

Epistemic stained-glass

“Economics’ epistemic territory constitutes a base for surveying the cognitive complex guarded by logical-mathematical conventions, and a bridgehead for incursions into the labyrinth of understanding offered by the studying of human behaviour.”

Economics is being structured under the influence of two essential fronts, one originating from the placental space of rational knowledge and the other coming from the direction of dynamics of societal experience. Economics thus benefits from the sufficient condition for accessing the citadel of rational knowledge and it also has serious possibilities for circulating ideas in the capricious area of inductive thinking and inspired gesture.

The methodological trajectory taken by the economic sciences is composite, somewhat right at the confluence of the formalized, intentionally built universe with the contingent universe, the spontaneous result of intersubjectivity. Economics’ epistemic territory constitutes a base for surveying the cognitive complex guarded by logical-mathematical conventions, and a bridgehead for incursions into the labyrinth of understanding offered by the studying of human behaviour.

The limits of the rationality space are therefore as fluid as they are personalized. The paradoxical epistemic constitution of Economics is translated as the confirmation of the failure of the mathematical propensity and as the refutation of the material determinism of Psychology. The object of interest for Economics is sufficiently individualized for it to certify the originality of the cognitive approach, but also general enough in order to appeal to the segmented knowledge.

In a particular fashion, Economics insures for itself the advantage of the metamathematical cognitive means in a lean enough manner to avoid becoming entirely an art which values the intentional conjunctures. The recourse to the tools of formalization probably came about in this way.

The emerging problem is whether Economics can be sure of the mathematical consistency of its object, it being circumscribed to a perimeter of a reality in which the determinants of the model of Kantian intellectual knowledge have subjectual substantiation. It is certain that the methodological registry of the mechanics is inadequate, even though it is the universe utilized by economists.

The economic sense of the ideas of space, time and causality is completely different from the one originating from the cognitive approach of Physics. Their rationalization decisively signifies the cancelation of Economics’ specific object. It may be that, in part, the failed solutions to the eternal economic woes of existence may arise from this falsification. Frankly, economic cognition is disinterested in defining the specificity of the terms belonging to the intellectual model of knowledge.

From this point of view it does much less than Durkheimian Sociology in defining the specificity, because its epistemic fixations are prevalently of a deductive nature, but it does more than behaviourist Psychology by accepting the indeterminist option in explaining the agglomeration of unintentional consequences.

The intellectual model of economic knowledge draws its content by being observant of the motivation of cognitive reporting, and of the stratification of the typology relating to the answer to motivation. The cognitive interval is bordered, according to the Akerloffian vision, by economic motivations and rational answers, on one end, and by non-economic motivations and irrational answers, at the other end. The combination formulas are somewhat limited, but the possibility for their justification is opened.

Yet the explicative horizon configured by each combination blurs the Kantian model of knowledge. The truth is that, from the economic literature, we understand too little about the meaning of the reality founded on non-economic motivations and rational answers, or the one founded on economic motivations and irrational answers, or about any other combination different from the one situated on the left end of the possibilities interval. For instance, the recharging of a model of intellectual knowledge derived from the motivations and answers of the second end of the cognitive interval exceeds, plain and simple, the rationalist theoretical experience.

The non-economic motivation and the irrational answers from the Akerloffian grid constitute the gate through which Economics exits the mathematized universe and enters the human universe, where everything becomes relative. The model of intellectual knowledge specific to Economics operates with the space of utility – which contains as parameters both the existential given as well as the creativity of the interests of needs and wants, with the subjective time – which cannot be rationalized very much, and with the asymmetrical causality – in the sense suggested by the theory of determinist chaos.

The epistemic positioning of Economics is removed from the one of Physics. The matter which it studies both has and doesn't have substantialization, the examined phenomena are and are not objective, the finality is and isn't rational. When Economics continues to imitate Physics it only invites Mathematics to overcome its abstract conventionalism and to give up on the reduction to the absurd. In this way it touches on the impossible. When pretending to be autonomous it again resorts to something which defies the norms: adjusting the acquisitions of Sociology with the breakthroughs of experimental Psychology.

In conclusion, the conceptual body of Economics reveals the epistemic stigmata in the light filtered by the stained-glass of all sciences. We are left to get used to this truth!

Marin Dinu

Contents

Innovative clusters: a solution for the economic development of Romania Mihaela-Cornelia Dan.....	5
Corruption, democracy and bureaucracy Aviral Kumar Tiwari	17
Testing weak form informational efficiency on the Romanian capital market Andrei Stănculescu, Eugen Mitrică	29
The impact of labour market imbalances on regional disparities in the post-crisis context Gina Cristina Dimian	37
Laggards or performers? CEE vs. PIIGS countries' catch-up with the Euro Area in the last ten years Cristina Tatomir, Ileana Alexe	49
Economy of Referential Preferences. A new mathematical approach for choice theory and general equilibrium Teycir Goucha.....	65
The industry of copies – obstacle for the economic recovery. Examples from the markets Daniel Belingher.....	77
The road to the new economy Alina Ginghină.....	85
Globalization and the identity dilemma Alina-Petronela Negrea.....	93
Economic fundamentals: between consecration and contestation Monica-Gabriela Gherman.....	117

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Innovative clusters: a solution for the economic development of Romania

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Abstract. *The Europe 2020 Strategy emphasizes the importance of the smart, sustainable and inclusive growth. The flagships of the strategy (digital agenda for the EU, innovation union, resource efficient Europe, industrial policy for the globalization agenda) are setting the frame for economic development. Innovative clusters are seen as a solution to the crisis, a tool for competitiveness and regional development. Given the economic situation of Romania we bring in discussion the potential of clusters in our country and the arguments and critics regarding their development.*

Keywords: innovative cluster; competitiveness; economic development; Romania.

JEL Codes: O10, R11.

REL Codes: 16G, 19H.

1. Introduction

The Europe 2020 Strategy continues the Lisbon Strategy for growth and employment; it includes three main objectives: smart, sustainable and inclusive growth. This new strategy has on the short term the priority of fighting the crisis and on the long term to facilitate more work places and a higher life standard and to bring the European Union in the international ranking on the top. The solutions for the crisis concentrate on the social and green economy where prosperity is brought by innovation, a better use of resources and knowledge. The objective of the European Commission is to lead a Europe that sustains on knowledge, rapid and sustainable growth, employment and social progress. One way of achieving these goals is to foster the cooperation between the business environment, universities, research institutions and government. In this case one popular but still not so exploited form of cooperation is the one of clusters. Defined by many terms as research cluster, ICT clusters, industry clusters or innovative cluster this form of partnership comes more often in the discussion and public debate.

Clusters are now subject of different documents and position papers of international and national organizations (OECD, 2005, 2010, European Commission, 2008) and based on the previous experience several authorities promote the idea that by clusters competitiveness increases, the work force specializes, companies grow and regional economy develops.

2. The cluster concept

The cluster concept has a long history starting with the first mentioning by Alfred Marshall in 1920. An adept of the neoclassical economic school, Marshall observed and analyzed the economic space around London and came to the conclusion that the organizations and businesses within this area were interconnected by three main factors. These are a pool of work force, specialized suppliers and easy access to knowledge and information, and are known under the term of “Marshallian Trinity” (Dan, 2011).

When defining the cluster we may state that there isn't a unique definition. Starting with the 50s, the subject came in front and was debated by specialists from regional sciences, architecture, urbanism, regional and urban economics, political science, business organizations. All of them defined the concept of cluster, emphasized the drivers of clusters, the positive or negative effects of the clusters in the region. For example, the urbanists consider that cities are playing a major role in the forming process of clusters; regional

economics consider that clusters are influenced by economical factors as localization, transportation, infrastructure, work force etc.

Further the definition launched by Michael Porter in the 80s is promoted at all levels, but not all over accepted. Porter described in his work a so called “diamond model of competitive advantage” which is the base of clusters. The main elements of the diamond are the factor conditions (skilled labor force), demand conditions (the demand influences the innovation of the enterprises), related and supporting industries (thanks to the network of providers the distance between suppliers and producers will be shorten), firm strategy, structure and rivalry (in order to remain competitive organizations are forced to upgrade and invest continuously) (Porter, 1998). Other authors consider that Porters definition is a static one, and doesn’t take into account the dynamic of spin-outs, the networking or the project focused businesses (Asheim a.o., 2006) or, even, that Porter contributed to the concept confusion of clusters. At the beginning he defined a cluster as an effect of interrelated industries (inside of a country) and after the year 2000 he brought in debates also the geographical proximity (Malmberg, Power, 2006).

In the early 90s the politicians recognized the existence and sustaining of the clusters and stated that clusters are not a simple business agglomeration, but a platform for innovation. “Innovation is heavily concentrated geographically, much more than high prosperity or productivity. Clusters – regional concentrations of specialized companies and institutions linked through multiple linkages and spill-over – provide an environment conducive to innovation. They lower the barriers for transforming new ideas into businesses and capturing the benefits of globalization” (European Cluster Memorandum, 2007, p. 2). But even with this recognition, clusters are still part of the industrial policy, competition policy or innovation and higher education policy and don’t receive a special policy (Dan, 2011).

Clusters are geographic concentrations between enterprises, universities and research institutions and local or regional authorities, and due to this they attract specialized suppliers, can select from a pool of work force, and have an easy access to knowledge and information. By facilitating such dynamics as labor market pooling, supplier specialization, and knowledge spillovers, all sorts of firms and regions can benefit by enhancing the local and innovation potential, encouraging entrepreneurship, and ultimately promoting growth in productivity, wages, and jobs (Muro, Katz, 2010). Clusters are characterized by a flexible organization, each member has several activities, and a clear role in accordance with the cluster strategy and market needs (Tanțău, 2011). Clusters have been seen as a tool of promoting and sustaining competitiveness, innovation, growth on local, regional and national levels. In the majority of

cases the initiative to cluster influences the strategy of enterprises, it increases their competitiveness because of the delivered added value, and the authorities are reshaping their public policy and analyze in a new perspective the regional economy.

Referring to the cluster thinking we find in the economics literature several types of clusters. Because there isn't a common definition for clusters we observe in practice different types of economical agglomerations; all of them define themselves as clusters. Markusen (1996) made a first classification by their size and identified (1) the "Marshallian" cluster (small and medium enterprises, with strong relationships, dependent from the synergies of clusters); (2) "Hub and spoke" (the members are one big company and several small enterprises which deliver specialized and support services, it functions on the principle of a hub, the big company establishes the cooperation conditions); (3) "Satellite platforms" (its members are branches/plants of medium and big companies with a minimum of cooperation and networking) and (4) "State-anchored" (formed by state-owned companies, with relationships with specialized suppliers, the development of it is dependent from the finance schemes of the public services).

Other types of clusters refer to the geographical source, Italian, American, Latin American, European clusters (Meyer-Stamer, Harmes-Liedtke, 2005), but if we analyze their definitions we may state that these are combinations of the typologies of Markusen.

Coming back to the innovative clusters, the literature (Simmie, Semmet, 1999, OECD, 2001) shows that this concept has similar meanings with the industrial cluster or cluster initiative. In practice, we understand the agglomeration of enterprises, suppliers, associated institutions, local and regional authorities; all are interconnected and the enterprises benefit from an innovative milieu.

3. Competitiveness and regional development

The new thinking about regional development raises the question "How to fit clusters into the economic development?" For instance a cluster analyses can help diagnose a region's economic threats and opportunities and identify what a region might do to influence its economic future.

Clusters have an important place in the general policy of the European Union, which may be observed in the numerous official documents and position papers adopted by the European Commission since 2005; the EU established an European Cluster Policy Group which in the time period 2008-2010 analyzed the cluster policies of countries outside the European Community. Till now the

cluster policy was part of several policies (competition, industry, entrepreneurship, education and science), and this means that at the European level there isn't a clear cluster policy and we are still in the stage of identifying and testing the strategies and instruments needed for an independent policy.

The general thinking about clusters shows that these are drivers for the economy and development. They bring competitive advantages for their members, influence structural changes, they revitalize industrial sectors, and deliver the necessary frame for research, innovation and regional development.

At the level of EU we may speak about policies which "reflect where a country or region wishes to position itself in global competition with a mid-term perspective, building upon existing strengths and mobilizing the necessary commitment from all innovation stakeholders to move into the right direction (ProInno Working Paper no. 9, 2008, p. 32). There are three different categories of cluster policies. The first category concerns facilitating policies directed towards creating a favorable microeconomic business environment for growth and innovation that indirectly also stimulates the emergence and dynamics of clusters; for instance, by encouraging the networking and knowing the enterprises in the same field and in the geographical proximity. A second category comprises traditional framework policies, such as industry and SMEs policies, research and innovation policies, and regional policy that often use the cluster approach to increase the efficiency of a specific instrument (OECD, 2007). A third category consists of development policies aiming at creating, mobilizing or strengthening a particular cluster category resulting specific branches cluster initiatives.

The importance of clusters in the EU economy is emphasized by the European Cluster Observatory which identifies around 2000 clusters (defined as regional agglomerations); it also shows that 38% of the work force are active within clusters. This initiative is mainly a platform for enterprises, universities, actors interested in clusters. It offers also a clear image about a modern cluster. The main indicators for the analyze and definition of clusters are applicable both at regional and sectoral level. These are: number of employers, growth rate of employers, number of enterprises, growth rate of enterprises, ratio employers/enterprise, wage/employer, size of the industrial agglomeration, the classification of the experts (in stars), specialization and concentration in a certain activity.

The EU encourages the development and finance of clusters; we mention here initiatives like Regions for Economic Change, Regions of Knowledge, the Community Strategic Guidelines on Cohesion, European Grouping on Territorial Cooperation. In the same time, the EU asks the Member States to include in their national programs for reforms measures for cluster.

In the regional development process the state is seen as an important player for sustaining clusters and networking. For instance, all Member States have implemented measures in order to make cluster success an economic goal. Further at the European level there are some schemes and programs which are funding collaborations between different economical actors and local authorities and other institutions. We mention here the European Regional Development Fund within the Cohesion policy. In the same time, we can speak about a cluster management and scholars trying to identify what kind of skills and competencies are required for a successful management. In some countries clusters are promoted in the same way as brands. The concept of regional cluster brand is expanding very quickly; it gives advantages by putting together the individual brands and their membership, roots in one particular region (Kaminski, 2009). We mention here another platform created by the European Commission, www.cluster-excellence.eu. This platform addresses to cluster managers and has the scope of sustaining the interaction and cooperation between clusters with the objective of competitiveness increase.

