resignification of human's specific difference, and the harmonic competition principle is meant to maintain alive the world's natural talent of being performant. The harmonic competition principle between the parts of a whole that is permanently in a progressive change makes unity, understanding, solidarity, cohesion, parts' convergence possible, namely it re-establishes the meaning of globalisation, its profound reason. The principle of competition in the global world's benchmarks does not let the victory be definitely confiscated, but it grants it through the constantly resumed dispute, thus ensuring the strength of the coexistence of the parts and of the whole. The global transition brings a new world ordering principle – harmonic, inclusive competition, another manner of powers' management – polycentric, another formula of combining of some new productive factors – the new economy, another stake of the progress – the second modernity, another economic and political order – the globalisation.

The paradigmatic horizon of globalisation

From the above meaning given to globalisation we distinguish four levels of significations: a) relations between the economy, society, institutions, problems and global power management; b) classified breakthroughs and pragmatic stakes; c) the specific agents' identity; d) strategies and previsions.

a) In the category of the relations between the functional policies of the globalisation's construction the most important signification regards the very essence of the globalisation: ensuring the social finality of the performant economy. This confers to the globalisation the integrative character and ensures the adherence as long as it doubles everything with the corrective character, especially for the organising system's deviations, which can verge either the left wing fundamentalism, by exacerbating the interest for satisfying the social need, or the right wing fundamentalism, leaving everything in the hands of the market's virtues. The significance of the level of the relations between the economy, society, institutions, problems and global power management is eminently political, meaning the creation of the global politics. The most delicate problem, which must be solved, assumes the invention of the main political instrument in order to create the global society, presumed to be the centre of the global political decision. Other delicate aspects of this level are counted for in the area of the institutions specific to the globalisation, as at this level regaining the Bretton Woods institutions' role is searched for through

reforms (Stiglitz, 2003, 2008). It is certain that the institutional reform specific to globalisation must target somehow or another the International Monetary Fund (IMF), the World Bank (WB) together with the institutions forming the WB Group, as well as the World Trade Organisation (WTO), United Nations (UN) etc. These institutions will be able to support, being reformed, the globalisation process, though their visions, especially IMF's and WTO's, are in favour of some market's fundamentalisms, even some deviant aspects, of an ideological nature, regarding the economic strategies to be applied. Certainly, in institutional terms, the globalisation remains a wish that could come true sooner rather than later depending on the interests of the globalisation's real agents.

Box 4. Global institutions

- World Bank (WB)
- International Monetary Fund (IMF)
- Bank for International Settlements (BIS)
- World Trade Organisation (WTO)
- Group of Developed Countries (G7/8)
- United Nations (UN)
- World Health Organisation (WHO)

Attached to these aspects is the effort of creating good practice for solving the problems with global variables. As the establishing and functionalising of a global decision centre will be reached, namely after the critical weight had been reached for creating a global society, only then it should be expected to have solutions to the global problems like development, for instance, but also pollution, combating discrimination etc., including coherent strategies of managing the consequences of global problem solving (Stiglitz, 2008).

It is important that the areas' relationship assumes the reorganisation of the relation between the economy and the society in the sense of maintaining the principle of economy's social finality.

b) It is obvious that the globalisation registered a success with regard to the financial markets, though their finality seems to be still controlled by the business segment fascinated with the performance in itself. In general, the globalisation has generated the premises for the free movement of the production factors. Unfortunately, the liberalisation, in any area, remains captive to the intentions of comparative advantages' rescue, on the whole of what it could support performance' maximisation assumed by replacing formulas of the globalisation, which came on the channel of one part's ambitions (usually a state) to dispose of the entire global system. The WTO regulations reveal just this fact. The experts think that the liberalisation's success, true breakthroughs that belong to the globalisation model's essence, was supported by the attachment of some to neo-liberalism, in the variant practiced by the Thatcher and Reagan governments (in Great Britain, and USA, in the 8th decade of the last century),

inspired by IMF and WB, assisted by the Federal Reserves – the Central Bank of USA – a formula that also substantiated the reforms in the post-communist countries and that it is known as the Washington Consensus.

Certainly, there are important elements to be taken into account when the role of liberalisation is being judged as a political initiative in some states, primarily because it is the role of experiment which allowed the first assessments. Nevertheless, the liberalisation assumed by the globalisation does not limit itself to the neo-liberal precepts, eminently found at the monetary level, but to all the dimensions, from the movements of capital to the movement of persons. It is not less important to underline the fact that the globalisation is not a victorious liberalisation in the libertarians' sense, but a harmonisation of the liberation's rules, so that these aim at reaching the social finality of the economy. In fact, it is the sole variant due to which the globalisation does not fall into the trap of the tittytainment suggested by Zbigniew Brzezinski (Martin, Schumann, 1999), that of the polarised society: 20% (with access to the resources' production) versus 80% (which must be supported with dummies and entertainment, namely with bread and circus, as we know from the Roman culture).