For the local economy, clusters can increase the competitiveness, increase the income, offer quality jobs, develop investments in R&D, and support potential winners. And the government can use the funding projects more efficient by sustaining the start-ups, innovation companies, and implementing more efficient public policies (for health, education, infrastructure etc.).

Romania is recovering slowly from the financial crisis that affected the entire world in the last three years. In comparison with other East European countries, Romania has the highest inflation (12.6% for 2011), a high unemployment rate (10%), the lowest percentage in contracting EU funds (3%) and a decreasing percentage of direct foreign investments. If we analyze some macro economical indicators we will observe that Romania has lost competitive advantages and dropped some places. The Transformation Index shows where the countries stand in the process of democracy and market economy and compared with the neighbor countries Hungary and Bulgaria Romania has a bad position (Bertelsmann Stiftung, 2011). The Transformation Index is an average of different indicators such as: political participation, stable democracy, political and social integration, socio economical development, price and currency stability, personal property, management performance, resources, international cooperation etc. If we analyze the Transformation Index for 2010 Romania has the following ranking: status (16 of 128), democracy (15 of 128), market economy (16 of 128) and management index (25 of 128); all these ranks are below Bulgaria and Hungary. The numbers show that Romania doesn't use all its capacities to increase the development level and smaller countries with fewer resources manage to be more efficient.

Another interesting index analyzes how easy it is to do business in a country. Ease of Doing Business Index evaluates the conditions for an enterprise to develop its activity in a country and takes in account factors like the process of founding an enterprise, financing possibilities, recruiting personnel etc (IFC & World Bank, 2011). A lower number indicates good conditions for business. Romania dropped two places from 54 to 56, Bulgaria kept its place 51 and Hungary went 6 places higher (from 52 to 46).

Another index, the Global Competitiveness Index, puts out information about the competitiveness of 139 economies in the world. The index is comprehensive and analyzes micro and macro- economical factors as infrastructure, institutions, business environment, health and education, trade efficiency, financial market, technological maturity, market dimensions, innovation etc. In the time period 2008-2011, Romania positioned between 64 and 68 places, Bulgaria between 71 and 76 and Hungary from 62 to 52.

Given the position of Romania in the last years we may state that the country has a pace with slopes, it lost competitive advantages and it doesn't have a coherent policy in order to develop the business environment and increase its importance for foreign investors.

4. Cluster movement in Romania

Why cluster? Research has provided evidence that clusters bring economic benefits at a time of economic uncertainty, they reflect the nature of the real economy which means that the nation gets clearer about the true sources of growth, and they offer a compelling framework to rethink, reorganize and reform national and regional economic development efforts (Muro, Katz, 2010). Clusters influence productive growth in several ways: innovation, entrepreneurship, firms and industry, performance of regional economies, their impact is quantifiable.

The role of the Romanian state is very important in the development of clusters. The theory says that cluster initiatives should appear only in the regions where we find already different forms of networks and partnerships, but due to the underdeveloped economy we think that the Romanian government should intervene and help more the businesses.

The first steps were taken by the Ministry of Economy which financed studies for defining a Romanian concept of cluster. Starting with the "triple helix" model which includes three natural partners (industry, especially SMEs, universities and the state) that in reality don't cooperate, or even more, they don't know each other; the conclusion was that a Romanian cluster concept should have the form of a clover "the four clover model" where the fourth actor

is represented by the promoter organizations. These are organizations specialized in technological transfer and innovation, consultancy firms etc.

The past experience of Romania shows that, on one hand, the government facilitates the funding of clusters, it introduced measures favorable to industries and SMEs, on the other hand, there are few examples of clusters and fewer are functioning, although there is a potential (Guth, Cosnita, 2010). For example the document “Ghidul pentru implementarea în România a conceptului de cluster inovativ”, financed by the Ministry of Economy (2009), presents a list of industrial parks, entities of innovation and technological transfer, universities, foreign and Romanian investors that by associating can benefit from the advantages and benefits of a cluster. Even so, we observe at national level that such initiatives and partnerships are rare or if they exist they have only the goal of spending funds without a mid or long-term strategy. Another initiative represents the platform www.clustero.eu which is part of the project Innov Cluster II. Between 2010-2012 the members will analyze the industrial sectors of Romania and propose strategies, programmes and measures for adapting and integrating the Romanian industrial policy into the European Union policy.

By analyzing the strengths and weaknesses of the Romanian regions, we observe that, on one hand, there are sectors and industries with economical potential (e.g. agriculture, textile industry, constructions, tourism, forestry, automotive industry), the SMEs have the wish for internationalization, the entrepreneurship is increasing and the entrepreneurs show more courage, there are local initiatives for associations, the business environment is dynamic, on the other hand, because of the political instability and lack of clear strategy for Romania, the mid-term strategies are inexistent or fragile, so it is impossible for the business environment to plan and forecast, the educational system isn't adapted to the needs of the market, the work force has migrated in the last 10 years, especially the age segment from 18 to 35 (the most active age group), the work force has a low mobility within the country, the infrastructure is underdeveloped (aproximatively 300 km of highway), the communication between the potential partners in a cluster is rare or inexistent, the universities have a bad image in the public, there isn't a coherent national strategy with clear subjects and priorities, there is a lack of cooperation between the members of industrial agglomerations.

Chances for building clusters are brought by the EU, which imposes to the Member States to transfer its policies and measures regarding clusters in the national programmes, to improve the conditions for the business environment. The Black Sea Strategy and the Danube Strategy bring opportunities for transboundary cooperation projects and economic development, implementation

of regional development programmes, increase the interest of multinational companies for opening subsidiaries and research units within the universities.

Regions have to face also risks coming from the attitude of the authorities who take the responsibility of major objectives regarding the competitiveness, industrial policy and clusters, don't fulfill or even drop them.

The Romanian state implicates different in the cluster policy. Like in other European countries, the policies about regional development, clusters, the role of SMEs in the economy are included in the programmes of several ministries and institutions. The main actors are the Ministry of Regional Development and Tourism, the Ministry of Economy, the Ministry of Environment, the Ministry of Transportation, Ministry for Administration and Internal Affairs (responsible for industrial parks). At the national level, the regions will play a more important role than now, especially because at this level projects are evaluated, the strategy for counties is developed etc. And at the local level, the counties councils and city halls are encouraged to involve more.

For the cluster financing there are three types of funds: European, Romanian and other funds.

At the European level, we find several funds and measures, the most important one are included in the Seventh Frame Programme (FP7), Competitiveness and Innovation Programme (CIP) and Social Policy for Employment and Social Inclusion (ESF).

The most important funding source for clusters is in the Cohesion Policy with a budget of 347 billions Euro for the time period 2007-2013 and the objectives are increase of competitiveness and work places and economic growth. The instruments are ERDF – European Regional Development Fund (for economic activities) and ESF – European Social Fund (for human capital development). 25% of this budget finances the innovation, entrepreneurship, start-ups, clusters, networks, business incubators, human resources development etc.

The Romanian funding schemes are included in the National Strategy Frame Programme (Cadrul Strategic National de Referinta), the National Strategy for Research Development and Innovation 2007-2013 (Strategia Nationala de Cercetare Dezvoltare si Inovare), the National Strategy for Sustainable Development of Romania (Strategia Nationala pentru Dezvoltarea Durabila a Romaniei), strategies for regional development.

Other funds are offered by international organizations like OECD, World Bank or UNDP.

In the majority of studies and research the SMEs and the managers criticize the bureaucracy and corruption which block the cooperation with the

state. This is one reason why local cluster initiatives are avoiding the local authorities. Traditionally, the state should assure the macroeconomic stability, improve the microeconomic frame, development conditions for the work force, business environment etc. The state sets up the rules and monitors the infringements; it implements strategies and funds for entrepreneurship and innovation.

The idea of cluster and the cluster process are also criticised by analysts and experts. There is the thinking of not creating clusters. They cannot be created out of nothing. The state should help the spontaneous, natural clusters. Cluster strategies should base on empirical information and analyses so that decision makers can make objective assessments about the competitive prospects of different regional industry concentrations. Cluster development needs to focus its work on truly viable, distinctive and competitive specializations. For this it is important to have objective market analysis to document the natural presence of clusters, their global market positioning, and the possible relevance of cluster-oriented development initiatives; fine-grained information about local clusters' institutional or resource deficiencies is essential to target and bound proposed interventions.

5. Conclusion

In conclusion, we may say that clusters are seen as an instrument to improve national and regional competitiveness. The "umbrella concept" of cluster includes the idea that by cluster a nation can force economic development; promote the cooperation between enterprises, universities, research institutions, clients and competitors, suppliers within the same geographical area. The members of a cluster have to cover some steps, the business environment has to establish priorities and accept collaborations with research-innovation units, universities to strengthen them, to improve their image, and the state represented by the public administration should invest in modernization and increase of the efficiency.

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Corruption, democracy and bureaucracy

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Abstract. *This paper examines the relationship of corruption with democracy and bureaucracy in the 82 countries in a panel framework. For the analysis we use rule of law, regulatory quality, control over corruption and secondary school enrollment ratio as control variables. We find that democracy, rule of law and control over corruption decreases the level of corruption. When we allowed for interaction effect among independent variables we find the evidence of strong interaction effect between all of the explanatory variables. We also find that, surprisingly, higher democracy and rule of law are positively associated with the level of corruption while higher bureaucracy negatively.*

Keywords: corruption; democracy; bureaucracy; panel data.

JEL Codes: F35, C23, G39.

REL Codes: 13I, 13J.

1. Introduction

Corruption is everywhere. Every country either developed or developing is suffering from the negative consequences of the corruption; of course the level of corruption is different in different countries. Myint (2000) has correctly said that corruption occurs in all countries “both developed and developing, in the public and private sectors, as well as in non-profit and charitable organizations.” Though the phenomenon of corruption exist in each country, disregarding the level of severity of the problem, it is common in developing countries up such an extent that it is regarded as a way of life in Nigeria, it has become culture of Sierra Leone and in Sudan it is treated as fifth factor of production (Hwedie, 2000). Corruption is a multi-faced term and it is very difficult to give precise definition of it. Johnston (1999) defines it as “misuse of public power for private benefits, e.g., bribing of public officials, kickbacks in public procurement, or embezzlement of public funds”. However, Transparency International (1999) has widened its scope by focusing its existence in private sector too. Transparency International (1999) defines corruption as “giving or receiving undue advantage in the course of business activities leading to acts in breach of a person's duties”. Further, we can argue that it is the public sector which plays crucial role in providing the conducive environment (by creating necessary institutional and market conditions) and for nurture of corruption not only in the domain of public sector activities but also in the sphere of private sector activities. Therefore, in such cases it creates a possibility for the Principle-Agent problem wherein the core difficulty lies in the mechanism to monitor the actions of those to whom authority is delegated but where the information is possessed asymmetrically by the agent.

Akçay (2002) has mentioned several causes due to which it arises like widespread poverty, low level of public sector salaries, lack of well developed labour market, lack of risk spreading mechanism etc. Corruption affects negatively our each aspect of socio-economic life and political and institutional activities of the nations. Corruption is multidimensional term which may exist in any form like bribery, fraud, extortion, nepotism, insider trading, embezzlement, and so on and so forth. Its impact is not only limited to the size of the payments involved, but the very process of extorting and giving bribes has distortionary effects that are socio-economic and political, even in terms of economic growth. In fact corruption reinforces bureaucratic delays. Corruption has a more distortionary impact on the economy than taxation, because of the need to keep corruption secret. Efforts to avoid detection and punishment cause corruption to be more distortionary than taxation. Further, corruption slows down investment and economic growth, raises the cost of doing business,

creates opportunities for delays for the work to be done and unnecessary requirements by official, discourages new ideas and innovations, promotes inequality among firms, reduces the quality of products, creates opportunities to divert funds from investment and other production activities, loss of faith on the part of the people and thus its legitimacy and power, strengthens bad governance (through the absence of the rule of Law, respect for human rights, no accountability, and transparency), weakness of structure and institutions which is crucial for better governance and so on and so forth.

Therefore, recognizing the role played by corruption in every aspect of our life and in every sphere of organizational activities in all nations the present study is attempting to seek out a relationship of corruption with democracy and bureaucracy. For the analysis we used data of 82 countries for the period 2002 to 2007 in panel framework.

Rest of the paper is organized as follows. Section 2nd attempts to establish a relationship among corruption, democracy and bureaucracy followed by discussion on data source, variables definition and methodology adopted for empirical analysis in section 3rd. In section 4th results of data analysis have been presented followed by conclusions drawn from the empirical analysis in section 5th.

2. Relationship of corruption with democracy and bureaucracy

There are certain questions that need to address before going for conduct analysis. For example, whether there is any relationship between corruption and democracy? If yes, then whether democratic countries are less corrupt? Addressing on these issues Paldam (1999) finds that there is negative relationship between corruption and the level of democracy. He added that since there is strong interaction of democracy with pattern of transition and vice-versa too, therefore the independent effect of democracy on corruption is uncertain. Akcay (2002) has mentioned that more democratic nations are less corrupt because of two reasons. First, democratic regimes possess effective democratic governance system, rule of law, accountability, transparency and access whereas undemocratic regimes do not. Second, democratic regime embraces those leaders who have political will to address corruption and create the environment in which civil organization can deal with corruption, and support anticorruption activities. Similar argument is put forward by Shleifer and Vishny (1993) who says that countries with more political competition have stronger public pressure against corruption – through laws, democratic elections, and even independent press – and so, are more likely to use government organizations that contain rather than maximize corruption

proceeds. Therefore, we can conclude that democracy is negatively related with corruption.

Bureaucracy, in simple words is defined as “rules by officials”. Roth and Wittich (1978) said that Max Weber argued that bureaucracy would increase fairness that minimizes nepotism and other types of public corruption and not only this, he added, it is most efficient administrative structure for achieving organizational goals rationally. Hope (1985) admitted that over the years span of state activities has expanded which has resulted in an expanding bureaucracy with increasing discretionary power which is abused for personal benefit contributed to the bureaucratic corruption in developing countries. Therefore, we can conclude that bureaucracy is positively associated with corruption.

3. Methodology, variables description and data source

This study focuses on establishing the relationship among corruption, democracy and bureaucracy. For the analysis purpose data from 82 countries has been employed covering period of 2002 to 2007. In this study we have preferred panel data analysis technique as it has an advantage of containing “the information necessary to deal with both the intertemporal dynamics and the individuality of the entities being investigated” (Dielman, 1989).⁽¹⁾

In the study we measure corruption by Corruption Perception Index (CPI). CPI is calculated by a Transparency International, a German based international agency since 1999. This agency constructs CPI by collecting information on perception of resident of a country belonging to almost each class of the society. The index ranks nations on a scale from 10 to 0; value near to 10 represents lower level of corruption and value closer to 0 represents higher level of corruption.

Government Effectiveness (GE) index is used as a proxy to measure bureaucracy. GE captures the perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.

Democracy is proxied by Voice and Accountability (VA) index. VA captures the perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.

Further, while measuring the relationship among corruption, democracy and bureaucracy it is imperative for analysis that we should use some control variables so that estimated parameters represent true values and results will be reliable. Therefore, we used Secondary School Enrollment Ratio (SSER), Rule

of Law (RL), Regulatory Quality (RQ) and Control over Corruption (CC) as control variables. RL measure the extent to which agents abide the roles of society. Examples include perceptions of crime, effectiveness and predictability of the judiciary and enforceability of contracts. RQ captures the perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. And CC captures the perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. According to The World Bank (2007), the governance indicator scores are measured between -2.50 and 2.50 over time with lower scores indicating poor achievements and vice versa. Data for CPI is obtained from official website of Transparency International and for rest of variables from official website of World Bank on 14 August, 2010.

By incorporating the above mentioned variables the evaluation of a pooled OLS regression can be specified as follows:

$$\begin{aligned} \text{CPI}_{it} = & \beta_0 + \beta_1(\text{VA}_{it}) + \beta_2(\text{GE}_{it}) + \beta_3(\text{RQ}_{it}) + \beta_4(\text{RL}_{it}) + \beta_5(\text{CC}_{it}) + \\ & + \beta_6(\text{SSER}_{it}) + \varepsilon_{it}, \end{aligned} \quad (1)$$

where i represents country, t represents time, and the remainder is error term, ε_{it} , which is assumed to white noise and varies over both country and time.

However, while using a pooled OLS regression, countries' unobservable individual effects are not controlled therefore; heterogeneity of the countries under consideration for analysis can influence measurements of the estimated parameters (Bevan, Danbolt, 2004). Further, using a panel data model with incorporation of individual effects has a number of benefits; for example, among others, it allows us to account for individual heterogeneity. Indeed, developing countries differ in terms of their colonial history, their political regimes, their ideologies and religious affiliations, their geographical locations and climatic conditions, not to mention a wide range of other country-specific variables (Serrasqueiro, Nunes, 2008). And if this heterogeneity is not taken into account it will inevitably bias the results, no matter how large the sample is. Therefore, by incorporating countries' unobservable individual effects in equation (1) the model to be estimated is as follows:

$$\begin{aligned} \text{CPI}_{it} = & \beta_0 + \beta_1(\text{VA}_{it}) + \beta_2(\text{GE}_{it}) + \beta_3(\text{RQ}_{it}) + \beta_4(\text{RL}_{it}) + \beta_5(\text{CC}_{it}) + \\ & + \beta_6(\text{SSER}_{it}) + w_{it}, \end{aligned} \quad (2)$$

where $w_{it} = \mu_i + \varepsilon_{it}$, with μ_i being countries' unobservable individual effects. The difference between a pooled OLS regression and a model considering

unobservable individual effects lies precisely in μ_i . Further, for the analysis we have used interaction terms also among different explanatory variables meaning thereby happening of the one variable is conditioned upon the happening of other variable as most of the explanatory variables are interrelated.

4. Estimation and empirical results

Results of panel data models without incorporating interaction effect have been presented in Table 1.

Table 1

Regression results of panel data models				
Panel data models: Dependent variable is CPI; standard errors in parenthesis				
Independent variables	Model 1	Model 2	Model 3	Model 4
	FE-CS	RE-CS	FE-CSW	FE-AR(1)
VA	0.2524584 * (0.1402519)	-0.1036442 (0.1019085)	0.294245*** (0.064621)	0.1919063 (0.1302277)
GE	-0.1348335 (0.1547716)	0.1200345 (0.1553502)	-0.077756 (0.075309)	-0.1226464 (0.1311539)
RQ	0.3188907 * (0.1652857)	0.0878837 (0.1370919)	0.368447*** (0.072174)	0.3607853** (0.1463432)
RL	0.3078712 (0.1871726)	0.6690767*** (0.1569469)	0.205596** (0.098505)	-0.0794106 (0.1668407)
CC	0.2716615 ** (0.1375291)	1.270768*** (0.1289728)	0.169528*** (0.064831)	-0.0254112 (0.1224076)
SSER	0.0003188 (0.0032015)	0.0049142** (0.0021643)	0.001595 (0.000995)	0.0085983** (0.003701)
C	4.425342*** (0.2749966)	3.746236*** (0.1743174)	4.316718*** (0.088203)	3.95983*** (0.1215182)
Model summary				
R ² overall	0.8707	0.9368	0.985634	0.6560
Hausman test		659.34***		
Fixed effect(F-test)	12.30 ***			5.53***
Wald chi ²		2145.30***		
Country included	82	82	82	82
Total observations	492	492	492	492

Notes: 1. The Hausman test has χ^2 distribution and tests the null hypothesis that unobservable individual effects are not correlated with the explanatory variables, against the null hypothesis of correlation between unobservable individual effects and the explanatory variables. 2. The Wald test has χ^2 distribution and tests the null hypothesis of insignificance as a whole of the parameters of the explanatory variables, against the alternative hypothesis of significance as a whole of the parameters of the explanatory variables. 3. The F test has normal distribution $N(0,1)$ and tests the null hypothesis of insignificance as a whole of the cross-section dummies incorporated in the analysis. 4. ***, **, and *denote significance at 1, 5 and 10 % level of significance, respectively. 5. EF, CS, CSW, RE and AR(1) denotes fixed-effect, cross-section, cross-section-weights, random effect and auto regressive first order. 6. [----] denotes results are not computed.

Source: Author's calculation.

From Table 1, it is evident that in model 1 coefficients of VA, RQ and CC are statistically significant with positive sign indicating that increase in these variables increase the score of CPI, hence the level of corruption will come down. Model 2, which is based on random effect approach, reveals that, contrary to fixed effect results, RL, CC and SSER have significantly positive impact on scores of CPI and hence lowers the level of corruption. However, results of the Hausman test show that data provide evidence to reject the null hypothesis (as Hausman test is significant at 1% level of significance) of absence of correlation between countries' unobservable individual effects and corruption determinants. Therefore, we can conclude that the most appropriate way to carry out analysis of the relationship between CPI and its determinants is a panel model with fixed effects. Therefore, in the next step, in the model 3, analysis has been conducted with fixed effects but providing the cross-section weights. Results of model 3, besides confirming the results reported in model 1, show that RL also has significant positive impact on CPI scores and hence negative impact on corruption. Further, we have also estimated fixed effect model by allowing first-order auto-regressive scheme and results are presented under model 4. We found that AR process is stationary; therefore model with fixed effect is reliable. Further, we have also tested the stationary property of the residuals calculated from models 1 and 3 and found that residuals possess stationary property (see Appendix 2).

In the next step we have analyzed fixed effect model with allowance of interaction terms as most of the variables are interrelated. Results of panel data analysis with allowance of fixed effect and interaction term with cross-section weights are presented in Table 2.

Table 2

Regression results of panel data models with interaction effects							
Panel data models: Dependent variable is CPI; standard errors in parenthesis							
Variables	Model 1	Model 2	Model 3	Model 4			
	FE-CSW	Variables	FE-CSW	Variables	FE-CSW	Variables	FE-CSW
VA	0.318343*** (0.067772)	VA	0.441047*** (0.094043)	VA	0.457445*** (0.095325)	VA	0.471719*** (0.105239)
GE	-0.052880 (0.090979)	GE	-0.086634 (0.091746)	GE	-0.071513 (0.091501)	VA*VA	-0.451656*** (0.100512)
VA*GE	0.115486 (0.078197)	VA*GE	-0.131477 (0.189942)	VA*GE	-0.154782 (0.190704)	GE	-0.375048*** (0.117970)
RQ	0.317842*** (0.072476)	RQ	0.387275*** (0.072471)	RQ	0.379672*** (0.070966)	GE*GE	0.348414*** (0.162204)
VA*RQ	-0.189558** (0.084746)	VA*RQ	-0.569994*** (0.194270)	VA*RQ	-0.587886*** (0.194097)	VA*GE	0.047146 (0.230707)
RL	0.170664* (0.100634)	RL	0.161504 (0.103124)	RL	0.160361 (0.102503)	RQ	0.401742*** (0.091590)

VA*RL	-0.093254 (0.096647)	VA*RL	0.455247** (0.209970)	VA*RL	0.410504* (0.212940)	RQ*RQ	0.063188 (0.153753)
CC	0.152062** (0.066882)	CC	0.055724 (0.078029)	CC	0.030066 (0.080205)	VA*RQ	-0.502290** (0.238539)
SSER	0.001618* (0.000849)	GE*CC	0.194633 (0.136154)	VA*CC	0.096454 (0.090377)	RL	0.013602 (0.119225)
C	4.476892*** (0.093464)	RQ*CC	0.390893*** (0.135666)	GE*CC	0.181345 (0.135277)	RL*RL	-0.514131*** (0.168593)
		RL*CC	-0.489172*** (0.148073)	RQ*CC	0.402343*** (0.135713)	VA*RL	0.834175*** (0.243261)
		SSER	0.000729 (0.001037)	RL*CC	-0.509815*** (0.149863)	CC	0.255984*** (0.093248)
		C	4.525702*** (0.112554)	SSER	0.000781 (0.001068)	GE*CC	-0.456899** (0.252969)
				C	4.533835*** (0.114627)	RQ*CC	0.293630 (0.219679)
						RL*CC	0.126120 (0.258432)
						SSER	0.000642 (0.000886)
						C	4.728644*** (0.107768)
Model summary							
R ²	0.999237		0.999281		0.999289		0.999009
Country included	82		82		82		82
Total observations	492		492		492		492

Notes: 1 ***, **, and *denote significance at 1, 5 and 10 % level of significance, respectively. 2. EF- CSW denotes fixed effect with cross-section weights. 3. * denotes interaction between the variables.

Source: Author's calculation.

It is evident from model 1 of Table 2 that now all variables (VA, RQ, RL, CC and SSER) have turned to be significant with positive sign while only RQ is insignificant. Further, we also find that effect of VA is conditional upon RQ. From model 2, we find that only VA and RQ have significantly positive impact on CPI and hence negative impact on the corruption level. Further, we find that impact of VA is conditional upon RQ, impact of RQ and RL is conditional upon CC. Evaluation of model 3 reveals that only VA and RQ have significant, positive, impact on CPI values and effect of VA is conditional upon RQ and RL and impact of RQ and RL is conditional upon CC. Further, model 4 shows that VA, GE, RQ and CC are significant with positive sign (except GE, which has negative sign). Addition to that we find that VA is conditional upon RQ, RL and CC and GE is conditional upon GE and CC. It is important to note that if VA×CC is significant it will imply both VA is conditional upon CC and CC is

conditional upon VA and if VA×VA is significant with positive sign (as it is not) higher value of VA decreases level of corruption and if coefficients sign is negative (as it is) it will show that higher value of VA has positive impact, surprisingly, on level of corruption. So, care should be taken while analyzing the results.

5. Conclusions

This study is intended to analyze the impact of democracy and bureaucracy on corruption in the panel framework of 82 countries for the period 2002 to 2007. Further, we have also analyzed the interaction effect of the various variables. To measure more reliable estimates of democracy and bureaucracy we have used few control variables, namely rule of law, regulatory quality, control over corruption and secondary enrollment ratio. Results of Hausman test reveals that fixed effect panel data analysis with fixed effect is more appropriate. From fixed effect estimates we find that VA, RL and CC decrease the level of corruption. When we allowed for interaction effect among independent variables we find the evidence of strong interaction effect between all of the explanatory variables (interaction effect of SSER with other explanatory variable is not analyzed). We also find that, surprisingly, higher value of VA that is higher level of democracy and RL that is rule of law are associated with higher level of corruption. Further, we also find that higher bureaucracy lowers the level of corruption.

Note

⁽¹⁾ List of the countries included for the analysis is presented in appendix along with the descriptive statistics.

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Appendix 1

Countries included in the analysis and descriptive statistics

Descriptive statistics

	CPI	VA	GE	RQ	RL	CC	SERS
Mean	4.806911	0.402419	0.440122	0.429492	0.289248	0.318252	84.21590
Median	4.100000	0.500000	0.330000	0.440000	0.180000	0.180000	89.33048
Maximum	9.700000	1.830000	2.240000	1.910000	1.960000	2.470000	160.3465
Minimum	1.200000	-1.910000	-1.180000	-1.740000	-1.660000	-1.510000	17.46335
Std. Dev.	2.383812	0.870880	0.974716	0.904897	1.003648	1.061266	26.49836
Skewness	0.632058	-0.381851	0.184800	-0.192482	0.113107	0.379733	-0.552445
Kurtosis	2.112146	2.218911	1.789603	2.057499	1.758743	1.999843	3.459498
Jarque-Bera	48.91863	24.46349	32.83415	21.24836	32.63379	32.33060	29.35439
Probability	0.000000	0.000005	0.000000	0.000024	0.000000	0.000000	0.000000
Sum	2365.000	197.9900	216.5400	211.3100	142.3100	156.5800	41434.22
Sum Sq. Dev.	2790.137	372.3902	466.4850	402.0502	494.5884	553.0063	344762.1
Observations	492	492	492	492	492	492	492

Countries included in the analysis

Argentina	Czech Republic	Hong Kong	Lithuania	Paraguay	Thailand
Australia	Denmark	Hungary	Luxembourg	Peru	Trinidad & Tobago
Austria	Dominican Rep.	Iceland	Malawi	Philippines	Tunisia
Azerbaijan	Ecuador	India	Malaysia	Poland	Turkey
Bangladesh	El Salvador	Indonesia	Mauritius	Portugal	Uganda
Belarus	Estonia	Ireland	Mexico	Romania	Ukraine
Belgium	Ethiopia	Israel	Moldova	Senegal	United Kingdom
Brazil	Finland	Italy	Morocco	Slovak Republic	Uruguay
Bulgaria	France	Jamaica	Namibia	Slovenia	USA
Cameroon	Georgia	Japan	Netherlands	South Africa	Uzbekistan
Chile	Germany	Jordan	New Zealand	South Korea	Venezuela
Colombia	Ghana	Kazakhstan	Nicaragua	Spain	Zambia
Costa Rica	Greece	Kenya	Nigeria	Sweden	
Croatia	Guatemala	Latvia	Norway	Switzerland	

Appendix 2

Stationary analysis of residuals of models 1 and 3

Panel unit root test: Summary of Model1
 Sample: 2002 2007
 Exogenous variables: Individual effects
 User specified lags at: 1
 Newey-West bandwidth selection using Bartlett kernel
 Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-21.0807	0.0000	82	328
Breitung t-stat	-2.56577	0.0051	82	246
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-20.3269	0.0000	82	328
ADF - Fisher Chi-square	346.032	0.0000	82	328
PP - Fisher Chi-square	218.514	0.0028	82	410

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary of Model 3
 Sample: 2002 2007
 Exogenous variables: Individual effects
 User specified lags at: 1
 Newey-West bandwidth selection using Bartlett kernel
 Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-16.9069	0.0000	82	328
Breitung t-stat	-2.14799	0.0159	82	246
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-13.8300	0.0000	82	328
ADF - Fisher Chi-square	291.299	0.0000	82	328
PP - Fisher Chi-square	211.608	0.0072	82	410

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Testing weak form informational efficiency on the Romanian capital market

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Abstract. *The informational efficiency of the Romanian capital market was previously studied, by different approaches. The first condition that needs verification is that of weak form informational efficiency. The present paper aims to make contributions in this direction, namely to test weak form efficiency, on a sample composed of recent data, collected from the most liquid companies listed on our country's capital market. For this approach, we use the unit root tests. The results are useful to potential investors, interested to find out whether they can or cannot obtain excessive earnings, by studying stock prices history.*

Keywords: capital market; stock price; weak informational efficiency; unit root tests; excessive earnings.