Frankly speaking, the globalisation assumes the logic of overstepping the traps represented by utopias, even the ones practiced by the social experiments of the collectivism because it has pragmatic stakes, contrary to those reached by the new man, for instance, like all the stakes specific to the social engineering of any colour. There is no other way to explain the slowness sensation in the course of globalisation because the purpose is that people convince themselves that the old order's values are obsolete and that they must opt for the project in which the freedom is a confirmed expression of the general performance, reached by individual judgement. Returning to the individual, as human nature, is the absolute stake of the globalisation, and not understanding this objective throws the project into a global imitation of the failed ideological experiments, even in the area of the absolute danger, where the man is against the human nature.

Box 5. *Global factors (agents)*

- Global firms
- Supermarkets (usually financial)
- Risk funds
- The virtual space operators ("the electronic herd")
- Nongovernmental organisations (ecologist, antipoverty etc.)
- Associations of intellectual environments or spiritual practices
- International standards' bodies
- Personalities of global reputation

c) Like any idea or any action, natural or caused, the globalisation becomes real through what its agents think and act. In order to identify them one think is clear: the

globalisation's agents are those producing the globalisation and reproducing themselves for globalisation. As it could be said, the gate is opened, and the one who understands what is going on in the yard can get in. Nowadays, the real globalisation's agents seem to be invisible and the ones contesting the globalisation seem to be very exposed. Somehow anecdotic, the globalisation's agents are positive and negative, with the mention that the positives keep silent and perform, and the negatives protest against what they believe it is ... something else. The confusion regarding the agents is, in fact, the confusion regarding the values promoted by the globalisation. The values that do not enter into the option lattice of the globalisation, precisely because it means a new order of values for solving the problems defying the old order, even the neuroses induced by the permanent postponing of problems' solving, as well as the forced, ideological solving of the situations related to human nature, are revenging, creating dissensions, supporting the anti-globalisation campaign etc. Certainly, qualifying for the values and the agents of globalisation is a matter of option, as a matter of being compatible with the principles. Besides the devoted agents of globalisation, like the global firms, supermarkets, risk funds, virtual space operators (Godeluck, 2000), nongovernmental organisations etc. the states that understand to render valuable the globalisation's advantages, as a first stage, can also dedicate themselves especially with regard to the option for productivity, speed, prosperity, modernity etc. (Friedman, 2001). If we were to say what essentially the option for globalisation is, it means saying that it is an option for the world's course into the future. The still shy evolutions are heading towards a new power management system, the decision being either influenced, or taken by the global agents. It seems a "science fiction" scenario, but it is like that only for the naives and nostalgic trapped in the benchmarks of the value system of the model proposed by the national and industrial revolutions, namely for more than two centuries. The global revolution has started, has already registered victories, both in the East and in the West, has started with the post-communist and post-capitalist transitions, the globalisation is already on everyone's street (Dinu, 2000), and we only have to become aware of this fact.

The processes specific to globalisation are of a post-national nature. In fact, the globalisation completes the modernity cycle centred on the national and coagulates the trends of the second modernity (Beck, 2003) in view of which the values, action principles, institutions, as well as post-national moral guidelines are defined. From now on, the history is divided into the pre-global stage and the global stage (Dinu, 2004).

d) It is natural for the globalisation to be perceived as something that comes like a storm. Nevertheless, many of the events we assign to the globalisation (G8 decisions, WTO reunions etc.) and that are accompanied by anti-globalisation reactions have only mediated on long-term the link between the essence and the globalisation. The decisions taken by the most industrialised states regarding a general interest problem refer though to the interests defined by other types of reaction, international, interstate, regional, cross-borders etc., but not truly global. Frankly speaking, the condition of industrial power, in known terms of positive reactivity of a state to the industrial revolution, do not really have the consistency of the globalisation's agent, light on

other dimensions: information, services, innovation, software, consultancy, derivatives, securities etc.

Box 6. What globalisation is

The definition of common sense

Globalisation is the process through which people everywhere understand to accept what resembles them, and put on mute what separates them.

The positive definition

Globalisation is a transition process that includes all the social organisation formulas as finality of both the post-communist transition, and of the post-capitalist one, namely exactly what would give meaning to both processes, the global transition.

The conventionalist definition

Globalisation is the new economic and political world order, as a multidimensional and correlative system in which the coherence is given by the global governance.

The openness definition

Globalisation is the expression of a world's system in its highest degree of integration and permanently opened to integration.

The main definition

Globalisation is a system in which the objective-function regards the whole aiming at removing the adversity, and the competition aims at generating the creative destruction.

The teleological definition

Globalisation is a potentiality and a tendentiality of the coherent structures of the world, as a progressive materialisation of rationality and universal human reason.

The instrumental definition

Globalisation is the process of ordering the world, as an estrangement from chaos, based on the occidental technology, permissive finances and free information, namely liberalising the access to efficiency and modernity, to building up wealth and to power.

The integrating definition

Globalisation is the functioning process of the global economy, which, inside the global society, becomes able to create the global decision structures for the global problems solving.