JEL Code: G14.

REL Code: 11G.

The objective of this study

The purpose of this study is to determine whether the Romanian capital market is characterized by the weak form of informational efficiency. Specifically, the research is conducted on the Bucharest Stock Exchange, the organized market for security trading. This approach is not unprecedented, because since the rebirth of the Romanian stock market in 1995 and until the present day a lot of similar analyses have been carried out. However, the results of these studies are closely related to a specific moment in time, i.e. the context in which they appeared. Because the Romanian capital market had evolved rapidly over the past years, it is logical to assume, at first sight, that also the level of informational efficiency that characterizes the market has been altered.

Considering that, on a market characterized by the weak form of informational efficiency, an investor cannot obtain excessive earnings by trading based on stock prices history, the conclusion of this research will also imply a specific aspect regarding the pragmatism of securities portfolio management. Thus, depending on the investor's behavior regarding risk, a risk-loving investor could think that on an informationally inefficient market he will be able to speculate and win more, while a risk-averse investor will value more an informationally efficient market, where his revenues are moderate and where he can minimize his portfolio risk.

Literature review

There are three fundamental forms of informational efficiency of the market, according to Eugene Fama's taxonomy: the weak form, the semi-strong form and the strong form (Fama, 1965, pp. 34-105).

The weak form of informational efficiency is defined by the situation in which, on the capital market, the prices of the assets reflect all their past history, fully and instantaneously: the market prices from the past, the variation in the prices, the volume of the transactions etc. Thus, there will be no correlations between the past changes and the future changes of the stock prices; the prices' variations are independent. This also implies that it is not possible to obtain excessive earnings by trading based on studying the assets' prices history.

Previous studies in this area show that the Romanian capital market lacks the weak form of informational efficiency. This means that it also lacks the other two levels of informational efficiency: the semi-strong and strong form.

For example, Dragotă and Mitrică, by using the standard econometric testing methodology, concluded for the absence of weak efficiency; the Romanian capital market does not fulfill the conditions required for the weak

form of informational efficiency. In these conditions, testing the other forms of informational efficiency was no longer necessary. However, the study shows that transaction costs and temporary lacks of market liquidity do not allow the earning of excessive returns (Dragoă, Mitrică, 2004, pp. 353-360).

For testing the hypothesis of informational efficiency in its weak form, Todea used a sample of 10 companies listed at the Bucharest Stock Exchange, at the first tier (Todea, 2002). These companies had been or are, at the present time, part of the BET index basket. The study period is between the years 1997 and 2000, comprising a sample of over 800 observations. For eight stocks, the analysis confirmed the possibility of stochastic modeling and prediction. But predictions are not useful to the analyst in order to obtain systematic earnings because all investors will have the same anticipations, if the information available to them is limited to past stock prices and returns.

The weak form of market informational efficiency can be described through different mathematical models. Such a model is the “random walk” model. The model assumes random evolution for the stock prices series.

The model’s fundamentals were established by Louis Bachelier, the first scientist who used statistical analysis for studying stock prices (Bachelier, 1900). Subsequently, Maurice Kendall analyzed the time series generated by stock prices evolution and came to the conclusion that they follow a “random walk” (Kendall, 1953, pp. 11-25).

The model, formulated and tested effectively by Eugene Fama and Merton Miller, includes two major hypotheses (Fama, Miller, 1972):

- stock prices fully and instantaneously reflect the information available regarding the traded stock; therefore, the prices’ successive variations are independent, and the same thing applies to returns;
- variations of prices are identically distributed.

According to this model, the reflection of all available information within the stock price, explained by the prices’ successive variations independence, can be mathematically transcribed in the following manner:

$$P_t = \rho \times P_{t-1} + \varepsilon_t$$

The notation system is as follows: P = stock price; t, t -1 = two successive moments on the time axis; $\rho = 1$; ε_t = regression error.

P_t is a time series and ε_t is a random series. For a valid regression, the error ε_t will describe a “white noise” type of stochastic process, cumulatively fulfilling the following requirements: a normal distribution with mean equal to 0, not autocorrelated and homoscedastic (its variance is constant).

Analysis methodology

In order to test weak form informational efficiency, we use two tests designed for studying the random evolution of a temporal series: the Augmented Dickey-Fuller (ADF) test and the Phillips-Perron test. These tests provide probabilities for the accepted hypotheses and are generically called “unit root tests”.

The absence of a “random walk” type of evolution implies the existence of the possibility of modeling the stock prices series’ trajectory. In this situation, there will be possible to obtain excessive, abnormal earnings, by analyzing the past which reproduces itself into the future. Thus, the stock market on which these prices are met is informationally inefficient in the weak form.

The *Augmented Dickey-Fuller (ADF)* test is based on the assumption that the series of natural logarithms of daily stock prices follow an AR (1) type of stochastic process, order 1 autoregressive. Optionally, a trend component can be added, which is a function of time (φt), designed to indicate the general trend of the series’ evolution (Dragotă et al., 2003, p. 121):

$$\ln(P_t) = \mu + \varphi t + \rho \times \ln(P_{t-1}) + \varepsilon_t$$

We will utilize a modified formula of this stochastic process, in which $\gamma = 1 - \rho$:

$$\Delta \ln(P_t) = \mu + \varphi t + \gamma \times \ln(P_{t-1}) + \varepsilon_t$$

The unsimplified form of the tested equation also includes the differences of the series past values, together with their coefficients. The number of differences included is optional.

Then, we will test the null hypothesis, that the series has a “unit root”:

$$H_0 \rightarrow \gamma = 0 \Rightarrow \rho = 1$$

The procedure consists of a t-statistic test applied on the γ coefficient. The results of the test will be compared with the critical values provided for different significance levels.

If the test result is superior to the critical values, for significance levels of 1%, 5% and 10%, then the null hypothesis of unit root presence within the daily stock prices series, cannot be rejected (Dragotă et al., 2003, p. 122). Thus, the analyzed series is not stationary and it may follow a “random walk”.

Therefore, if the result of the t-statistic test is superior to the critical values, then, most likely, the series has a unit root and, consequently, it is possible for the capital market, on which the prices had been recorded, to be informationally efficient in weak form.

The *Phillips-Perron* test is an alternative test to the ADF test, which does not include in the tested equation the differences between the series past values

and which uses simple ordinary least squares for estimating the equation. As in the case of the ADF test, the null hypothesis $\rho = 1$, of unit root presence, is tested. In essence, this test is a t-statistic for the regression coefficient, but adjusted in order to remove certain errors.

The obtained result is compared, same as in the case of the ADF test, to the critical values provided for significance levels of 1%, 5%, and 10%. The interpretation is identical with the one from the Augmented Dickey-Fuller test: a test result superior to the critical values, for all significance levels, indicates, most likely, the unit root presence and, consequently, it is possible for the market to be informationally efficient in the weak form.

We emphasize that, a result superior to critical values, for both tests, shows only a high probability for the presence of weak informational efficiency. We will not be able to draw definitive conclusions, in this direction.

Specifically, the two tests described above are applied on the series of natural logarithms of daily stock prices.

Data base

The sample under analysis contains the daily stock prices of the 10 most liquid companies listed on the regulated market of the Bucharest Stock Exchange (BSE). Using these companies' prices, the reference index of the Romanian capital market, namely the BET index, is computed. Therefore, this sample adequately represents the main investment opportunities on the Romanian capital market. On this basis, the study's conclusions will be extrapolated to the entire market on which the representative stocks are traded (Dragotă et al., 2003, p. 121).

The previously described statistical tests are preformed for each stock, part of the BET index basket. Afterwards, we will take note of which stocks fulfill the minimum requirement of weak form informational efficiency, namely the existence of a unit root.

An important observation at this point is as follows: for the market to be weak form efficient, all the analyzed stocks must "pass the tests". It is sufficient for only one stock not to fulfill the mentioned requirement in order to conclude that the entire market, on which this stock is listed, is not efficient.

The symbols of the companies from the BET composition are the following: SNP, BRD, FP, TLV, TGN, TEL, BIO, BVB, AZO and BRK. The names of these companies are available on the BSE website (www.bvb.ro – indices and indicators).

For each one of these listed companies, we collected the daily stock price from the www.kmarket.ro website. Thus, in a first phase, we obtained a

chronological series composed of two variables: date (trading day) and stock price (closing price). All of this information is publicly available on the internet (www.kmarket.ro).

However, in the actual data analysis, we will use the natural logarithms of stock prices. Thus, in a second phase, we calculated the natural logarithm. The latter defines a third variable of the chronological series: logarithm (natural logarithm).

The data base has, therefore, the following generic structure:

Date	Price	Logarithm
.....
.....

Figure 1. The generic structure of the database

The number of recorded values (observations on variables) is consistent with obtaining statistically significant results. The previously mentioned digital resource allows for collecting the entire market trading history, of the analyzed stocks.

Numerical results of empirical analysis

For the Romanian market to be informationally efficient in the weak form, the empirical results must justify the impossibility of gaining excessive earnings by studying the historical series of daily stock prices. Therefore, if it will be proven that excessive returns may be obtained for the case of a single stock, then the capital market is informationally inefficient. The existence of a single “breach” regarding stock price predictability is sufficient to affirm, with certainty, that the weak form informational efficiency hypothesis is not valid.

Below are presented the detailed results of the two tests performed for a single stock from the sample, namely the case of BIO.

The results of the *Augmented Dickey-Fuller (ADF)* test are the following:

Table 1

The results of applying the ADF test, for the case of BIO				
Null Hypothesis: D(LOGARITHM) has a unit root				
Exogenous: Constant				
Lag Length: 4 (Fixed)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-16.21791	0.0000
Test critical values:	1% level		-3.434689	
	5% level		-2.863344	
	10% level		-2.567779	

Source: own processing.

As can be observed, the test value is inferior to the critical values, for any significance level: 1%, 5% and 10%. Therefore, the test rejects the null hypothesis which states that the stock prices' series of natural logarithms has a unit root. This indicates that the series is stationary and does not follow a "random walk" type of stochastic process, thus the market on which the prices had been recorded is informationally inefficient in the weak form.

The results of the *Phillips-Perron* test are included in the following table:

Table 2

The results of applying the Phillips-Perron test, for the case of BIO

Null Hypothesis: D(LOGARITHM) has a unit root				
Exogenous: Constant				
Bandwidth: 6 (Fixed using Bartlett kernel)				
			Adj. t-Stat	Prob.*
Phillips-Perron test statistic			-35.15009	0.0000
Test critical values:	1% level		-3.434677	
	5% level		-2.863338	
	10% level		-2.567776	

Source: own processing.

The interpretation is identical with that of the ADF test: the test's value is inferior to the critical values, for all levels of significance. This indicates that the series has no unit root, thus the market on which the BIO stocks are traded is not efficient in the weak form.

The systematized results of the two tests, for all 10 analyzed stocks, are annexed to the present paper (Annex – The results of the unit root tests).

As can be observed, for the case of both unit root tests, Augmented Dickey-Fuller and Phillips-Perron, and for all stocks under analysis, the test result is inferior to the critical values, for significance levels of 1%, 5% and 10%.

Consequently, we reject the null hypothesis, according to which the prices' series of natural logarithms has a unit root. This implies that the series is stationary and does not follow a "random walk" process. Thus, the market on which these stocks are listed is not informationally efficient in the weak form.

Conclusions

According to the results obtained by performing the unit root tests, on a sample comprised of the most liquid companies listed on the Bucharest Stock Exchange, we reject the null hypothesis of unit root presence within the series of the analyzed stock prices. Thus, the studied series do not evolve accordingly with the "random walk" model.

To conclude, whereas the indispensable condition of stock prices random evolution is not met for any of the analyzed stocks, we can affirm, without a doubt, that the Romanian capital market is not characterized by the weak form of informational efficiency. Theoretically, excessive gains may be earned by trading based on studying historical prices.

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Annex

The results of the unit root tests

Stock	ADF	1% Critical Value	5% Critical Value	10% Critical Value
SNP	-22.52475	-3.432863	-2.862536	-2.567346
BRD	-22.27350	-3.432696	-2.862462	-2.567306
FP	-6.861323	-3.463405	-2.875972	-2.574541
TLV	-25.91861	-3.432138	-2.862215	-2.567173
TGN	-14.30660	-2.567443	-1.941163	-1.616471
TEL	-16.54648	-3.435283	-2.863606	-2.567920
BIO	-16.21791	-3.434689	-2.863344	-2.567779
BVB	-8.952567	-3.448518	-2.869442	-2.571047
AZO	-24.62546	-3.432005	-2.862157	-2.567142
BRK	-18.15103	-3.434234	-2.863143	-2.567671
Stock	Phillips-Perron	1% Critical Value	5% Critical Value	10% Critical Value
SNP	-44.82528	-3.432859	-2.862534	-2.567345
BRD	-46.95439	-3.432692	-2.862461	-2.567305
FP	-12.48348	-3.462737	-2.875680	-2.574385
TLV	-56.74779	-3.432136	-2.862214	-2.567173
TGN	-27.18550	-3.437108	-2.864412	-2.568352
TEL	-36.26241	-3.435267	-2.863599	-2.567916
BIO	-35.15009	-3.434677	-2.863338	-2.567776
BVB	-18.04094	-3.448312	-2.869351	-2.570999
AZO	-58.59668	-3.432003	-2.862156	-2.567141
BRK	-34.44749	-3.434224	-2.863138	-2.567669

The impact of labour market imbalances on regional disparities in the post-crisis context

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Abstract. *The paper aims to examine how existing imbalances in the labour market influence regions' future development and to formulate a series of recommendations that will allow that catching up process to be done in an sustainable manner.*

Basically, the objective refers to the integration of the development and restructuring strategy of the labour market policy to strengthen regional competitive advantage.

Our intentions is to stress the fact that between labour market imbalances and regional disparities exists a bi-univocal relationship, both manifested in a complex external environment, dominated by variable factors and uncertainty.

To achieve paper' objectives scientific methods like: descriptive statistics, correlation analysis and aggregate indexes are applied.

The main results are focused on formulating a set of scientifically based recommendations that can be used to conceive strategies whose overall objective is the reduction of economic disparities existing in certain regions through training and proper human resources development.

Keywords: labour market; human resources; regional disparities; competitive advantages; post-crisis competitiveness.

JEL Codes: J21, J24, R10.

REL Codes: 12I, 16I.

Introduction

European Commission addresses the issue of regional disparities in conjunction with the expected results of its cohesion policy: economic growth and employment. Thus, the latest report on economic and social cohesion Investing in Europe's Future (*Fifth Report on Economic, Social and Territorial Cohesion*, 2010) contains a comprehensive analysis of the economic, social and environment situation in the Member States and their regions and evaluates the impact of cohesion in terms of priorities and new challenges.

The report points out that cohesion policy investments have significantly contributed to reducing disparities in the level of economic development (the differences between EU regions in terms of GDP per capita fell), at the same time underlining the major regional differences in areas such as productivity, infant mortality rates, vulnerability to climate change.

At their turn, European Union member states have focused on raising the living standards of their citizens and national welfare by increasing national and regional competitiveness and diminishing regional disparities.

Great Britain, for example, annually produces the report on Regional Economic Performance Indicators (formerly known as Regional Competitiveness & State of the Regions). The report has as main purpose the presentation of statistical information on the factors that determine economic performance, competitiveness and the state of the regions (indicators of global competitiveness, labour market, business development, infrastructure, etc.) required to develop regional strategies, monitoring and evaluating it over time.

Regarding Romania, in order to assess regional performance, the Group of Applied Economics (GEA) proposed in 2007 a methodology that uses two categories of indicators: those taken from official statistics ("hard" factors) and those that can be obtained by processing responses to questionnaires at regional and local levels ("soft" factors). The set of indicators and the methodology developed for their processing are a useful tool for local and regional institutions to monitor performance and identify courses of action which must be included in development strategies.

Also, a number of national and regional institutions have been interested in including the competitiveness objective in development strategies, plans and programs (National Strategic Reference Framework 2007-2013, National Development Plan 2007-2013, Regional Operational Programs, etc.).

In Romania, the theme of economic performance at regional level has been addressed not only by institutions but also by specialists, who intended to identify and quantify the factors that can lead to reducing disparities between Romania and other EU countries, or among the eight development regions.

Thus, using the decomposition of competitiveness by influence factors method, in the paper entitled *Regional Competitiveness in Romania* (Vincze, 2004), the author examines the disparities between developing regions of Romania and compares Romanian situation with that of European Union and Hungary. The main recommendation is that, on short and medium term, strategic option to be the increase in national competitiveness and not necessarily reducing regional disparities.

Other authors who have tackled the same problem (Jula, 2003, Constantin, 2005, Constantine, Banica, 2007, Zaman, Goschin, 2005, Goschin 2007, Jaba et al., 2009, 2010) reached similar conclusions on the issues related to regional competitiveness. In this case, the focus was on identifying factors that can stimulate performance growth. One solution is a proper use of regional resources, their competitive advantages and productivity increase.

In this respect, a key factor of long-term economic growth is human resources, through its qualitative dimension: knowledge, skills, and abilities. Today, we hear increasingly more about a new type of worker (knowledge-worker), representative of the knowledge economy, which, at the microeconomic level, is involved in research and development activities, innovation, consulting lifelong learning and application of existing technologies, and, at the macroeconomic level, contribute to increasing the capacity to produce goods and services with high added value obtained in sectors based on intensive use of knowledge.

Statistical analysis at regional level

Growth theories and empirical studies carried out at regional and national level represent the support for determining the key factors of regional disparities and the methodology of analyzing it.

In order to quantify regional performance, it is necessary to start from their main sources: productivity and employment, studying to what extent each of these factors influence GDP per capita growth, accepted as the main indicator of competitiveness. Applying the decomposition method (Cambridge Econometrics, 2003, pp. 3-35; 3-36), for each development region (j) the following relationship can be written:

$$\frac{GDP_j}{POP_j} = \frac{GDP_j}{OCUP_j} \times \frac{OCUP_j}{POP_j} \quad (1)$$

where GDP_j is Gross Domestic Product of the region j , POP_j population and $EMPL_j$ employment, $j = 1, 2, \dots, n$.

Analysed in terms of GDP per capita, Romanian regions competitiveness is still very low compared to European Union average (excepting the region which includes the capital), even though during the last years this indicator has the tendency to increase (in absolute values) (Table 1).

Table 1

GDP per capita (%)	2000	2001	2002	2003	2004	2005	2006	2007	2008
EU-27	100	100	100	100	100	100	100	100	100
RO	26	28	29	31	34	35	38	42	47
NV	24	26	28	30	33	33	36	40	41
C	27	28	31	33	34	34	38	42	45
NE	18	20	21	22	24	23	25	27	29
SE	23	25	26	28	31	30	32	34	39
S	21	22	24	25	28	29	32	34	39
BI	56	57	59	63	68	77	84	92	113
SV	22	24	23	26	28	27	30	33	36
V	27	30	32	35	39	39	45	48	51

Source: EUROSTAT 2011.

Compared to national average, the indicator GDP per capita shows that development disparities among the eight development regions tend to rise, especially between the region that includes the capital (București-Ilfov) and the rest of the regions, but also between the East and the West of the country. In 2000, the poorest region North-East was recording a level of GDP/inhabitant by 28% under the national average and South region by 17% while Bucharest-Ilfov region overcame by 28% this average. In 2008 the disparities increased, three of the development regions recording a GDP/inhabitant level around 20% below the national average: North-East, South-East and South, while only three regions were positioning above this level: Bucharest- Ilfov, West and Centre (Table 2).

Table 2

GDP per capita (RO=100)									
Regions/Years	2000	2001	2002	2003	2004	2005	2006	2007	2008
RO	100	100	100	100	100	100	100	100	100
NV	95.46	92.32	94.05	96.50	95.48	95.51	93.97	93.58	96.40
C	102.96	103.36	103.10	105.31	104.13	100.59	98.05	99.89	101.25
NE	72.09	69.15	72.24	72.25	71.76	68.89	66.56	64.40	63.94
SE	92.26	88.90	88.82	90.14	88.02	91.45	86.38	84.88	81.21
S	83.39	80.30	80.52	81.26	80.53	82.61	83.53	83.95	82.24
BI	183.00	217.26	203.54	200.99	199.59	199.10	218.38	216.77	220.02
SV	88.03	82.92	84.88	78.02	83.79	83.36	78.80	79.59	78.88
V	115.61	103.42	108.58	109.97	112.65	114.65	112.86	116.33	115.70

Source: Own calculations based on EUROSTAT 2011.

An explanation for all these disparities can be also represented by taking account of the labour productivity in each region. Thus, the lowest productivity could be met even for 2008 in the North-East, followed by South-West, South and South-East (Table 3).

Table 3

Labour productivity at the regional level compared with the national average

GDP/employed population (RO=100)									
Regions/ Years	2000	2001	2002	2003	2004	2005	2006	2007	2008
RO	100	100	100	100	100	100	100	100	100
NV	96.38	90.77	94.01	97.29	99.01	98.70	96.54	96.56	101.36
C	112.03	111.98	107.74	111.84	114.11	109.41	105.00	108.75	108.38
NE	68.07	64.96	69.27	69.46	66.48	64.37	64.80	61.40	61.90
SE	96.70	94.79	94.71	93.16	92.41	96.08	89.54	90.32	86.37
S	80.92	77.82	79.66	80.59	80.28	82.38	83.11	81.88	79.24
BI	202.21	251.24	213.07	206.98	193.44	193.34	204.87	206.72	208.59
SV	77.63	71.90	77.10	71.63	78.95	77.94	75.00	76.59	74.80
V	119.14	107.73	111.24	113.37	116.42	118.87	115.26	116.49	117.27

Source: Own processing based on EUROSTAT 2011.

Another source of competitiveness is employment. The only region where overall employment rate has increased compared to 2000 is Bucharest-Ilfov. In 2008, higher rates of employment than the national average were recorded in the South, West and South West (Table 4).

Table 4

General employment rate at the national and regional level

Employed population/Total population (%)									
Regions/ Years	2000	2001	2002	2003	2004	2005	2006	2007	2008
RO	42.73	42.52	40.51	39.56	39.82	39.99	40.94	41.04	41.29
NV	42.93	43.62	40.95	39.50	38.89	39.08	40.02	39.98	39.62
C	41.03	41.13	40.11	38.24	37.56	38.02	39.50	38.96	39.95
NE	43.47	43.16	40.29	39.70	41.68	41.34	40.53	41.48	41.02
SE	41.10	40.63	38.59	38.57	37.96	38.27	39.61	38.58	39.01
S	42.87	42.64	40.01	39.11	39.28	39.49	40.74	41.54	42.10
BI	42.17	40.42	41.76	40.72	43.16	43.21	45.66	45.29	45.82
SV	45.85	46.20	42.03	41.66	40.49	41.02	41.29	41.06	41.70
V	42.35	42.10	41.30	39.52	39.58	39.72	41.35	42.21	42.08

Source: Own processing based on EUROSTAT 2011.

Differences in regional development

Reported to the region that includes the capital, competitiveness gaps remained very high in 2008. Thus, even Western and Central regions more

competitive than those in the south and east of the country, registered a GDP per capita by about 50% lower than the Bucharest-Ilfov region, while the gap in competitiveness of the North-East region is approximately 71% (Table 5). But what is even more evident from the comparison in performance for Romanian regions is that there is an increasing trend of these disparities, the rate at which the Bucharest-Ilfov advances is much higher than the rate of the other regions.

Table 5

Competitiveness gaps compared to the region Bucharest-Ilfov in 2000 and 2008

Regions	GDP per capita (PPS)		Absolute gap (PPS) $\Delta y_{j/i} = y_j - y_i$		Territorial Index (%) $i_{i/j}^y = \frac{y_i}{y_j}$		Relative gap (%) $\Delta_{y_{i/j}}^{\%} = \frac{y_i - y_j}{y_j} \times 100$	
	2000	2008	2000	2008	2000	2008	2000	2008
NV	4466	10009	-4096	-12836	52.17	43.81	-47.83	-56.19
C	4817	10513	-3745	-12332	56.26	46.02	-43.74	-53.98
NE	3373	6639	-5189	-16206	39.39	29.06	-60.61	-70.94
SE	4316	8432	-4246	-14413	50.41	36.91	-49.59	-63.09
S	3901	8539	-4661	-14306	45.57	37.38	-54.43	-62.62
SV	4119	8191	-4443	-14654	52.17	35.85	-51.90	-64.15
V	5409	12013	-3153	-10832	56.26	52.59	-36.82	-47.41
BI	8562	22845	-	-	-	-	-	-

Source: Own processing based on EUROSTAT 2011.

The differences between Bucharest-Ilfov region and the other regions in terms of labour productivity are as large as in the case of GDP per capita. They range from 43.78% for West region and 70.33% for North East region (Table 6).

Table 6

Productivity gaps compared to the region Bucharest-Ilfov in 2000 and 2008

Regions	GDP/employment (PPS)		Absolute gap (PPS) $\Delta y_{j/i} = y_j - y_i$		Territorial Index (%) $i_{i/j}^y = \frac{y_i}{y_j}$		Relative gap (%) $\Delta_{y_{i/j}}^{\%} = \frac{y_i - y_j}{y_j} \times 100$	
	2000	2008	2000	2008	2000	2008	2000	2008
NV	9500	24166	-10431	-25567	47.66	48.59	-52.34	-51.41
C	11042	25841	-8889	-23892	55.40	51.96	-44.60	-48.04
NE	6709	14757	-13222	-34976	33.66	29.67	-66.34	-70.33
SE	9531	20593	-10400	-29140	47.82	41.41	-52.18	-58.59
S	7976	18892	-11955	-30840	40.02	37.99	-59.98	-62.01
SV	7652	17834	-12280	-31898	38.39	35.86	-61.61	-64.14
V	11743	27959	-8188	-21774	58.92	56.22	-41.08	-43.78
BI	19932	49733	-	-	-	-	-	-

Source: Own processing based on EUROSTAT 2011.

In terms of employment, development gaps between the seven regions and the region that includes the capital were not as large in 2008. They remained between 8.11% and 14.85% for all the seven regions analyzed (Table 7). It is worth noticing that they have greatly increased in 2008 compared to 2000.