The globalisation runs its intentions more and more obvious, thus becoming the expression of a system integrating in its highest degree and permanently remaining opened to integration (Friedman, 2001). The exclusion from the system is an exceptional possibility, and the admission is liberalised, as the whole is meant to absorb the extreme variations, including the failures, even if the option belongs to one part. Certainly, the globalisation presents itself like a new world order, one that has a

multidimensional and correlative feature. As a strategy, the globalisation is the direct expression, verifiable and argued, of the rationality and reason. The globalisation has, undoubtedly, the forecasting feature, it operates with significant proportions of conjecture next to the science's classified truth, even being the stake of an on-the-go forecast. The globalisation is, definitely, an ideal where the truth meets freedom and justice, against the general production of individually assumed prosperity. It is not however the best of worlds, it is just a long prepared possible world of human reasoning. It is the mediation between the normative and the positive, where the human self-governing experience gains a meaning beyond adversity. As the globalisation is built in a Manichaeistic manner, it has the vocation of minimising the failure and broadly distributes what is resulting from managing the effect.

Approximations of the globalisation

Counterweights to the part that dominates the whole

The present system of world organisation, of a single-pole nature, resulted from overstepping the bipolar system based on ideological adversity, is not a real globalisation formula. The literature in the field analyses the new economic and political world order, with the USA at the steering wheel, as a stage of a generalised imperialism (Brzezinsky, 2000).

Justifying this system is a delicate problem in view of the rationality performance of which the humanity is capable. In a justified manner, USA are forced to pose as the guarantor, from an economic, political and military perspective, of the world order balance. Unfortunately, the USA behaviour tends to grow indistinct any manifestation contrary to the state interests and even block the globalisation idea, eminently a formula of democratising the distribution of complementary powers in order to favour the development and modernisation (Dinu, 2000).

USA is today the part that dominates the whole, even with the possibility of remodelling the whole according to the American unilateral rules and interests. Certainly, it is not imperialism in an aggressive manner, but one built on seductions, from the cultural until the ones regarding the human models (Friedman, 2001). The global order guaranteed by the USA bears the absolute seal of the USA, created with all the ingredients like Hollywood and McDonald's, but also with the "Special Force" arsenal. The USA's reactions are today specific to the project of perpetuation of the bias position in the world economy, even the economic integration promoted on the North-American continent, together with Canada and Mexico, being rather initiated with the intent of rendering valuable the USA's comparative advantages.

What is worth to be taken into account are the counter-reactions of other regions to the American attempts of imposing its rules and which determine the main trends that identify for quite a while with globalisation. Lately, this aspect boils down to something undesired, namely to the fact that the regionalisation, with approximations of globalisation, is produced under the American adversity principle. Europe is preparing with its single formula because it must face America's irrepressible power,

as Asia is searching for its regional value only through an analysis that could underline the identity of its present economic and political power in relation to America. As long as the present economic and political order is structured on the principle that the part must control the other part or even the whole, the regionalisation risks to be a path for continuing certain anti-globalisation attitudes or at least throw again the global order structuring in the area of disputing the relations between the opposite parts. Thus, approximating the globalisation through regionalisation cannot break loose from the environment generated by the economic and political order built on spatial limitations disputing their power balance.

In practice, today a globalisation blockage is taking place, as both the European and the Asian model are built on the political need to not have an American globalisation; both models are primarily based on the American adversity. This truth means that the two regions, European and Asian, are in an obvious inadequacy with the American project of globalisation precisely because Europe and Asia persists in proposing other centres that would temper, counterbalance the power of the American centre. Frankly, the fact that other centres appear is not an anti-globalisation signal, but a signal that these centres are built according to adversity algorithms (Dinu, 2000). The idea of multiple centres is compatible in the globalisation with the globalisation project when it is not aiming at adversity through territorial imitation, as the globalisation is not a interconnected problem of the territorial entities, but it even means the creation of the global entity.

Multiplying the power centres on the Globe, when there are currently three, North America, centred on the USA, Europe, with the European Union project, and Asia, with the Japanese dynamism and the Chinese pivot, seems rather created from the need to preserve the diversity, identity, to establish *échafaudages* for a dispute, diffuse for the moment, of the hegemony. Not otherwise are the Africa and Australia, as well as South-America preparing to evolve. The commercial exercise that led to creating intersected free trade areas indicates the fact that the perspective of overstepping the regional fragmentations is taking shape.

Also in the case of regionalisation, the explicative model that is dominant is based on additionality, on the belief that the parts could form a functional whole. It is known that all the internationalist conceptions have walked this line, those of the interdependencies growth between countries, and anyway through here the imperial ambitions from the Romans until the Americans have also walked through here. This is the road where a providential part must dominate the whole. Still looking at things in this manner means making the history hold still or at most to take beyond the last consequences an economic and political order build on the balance of powers of the component parts of a system controlled by a privileged part.

America defends its self-assumed right to control the whole, in the same time trying to minimise its responsibilities (Kissinger, 2002). The sand skilfully slipped into the European integration gear by the Americans, on the military and financial path, says a lot in this regard, another approximation of the globalisation besides the American one being a danger for the status of the part controlling the whole, suggesting that the power could be democratically diffused on the globe, as well as prosperity.

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