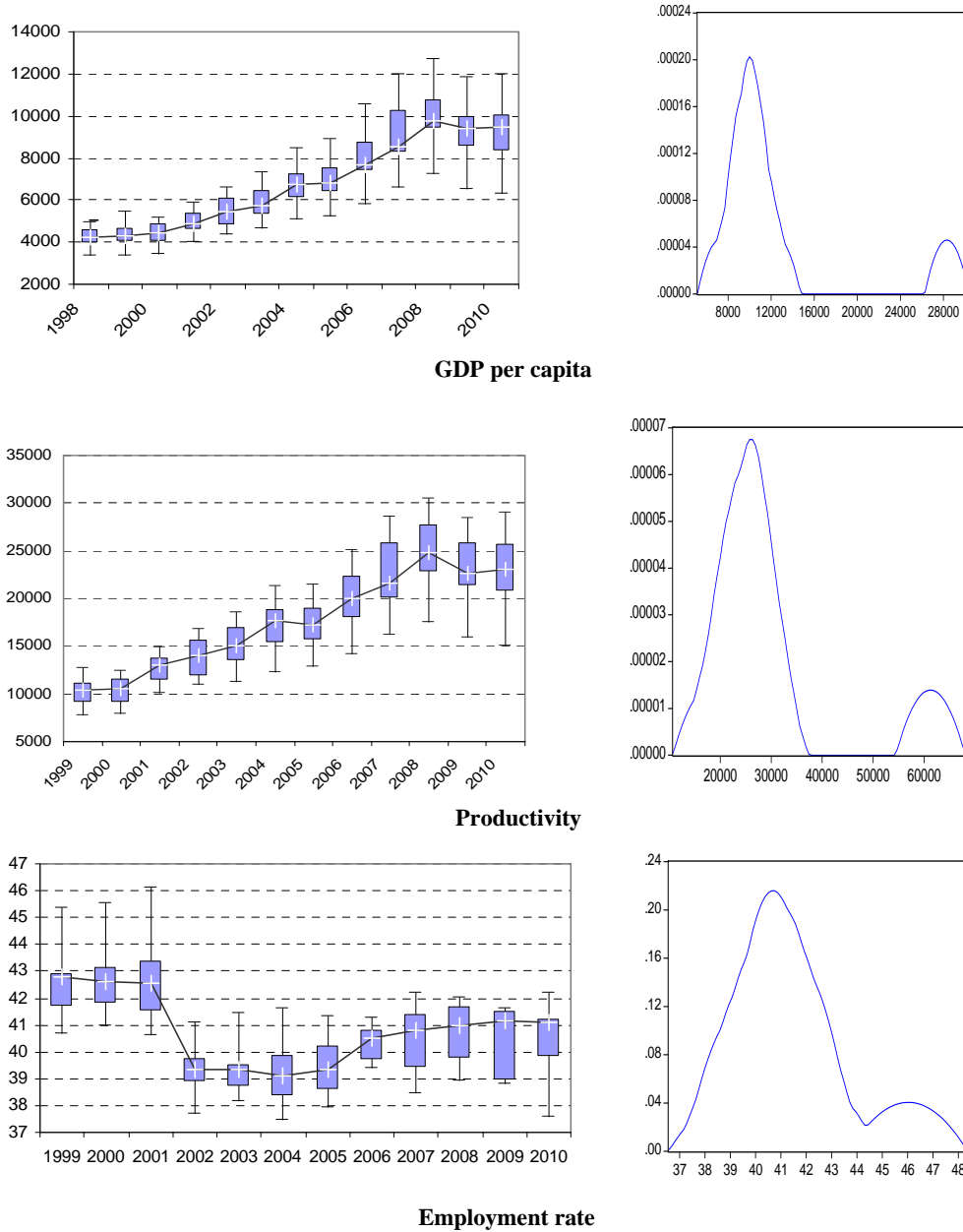
Table 7

**Employment gaps compared to the region Bucharest-Ilfov
in 2000 and 2008**

Regions	Employment rate (%)		Territorial Index (%)		Relative gap (%)	
	2000	2008	2000	2008	2000	2008
NV	42.93	39.62	101.79	86.48	1.79	-13.52
C	41.03	39.95	97.30	87.19	-2.70	-12.81
NE	43.47	41.02	103.08	89.53	3.08	-10.47
SE	41.10	39.01	97.45	85.15	-2.55	-14.85
S	42.87	42.10	101.64	91.89	1.64	-8.11
SV	45.85	41.70	108.73	91.03	8.73	-8.97
V	42.35	42.08	100.41	91.85	0.41	-8.15
BI	42.17	45.82	-	-	-	-

Source: Own processing based on EUROSTAT 2011.

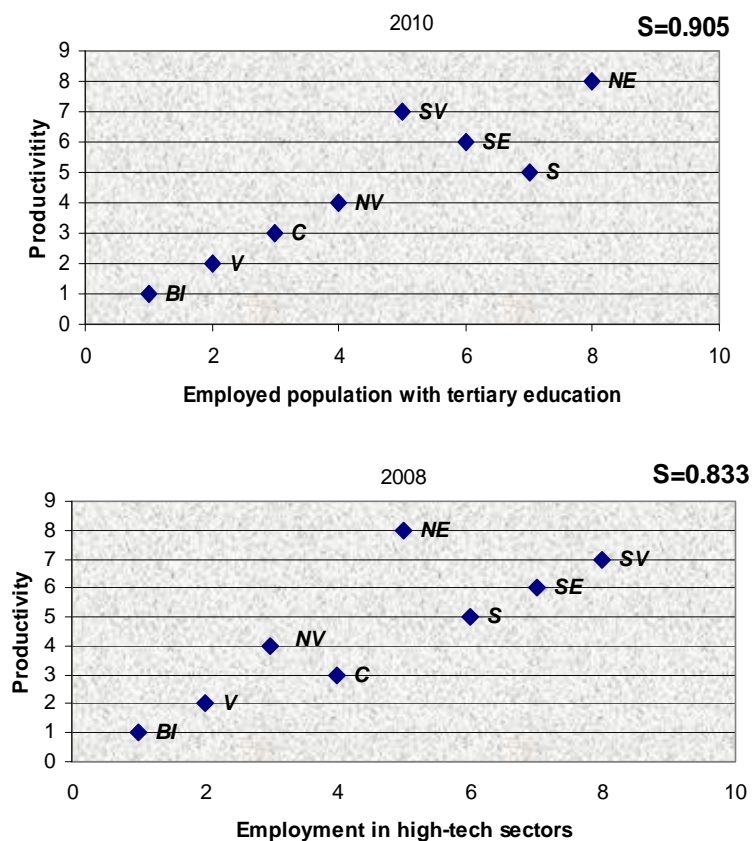
The disparities among Romanian regions are also emphasised by the box plots and k-density estimates. Even when Bucharest-Ilfov region is excluded from the analysis (in the box plots) the differences between the rest of the regions remain high and even have increased in the last years in terms of GDP per capita and productivity rate. The k-density graphs for the year 2008 show the tendency of polarization and formation of two groups of performers (Figure 1).

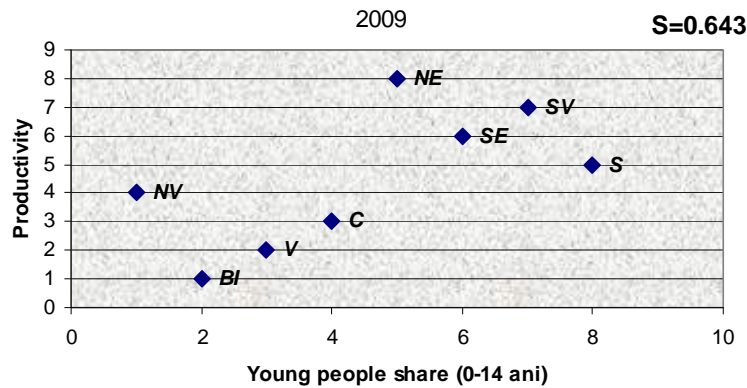


Source: Own processing based on EUROSTAT 2011 and National Forecasting Commission (for GDP in 2009 and 2010).

Figure 1. Box plots and k-density estimates of GDP per capita, productivity and employment rate

In this sense, it is interesting to identify the competitive advantages of the leading regions and the manner in which they contribute to performances increase. Among these advantages those related to human factor can not be neglected. As the Spearman coefficient, computed for the eight regions, demonstrate among the key factors of the economic development of the leading regions are: the level of education of the employed population, the implication in activities that generate added value and, not at the end, the availability of human resources (Figure 2).





Source: Own processing based on EUROSTAT 2011.

Figure 2. Correlation between productivity and the factors that show the human potential of the Romanian eight regions of development

Conclusions

Even our days, Romanian regions are facing the problem of low competitiveness. Poor economic performance is determined by many factors, among them, quantitative and qualitative dimensions of human resources are very important. Thus, from the perspective of the main sources of regional competitiveness, productivity and employment, except for the Bucharest-Ilfov, all other regions have poor performances compared to European average. North-East region is facing the lowest competitive performance of the Romanian regions due mainly to the dependence on agriculture, low productivity in this sector and low labour skills. At the same time, demographic trends are a competitive advantage that can support, through appropriate measures (increase the skills and attract people in activities that generate added value) a faster economic growth.

In contrast, Bucharest-Ilfov region is characterized by high competitiveness backed up by the largest number of foreign investment, skilled workforce, employment in services, research and development activities.

Given these considerations, the possibilities of improving the existing gaps and to increase regional competitiveness can be shaped around the following areas:

- Addressing demographic problems, especially those related to low birth rate, infant mortality and migration to ensure future labour

resources necessary to compensate the aging demographic phenomenon.

- More efficient labour utilization through investment in education, training, retraining and entrepreneurial culture.
- Effective use of human capital for development activities that generate added value by adopting existing technologies or creating new ones based on research, development and innovation.

Acknowledgements

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Laggards or performers? CEE vs. PIIGS countries' catch-up with the Euro Area in the last ten years

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Abstract. *This research paper develops a comparative analysis between the new members states of the European Union (EU) – from Central and Eastern Europe (CEE) – and PIIGS countries (Portugal, Italy, Ireland, Greece and Spain) in terms of economic convergence with the Euro Area, in the last decade. In addition, the paper emphasizes the changes in the economic convergence levels determined by the recent international crisis. In order to assess these evolutions, we compute an aggregated index of economic convergence, made up of real and structural convergence indexes. Then, by using cluster methodology, we highlight the similarities between the states in the two groups, CEE and PIIGS, from the economic convergence perspective. The comparative analysis reveals that in 2010 only Estonia, Hungary and Slovenia report resembling characteristics to PIIGS group. We also report an important progress of the countries analyzed, as regards real and structural convergence with the Euro area. However, after a decade of catching-up, Romania remains by far the most distanced country from the Euro Area.*

Keywords: real convergence; structural convergence; Central and Eastern Europe; PIIGS; clusterization.

JEL Codes: F15, F43, C43, C38.

REL Code: 20F.

1. Introduction

The experience of previous EU accession waves shows that the “catching-up” process takes a lot of time and continues long after the accession moment. A relevant example is represented by PIIGS countries which, despite becoming EU members long before CEE countries, they did not all succeed in catching up with the Euro Area so far. Indeed, PIIGS countries are not directly comparable to CEE countries, taking into consideration their economic initial conditions and their different economic structures, but it is interesting that, after many years of Economic and Monetary Union (EMU), they still have not attained the Euro Area average. The experience of these states suggests that CEE countries that have entered the EU having even lower real income levels, will have a long way to go in the process of convergence with the Euro Area.

The last two accession waves to the EU brought in new countries that are considered peripheral in comparison with the Euro Area, as regards economic convergence. It is clear that this led to major disparities creation in the economic development level within the Union.

EU accession is not the final stage in the European integration process, but an intermediary step to obtain EMU membership. CEE countries do not benefit from an “opt-out” clause, as United Kingdom and Denmark do, which is why they are required to make efforts in order achieve nominal convergence criteria with a view to adopting the Euro. So far, only three CEE countries joined the Euro Area, namely Estonia, Slovenia and Slovakia. Adopting the single currency remains the main challenge that Bulgaria, Czech Republic, Latvia, Lithuania, Poland, Romania and Hungary are facing in the European integration process.

Fulfillment of nominal convergence criteria is mandatory for EMU accession. However, attaining a certain level of real and structural convergence is not mentioned as pre-condition accession. The importance of economic convergence is not negligible, taking into consideration that its absence leads to higher costs of adopting the single currency.

A lot of research papers have studied the process of economic catch-up of CEE countries and of cohesion countries, Portugal, Ireland, Greece and Spain. This term, cohesion countries, comes from the position of these states at the periphery of EU core, mainly because of the low income per inhabitant levels, as compared to the EU and Euro Area.

During the recent economic crisis, the vulnerabilities of cohesion countries have become even more obvious. The sovereign debt crisis continues to shake the foundations of the Euro Area and the confidence in the Monetary Union. Portugal, Greece and Ireland have received financial assistance from the IMF and EU. However, the situation remains uncertain.

Italy joined the PIGS group because of economic and financial challenges similar to those of the group, public debt and budgetary deficit being just one aspect of the problem. At the moment, PIIGS are the most troubled economies in the Euro Area. Apart from fiscal problems, they face difficulties in terms of employment and productivity. The Euro turned out to be both a blessing and a curse for these countries.

This paper examines on the one hand, the evolution of economic convergence with the Euro Area in the last decade through and aggregate economic convergence index, and on the other hand, the similarities of the economies in the two groups, CEE and PIIGS, through clusterization. In addition, we will analyze the last three years to highlight the effects of the international crisis on the degree of economic convergence.

The paper is organized as follows: in Section 2 we present a synthesis of the economic literature, in Section 3 and 4 we elaborate on the research methods and data analysis and in Section 5 we detail the research results. The last Section summarizes the conclusions of this study.

2. Literature review

A lot of previous research papers concentrated on the analysis of either real or structural convergence.

Real convergence, mainly expressed through convergence of income levels, was studied by Galor (1996), who defined three major hypotheses regarding convergence: absolute convergence hypothesis, conditional convergence hypothesis and convergence clubs hypothesis. The present article employs the first hypothesis which makes reference to long term income per inhabitant convergence, regardless of the analyzed countries' initial conditions.

The most popular quantitative definitions of convergence are β , respectively σ convergence. β convergence means higher growth rates for less developed countries and lower growth rates for developed ones. σ convergence refers to income dispersion reduction within a group of countries.

In a recent paper, Spruk (2011) examines the dynamics of income per capita convergence in high-income transition countries from Central Europe (Czech Republic, Croatia, Estonia, Hungary, Poland, Slovakia and Slovenia) in the period 1991-2007, on the basis of β convergence model. The main conclusion is that human capital has a major contribution to the real convergence speed growth.

Miron, Dima and Păun (2009) conducted a complex study on CEE countries regarding their real convergence with the Euro Area between 1999 and 2007, on the basis of several economic indicators, showing that Poland and

Czech Republic have been the most successful in approaching the Euro Area in terms of real convergence.

A previous analysis by Próchniak and Matkowski (2004) focuses on income and cyclical convergence of CEE countries during 1993-2004. The main result emphasizes the convergence and synchronization between countries and with the EU in terms of income.

Recent research papers on structural convergence have concentrated on its influence on business cycles synchronization. This is important for the way national economies react to economic shocks transmitted through monetary policy of EMU.

Structural convergence analyses, on the basis of Gross Domestic Product (GDP) structure are quite numerous. According to the Monetary Policy Committee task force of the European Central Bank (2004), the composition of GDP by economic sectors is relevant to the monetary policy, due to its influence on the external shocks transmission mechanisms.

Angeloni et al. (2005) consider that GDP composition is an important indicator for structural convergence and a benchmark for assessing the stage of economic development of a country. Following Krugman's methodology (1991), the above authors compute a structural divergence index in order to emphasize the convergence of new EU member states with the Euro Area. Von Hagen and Trăistaru (2005) compute a dissimilarity index for the same purpose.

Darvas and Szapary (2004) conducted an empirical analysis of the evolution of industrial production structure in Hungary, Poland and Slovenia and noticed a high correlation degree with the Euro Area.

Bojesteanu and Bobeica (2008), by analyzing business cycles synchronization in EU new member states and Euro Area, demonstrate the existence of an increasing structural convergence of all states, with the exception of Estonia, Lithuania, Slovakia and Romania.

The relation between real and structural convergence was analyzed by Barrios, Barry and Strobl (2002) in the four cohesion countries: Greece, Spain, Portugal and Ireland. They come to the conclusion that there is a correlation between structural convergence and income convergence.

Barry (2003) compares economic achievements of cohesion countries during 1960-2000, in order to identify the processes that led to real convergence growth over time, starting from labor-market performance, macroeconomic stability and microeconomic policies.

Varblane and Vahter (2005) make a comparative analysis of new member states real convergence (including accession countries at that date, Romania and Bulgaria) and of cohesion countries with the EU during 1995-2004, coming to

the conclusion that CEE countries have been more successful in reaching real convergence with the EU before accession.

Comparative studies between the two groups of countries, CEE and PIIGS, are relatively limited in number. The current paper extends the research area, by making a comprehensive analysis of real and structural convergence, through their aggregation into an economic convergence index. In addition, the similarities between these two groups are highlighted by clusterization. The period of time taken into consideration allows for stressing the changes at economic convergence level with the Euro Area during the economic and financial crisis.

3. Research methodology

The paper uses a quantitative analysis in order to determine the degree of convergence of analyzed countries with the Euro Area, by creating an economic convergence index (ECI). The economic convergence index built in this paper is made up of two equal parts: real convergence index (RCI) and structural convergence index (SCI).

RCI comprises three sub-indicators: GDP per capita at purchasing power parity (PPP), labor productivity per person employed and price convergence, as percentage of the Euro Area average. Each sub-indicator has values, in general, between 0 and 100, expressing the distance from the Euro Area, as follows: 0 means absence of convergence with the Euro Area, while 100 means total convergence with the Euro Area average. Values above 100 point to levels higher than the Euro Area.

GDP per capita at PPP is calculated in relation to the Euro Area average, which is set to equal 100. If this sub-indicator is higher than 100, the level of GDP per head is higher than Euro Area average. If this sub-indicator is lower than 100, the level of GDP per head in that country is lower than Euro Area average. By expressing the figures at PPP, the differences in price levels between countries are eliminated, allowing meaningful comparisons between countries' GDP per capita.

Labor productivity per person employed gives an overall landscape of that country's productivity, in relation to the Euro Area average. A value lower than 100 means a lower labor productivity than the Euro Area average, while a value higher than 100 expresses a higher labor productivity level as compared to the Euro Area average.

Price convergence is expressed through comparisons between final consumption price levels paid by households. Levels above 100 means price

levels above the Euro Area average and levels below 100 means low convergence with the Euro Area average.

In order to create the RCI, we founded our approach on the research methodology used by the Group of Applied Economics (GEA) in the handbook for assessing the regional competitiveness of Romania, which was published in 2007. GEA researchers created a competitiveness index by computing the weighted average of economic, social and technological indicators, the shares being established according to the results obtained by a focus group of GEA experts.

RCI is computed as a weighed average of indicators described above. The highest share, of 50%, is given to the labor productivity per person employed, according to the highest share employed by GEA in computing the economic indicator. GDP per capita and price convergence receive equal shares of 25% each. These are equally important, because they express productivity and nominal convergence with the Euro Area. Even in the GEA study, GDP per head has a lower share as compared to labor productivity.

The RCI index is computed as follows:

$$RCI_{i,EA} = \frac{GDP}{inhab.} \times 0.25 + Labor\ productivity \times 0.5 + P\ conergence \times 0.25,$$

where

$RCI_{i,EA}$ – real convergence index of country i with the Euro Area, and the indicators are those described above.

In order to compute the SCI, we have chosen gross value added (GVA) as a unit of analysis of the activity level, because it captures the overall importance of the economic activity in a country. The structural convergence index is based on 6 main economic sectors, corresponding to NACE-A6 classification: agriculture, industry, constructions, trade, financial services and other services⁽¹⁾. The gross value added of each sector is defined as share of the gross value added in the whole economy.

In this paper, we use index of structural divergence proposed by Krugman in 1991 and previously used in many other studies (Clark, van Wincoop, 2001, Imbs, 2004, Trăistaru, 2005) for computing the SCI. The structural divergence index was developed in order to measure the degree of specialization that a country has in relation to other country or a group of countries. This is computed as the sum of absolute differences between the share of each sector in the economy analyzed and the share of each sector in the Euro Area (as average). The SCI shows that a state is more similar to the Euro zone, as this index is closer to 100.

$$SCI_{i,EA} = 1 - \sum_{k=1}^K [abs(S_{k,i}) - S_{k,EA}],$$

where

$SCI_{i,EA}$ – index of structural convergence with the Euro Area;

K – number of sectors taken into account;

$S_{k,i}$ – share of the gross value added of k sector in the total gross value added of country i ;

$S_{k,EA}$ – share of gross value added of k sector in the total gross value added of Euro Area.

As a consequence, ECI is computed as follows:

$$ECI_{i,EA} = 0.5 \times SCI_{i,EA} + 0.5 \times RCI_{i,EA}$$

The approach for emphasizing the degree of similarity between the analyzed states as regards their level of real convergence is based on clusterization. This method of analysis groups together in clusters countries with similar ECI.

In this study we use non-hierarchical clustering algorithms, founded on k -means method. This clustering method is based on the model of McQueen (1967). The algorithm implies grouping countries in k sub-sets (clusters). *a priori* fixed, and represented by their gravity centers (centroids). So, the first step in this algorithm is choosing the number of clusters, afterwards for each of these k sub-sets k centroids are set up. Then, every country is attached to the closest center and the countries attached to one center make up a cluster. The center of each cluster is updated in relation to the countries included in it. The algorithm goes on until centers do not change any more. The objective function is:

$$J = \sum_{j=1}^k \sum_{i=1}^n \|x_i - c_j\|^2,$$

where

$\|x_i - c_j\|^2$ – distance between a country x_i and the cluster center;

c_j – indicator of the distance of the n countries from their respective cluster centers.

In this analysis, we employ data regarding 15 European Union member states (10 CEE countries and five PIIGS countries). The number of clusters – k – was set to 4, taking into consideration the number of states included in the study. This way we could determine the similarities and the relationships

between Central and Eastern European countries, PIIGS countries and Euro Area average in the last decade, but also the effect that the crisis period 2008-2010 had on the grouping of these countries in terms of ECI.

The clusterization method is computed in SPSS soft.

4. Data analysis

The data used in the paper come from the Eurostat database. In order to compute the SCI, the gross value added of each economic sector is related to the Euro Area average, which is calculated by Eurostat. As regards the RCI, the data for each country were related to the Euro Area average, set up to equal 100.

The data cover the years 2000, 2008 and 2010 in order to analyze the process of economic convergence in the last decade, the similarities between the two groups of countries and the impact of the international crisis on economic convergence. Consequently, we review two periods: 2000-2010, to highlight the achievements in terms of economic convergence of the 15 countries in the last decade, respectively 2008-2010, to emphasize the effects of the economic and financial crisis on the level of economic convergence with the Euro Area.

In the last ten years, the CEE countries made considerable progress in the process of convergence with the Euro Area. However, GDP per inhabitant remain well below the Euro Area average. The only country in PIIGS group that faces this common problem of the CEE states is Portugal, which could not exceed 75% GDP/capita of the Euro Area. In this respect, Ireland has the best performance, having exceeded the Euro Area average at GDP/capita by approximately 18 percentage points (pp).

The differences between CEE countries and the Euro zone stem from a greater share of industry and trade and, to a certain extent, now lesser, of agriculture in CEE countries, at the expense of services sector (others than trade).

CEE countries, even though they have diminished the importance of agriculture in the national economy, still have relatively high shares of this sector as compared to other EMU countries. Only Czech Republic and Slovenia currently have shares of agriculture equal to the Euro Area average. In the case of PIIGS countries, Greece remains the unique country with a significant higher dimension of agriculture compared to the Euro Area average.

5. Results

5.1. The economic convergence index

When computing the economic convergence index, we can observe the heterogeneous character of ECI within each group of states, but also overall, at the level of the 15 countries analyzed.

Table 1

Reducing economic convergence disparities with the Euro Area

Countries	Economic Convergence Index			Reducing the gap with the Euro Area	
	2000	2008	2010	2000-2008	2000-2010
Bulgaria	51.0	56.9	57.3	5.9	6.3
Czech Republic	60.9	68.0	67.0	7.1	6.2
Estonia	62.8	73.9	71.8	11.1	9.0
Latvia	56.3	64.6	64.8	8.3	8.6
Lithuania	55.3	61.9	60.5	6.6	5.2
Hungary	67.9	74.3	71.7	6.4	3.7
Poland	62.1	66.3	64.1	4.2	2.0
Romania	44.1	52.7	49.7	8.6	5.6
Slovenia	76.1	79.5	80.0	3.4	3.9
Slovakia	59.4	66.2	70.0	6.8	10.6
Portugal	77	78.7	79.9	1.6	2.8
Italy	98.9	97.4	96.2	-1.5	-2.7
Ireland	93.2	105.0	102.7	11.7	9.5
Greece	76	77.1	78.4	1.1	2.4
Spain	84.7	87.6	88.7	2.9	4.0

Source: Authors' work.

The only country which recorded a lower level of economic convergence in 2010 as compared to 2000 is Italy, which lost 2.7 pp. The negative evolution was due to real convergence, which decreased by approximately 10 pp in the last decade and which cancelled the increase of 3.9 pp recorded at the level of structural convergence.

The rest of the PIIGS states had positive evolutions in the last 10 years. The economic convergence index increased by values between 2.4 pp and 9.5 pp. Ireland made the biggest progress, by catching-up 9.5 pp from the gap with the Euro Area. Before the economic crisis, in 2008, Ireland was the only country with an ECI over 100 pp, position the country maintained in even in 2010, despite losing 2.3 pp in the last 3 years. Ireland remains the performer (the country with the highest ECI) of the PIIGS group, with an ECI over 100 pp.

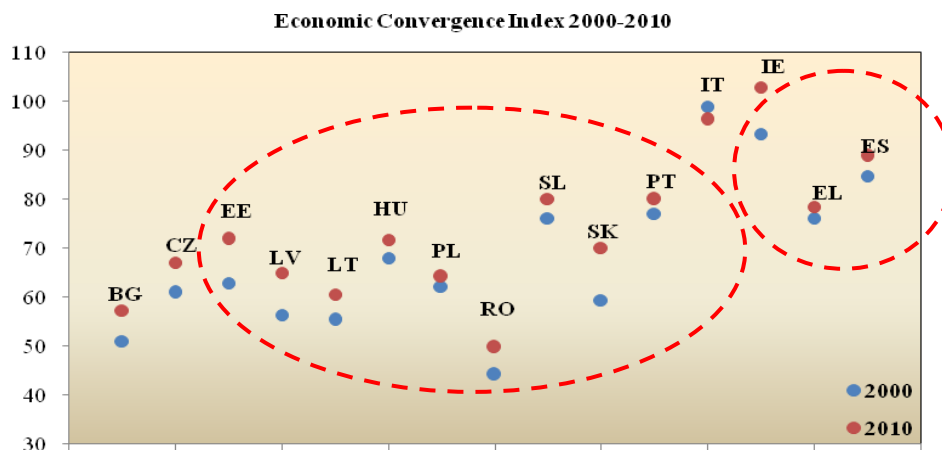
CEE countries have been catching-up, without exception, with the Euro Area as regards economic convergence, the ECI increases being between 2 pp (Poland) and 10.6 pp (Slovakia).

Ireland counterpart in the CEE countries is Slovenia, being the performer of this group. The economic performance of Slovenia in the last decade, relative to the Euro Area, was due to real convergence (7.3 pp catch-up). Structural convergence increased modestly, by 0.4 pp.

The moderate rhythm of catching-up of Slovenia in the last 10 years did not influence its top position within CEE countries. Slovenia remains the country with the highest ECI. The laggard of this group is Romania, which, even though it registered a 5.6 pp progress in the last 10 years, is still the country with the lowest performance in terms of economic convergence, having an ECI of just 49.7 pp and being followed by Bulgaria, at great distance (57.3 pp).

Romania's catching-up with the Euro Area was entirely due to real convergence, which compensated for the structural convergence deficit. Thus, in the last decade, the structure of the Romanian economy has been distancing from that of the Euro Area, reaching 53 pp in 2010 as compared to 61.2 pp in 2000, due to large share of agriculture relative to the Euro Area. By contrast, real convergence recorded an important advance, from 27 pp to 46.3 pp in the last 10 years, based on double labor productivity and a significant increase in the GDP/head.

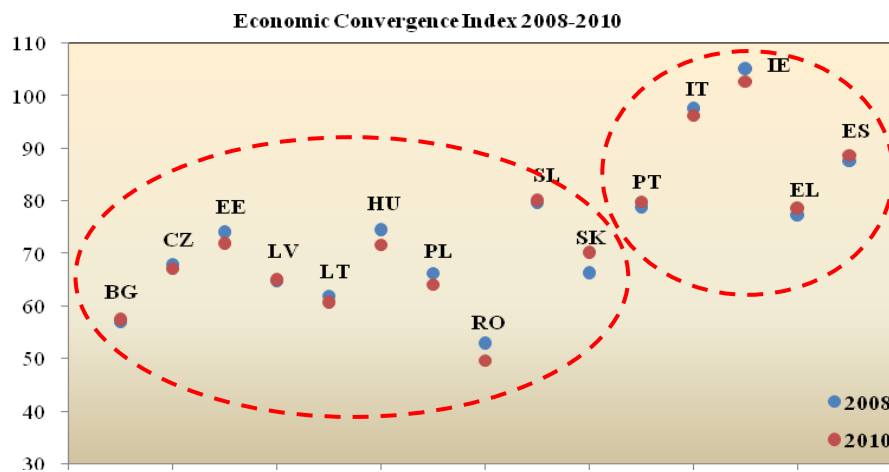
The graphical analysis of the results shows that evolutions of the economic convergence in the last decade did not change significantly the positioning of these countries on the map of economic catch-up. Within the two groups, Slovenia and Portugal present the smallest distance between ECI in 2010. Romania, despite having reduced the divergence degree with the Euro Area, is still placed lower than other CEE countries.



Source: Authors' work.

Figure 1. Map of economic catch-up in the last decade

During the three years of crisis covered by the paper, seven of the analyzed countries succeeded in reducing the divergence degree with the Euro Area (Bulgaria, Latvia, Slovakia, Slovenia, Portugal, Greece and Spain). We can notice that only four state in the CEE group recorded positive evolutions during the economic crisis period. Within the PIIGS group, the two countries with negative evolutions of the economic convergence index were Italy and Ireland. During this period, Romania became even more distanced from the other states and, of course, from the Euro Area.



Source: Authors' work.

Figure 2. Map of economic catch-up during economic crisis period

5.2. Economic convergence clusters

The results obtained after processing data in SPSS are presented in the tables below, which emphasize the similarities between the analyzed states regarding their economic convergence.

The 15 states are grouped in four clusters in ascending order, so that cluster 1 comprises countries with the lowest performances in terms of economic convergence, while cluster 4 gathers countries with the highest levels of ECI.

In the year 2000, Bulgaria and Romania were the countries with the lowest economic convergence with the Euro Area, being the only ones included in cluster 1. The center of the cluster, of just 47.6, highlights that the two of them stood at about halfway from the Euro Area. Cluster 2 gathers the rest of the CEE countries, with the exception of Slovenia. Due to similarities with

three states from the PIIGS group (Portugal, Greece and Spain). Slovenia was included in this cluster. The only countries with the highest economic convergence level were comprised in cluster 4 were Italy and Ireland.

Table 2

Clusters by Economic Convergence Index, 2000

Cluster 1	Cluster 2	Cluster 3	Cluster 4
Romania Bulgaria	Czech Republic Latvia Lithuania Poland Slovakia Estonia Hungary	Slovenia Portugal Greece Spain	Italy Ireland
Center 47.6	Center 60.7	Center 78.5	Center 96.1

Source: Authors' work .

Table 3

Clusters by Economic Convergence Index, 2008

Cluster 1	Cluster 2	Cluster 3	Cluster 4
Romania Bulgaria	Czech Republic Latvia Lithuania Poland Slovakia	Estonia Hungary Slovenia Portugal Greece Spain	Italy Ireland
Center 54.8	Center 65.4	Center 78.5	Center 101.2

Source: Authors' work.

Table 4

Clusters by Economic Convergence Index, 2010

Cluster 1	Cluster 2	Cluster 3	Cluster 4
Romania	Bulgaria Czech Republic Latvia Lithuania Poland Slovakia	Estonia Hungary Slovenia Portugal Greece Spain	Italy Ireland
Center 49.7	Center 64.0	Center 78.4	Center 99.5

Source: Authors' work.

During 2000-2008, Estonia and Hungary recorded an economic performance period, by accelerating the convergence process and by moving to cluster 3 in 2008, one step closer to the performers in cluster 4. Romania and Bulgaria remained the most divergent countries with the Euro Area, despite important catch-up (the center of the cluster moved from 47.6 to 54.8). Over the eight years, the centers of the clusters have approached the Euro Area average, with the exception of cluster 3 which maintained the center at 78.5. Italy and Ireland maintained their leading positions, with best performances in terms of economic convergence.

The effects of the economic crisis are easily noticeable from the dynamics of clusters during 2008-2010, through the higher distances between centers and Euro Area average. The only country with outstanding performance making it possible to advance to a better cluster was Bulgaria, that passed from cluster 1 to cluster 2. Thus, Bulgaria joined Czech Republic, Latvia, Lithuania, Poland and Slovakia in cluster 2, with a center equal to 64. Romania remained by far the most divergent economy from the Euro Area. The moderate catch-up in the last decade was not sufficient so that Romania could advance, together with Bulgaria, to cluster 2.

At the end of a decade, Italy and Ireland proved to be the closest economies to the Euro Area in terms of economic convergence, as part of cluster 4 throughout the analyzed period. But the crisis did not pass by these two states. The center of the cluster has shifted during the three years of crisis from a value that was above the Euro Area average to a value below the Euro Area average.

6. Conclusions

The current paper shows that all countries in the two groups, CEE and PIIGS, except for Italy, have made important progress in the process of "catching-up" in the last decade, the most accelerated rhythms being recorded by Slovakia and Ireland. In 2010, Slovenia had the highest level of economic convergence with the Euro Area, its counterpart in PIIGS being Ireland.

The only states with high performances that made it possible for them to advance to clusters closer to the Euro Area were Estonia, Hungary and Bulgaria. These are the three CEE countries similar from the economic convergence perspective with the PIIGS states.

If at the beginning of the period, Romania and Bulgaria were placed in the same cluster by the economic similarities, at the end of the 10 years, Bulgaria ends up being more distanced from Romania and having regained

from the economic convergence gap with the others CEE countries that entered the EU in 2004.

The high degree of economic convergence with the Euro Area in the case of Italy and Ireland maintains them in the same cluster throughout the period.

In our future research paper, we intend to determine the number of years required to achieve the Euro Area average, based on indicators analyzed in this paper. We will pay particular attention to the CEE countries “catch-up” process.

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Note

- ⁽¹⁾ The six sectors, according to Eurostat are: Agriculture, hunting and fishing, Industry, including Energy, Constructions, Trade, transports and communication services, Financial business and services, other services.

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Annex 1**Economic Convergence Index**

	2000			2008			2010		
	SCI	RCI	ECI	SCI	RCI	ECI	SCI	RCI	ECI
Bulgaria	72.1	29.9	51.0	73.8	40.0	56.9	73.1	41.4	57.3
Czech Republic	66.5	55.2	60.9	66.4	69.5	68.0	65.2	68.9	67.0
Estonia	80.2	45.4	62.8	82.9	64.9	73.9	78.8	64.7	71.8
Latvia	71.9	40.6	56.3	74.5	54.7	64.6	75.7	54.0	64.8
Lithuania	69.5	41.1	55.3	65.4	58.4	61.9	63.3	57.7	60.5
Hungary	85.3	50.6	67.9	83.8	64.8	74.3	80.1	63.3	71.7
Poland	74.2	50.0	62.1	74.3	58.3	66.3	68.1	60.1	64.1
Romania	61.2	27.0	44.1	56.9	48.5	52.7	53.0	46.3	49.7
Slovenia	82.1	70.1	76.1	79.5	79.5	79.5	82.5	77.4	80.0
Slovakia	70.4	48.3	59.4	62.2	70.1	66.2	67.7	72.3	70.0
Portugal	83.1	71.0	77.0	84.4	73.0	78.7	84.4	75.4	79.9
Italy	90.6	107.1	98.9	94.3	100.4	97.4	94.5	97.9	96.2
Ireland	70.5	116.0	93.2	89.0	121.0	105.0	84.7	120.7	102.7
Greece	70.0	82.1	76.0	64.4	89.8	77.1	69.1	87.7	78.4
Spain	79.9	89.5	84.7	80.3	95.0	87.6	80.0	97.5	88.7

Source: Authors' work.

Economy of Referential Preferences A new mathematical approach for choice theory and general equilibrium

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Abstract. *In this paper we introduce basic notions of a new economic model where preference relations on commodities set are represented by a group action on Euclidean space instead of utility function. Conditions that ensure the existence of individual demand function and a general equilibrium in the setting of exchange economy are examined.*

Keywords: preference relations; group theory; general equilibrium.

JEL Codes: C62, D50, D51.

REL Code: 9J.

Introduction

The mathematical modern conception of general economic equilibrium (GEE) is provided by Arrow-Debreu model developed from 1950 (Arrow, Debreu, 1954). This model pictures the economy as a collection of m economic agents who make supply and demand decisions over a finite set of l commodities in order to further their own interests. The general equilibrium research program then studies many properties of economy, particularly the price, choices of agents, individual and aggregated demand functions (Balasko, 1998).

In a pure exchange model, all agents are consumers, and each of them is provided with a preference relation represented by a utility function on R^l and an initial endowment $e \in R^l_+$ representing his supply offer in the market. Agents are assumed to take as given the market prices of goods. In exchange for his supply, each agent tries to choose the consumption bundle which maximizes his utility given his budget constraint. Such bundle represents the individual demand. Aggregated demand of an economy is the sum of all individual ones, and it is clearly a function of price.

Equilibrium is by definition the vector price $p \in R^l$ which makes all markets clear (Supply = Demand). The centerpiece of the subject (GEE) deals with the existence and properties of equilibrium. To ensure an affirmative answer to that question, many conditions on preference relations, and hence on utility functions, are assumed. In summary, it is assumed that preferences are continuous, monotonic and convex, or equivalently, utility functions are differentiable and concave.

When these conditions hold for all agents, the economy is then called neoclassical, and equilibrium prices can be reached (Aliprantis et al., 1989).

The aim of this paper is to build a new general formulation of consumers' choice where rationality involves not only maximization of preference, but also a well defined reference of choice, hence our terminology of Economy of Referential Preference (ERP). Although it is clear that this approach can replace, in many instances, the conventional one based on utility function, it is not our main purpose in this paper. In some way, we prove here that the rationality of economic agents can be treated in a different manner than by utility function.

In first section we treat several examples that show the consistency of the group action approach and we explicitly determine the individual demand

function. In section two we give a basic definition of an ERP and we end by proving our main result (theorem 8) establishing the existence of an equilibrium in such economy.

1. Motivations and examples of referential preference

In this section it is shown by examples that preference relations on commodities set can be represented by a group action on R^l . This viewpoint sheds some new light on the economic rationality and conditions of equilibrium. In this work we will touch only a few aspects of group theory and knowledge of elementary matricial calculus is sufficient (see Roman, 2012, for details and many examples of group action).

We begin by a simple example where we can see that indifference sets of utility function may be represented, or more precisely replaced by group action on R^l . Here and subsequently R_+^l denotes the positive cone of R^l , and $R_{++}^l = \{x \in R^l / x_i > 0, 1 \leq i \leq l\}$.

Example 1. The commodity space is R_+^2 and the utility function u is:
 $u: R_+^2 \rightarrow R, u(x,y)=xy$.

We choose the one-parameter's subgroup G of $GL(2, R)$,
 $G = \left\{ \begin{pmatrix} a & 0 \\ 0 & 1/a \end{pmatrix}, a \in R_+^* \right\}$.

The action α of G on R^2 is simply the matricial one on the Euclidean space, namely: $\alpha_g \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} ax \\ y/a \end{pmatrix}$ where $g = \begin{pmatrix} a & 0 \\ 0 & 1/a \end{pmatrix}$ for some $a > 0$.

We assert that indifference sets of u are exactly the orbits for vectors on R_+^2 . Indeed, except the trivial case ($c=0$) which is obviously a union of two orbits, fix $c > 0$ and the indifference set $I_c = \left\{ \begin{pmatrix} x \\ y \end{pmatrix} \in R_+^2, u \begin{pmatrix} x \\ y \end{pmatrix} = c \right\}$. Given

any commodity $\begin{pmatrix} x_0 \\ y_0 \end{pmatrix} \in I_c$, his orbit is nothing but I_c itself. Actually, for any

$g = \begin{pmatrix} a & 0 \\ 0 & 1/a \end{pmatrix} \in G$, it is clear that $\alpha_g \begin{pmatrix} x_0 \\ y_0 \end{pmatrix} = \begin{pmatrix} ax_0 \\ \frac{1}{a}y_0 \end{pmatrix} \in I_c$. Conversely, any

commodity $\begin{pmatrix} \tilde{x} \\ \tilde{y} \end{pmatrix} \in I_c$ is in the orbit $\begin{pmatrix} x_0 \\ y_0 \end{pmatrix}$ since $\begin{pmatrix} \tilde{x} \\ \tilde{y} \end{pmatrix} = \begin{pmatrix} \frac{\tilde{x}}{x_0} & 0 \\ 0 & \frac{\tilde{y}}{y_0} \end{pmatrix} \cdot \begin{pmatrix} x_0 \\ y_0 \end{pmatrix} =$

$\begin{pmatrix} a & 0 \\ 0 & 1/a \end{pmatrix} \begin{pmatrix} x_0 \\ y_0 \end{pmatrix}$, where $a = \frac{\tilde{x}}{x_0} = \frac{1}{\frac{y}{y_0}}$ which is due to the fact that $x_0 y_0 = c = \tilde{x} \tilde{y}$.

It remains to show that any orbit is an indifference set. This can be deduced from the fact that $(ax) \left(\frac{1}{a}y\right) = xy$, and for all $\begin{pmatrix} \tilde{x} \\ \tilde{y} \end{pmatrix}$ such that $\tilde{x} \tilde{y} =$

$$xy \text{ we have } = \begin{pmatrix} \frac{\tilde{x}}{x} & 0 \\ 0 & \frac{\tilde{y}}{y} \end{pmatrix} \cdot \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} \tilde{x} \\ \tilde{y} \end{pmatrix}.$$

As indifference set is arbitrary, this is sufficient to conclude that the description of indifference sets of consumer with given utility function u can be efficiently made by a group actions on R_+^2 .

This example gains in interest only if we are able to see how group action becomes useful to define a mathematical framework of consumer's theory and general equilibrium. In other words, we have to define a complete preordering relation on R_+^l and a consumer maximization problem in this new setting.

Actually, let be G a topological group and α a continuous action of G on R^l . Here and subsequently, O_x denotes the orbit of $x \in R^l$ under group action. It is easy to check that any group action induces an equivalence relation on R^l . Indeed, such equivalence can be obviously defined as following:

$$x \sim y \text{ iff } \exists g \in G \text{ st } \alpha_g(x) = y.$$

But since this is not sufficient to give a totally (complete) preorder on R_+^l , some other conditions are needed.

Axiom 1. Let X a non-empty subset of R^l . For all $x \in X$, there is a unique $v \in R_+^l$, such that $x \in O_{v \cdot I_l}$, where $I_l = \begin{pmatrix} 1 \\ \vdots \\ 1 \end{pmatrix} \in R^l$.

We will denote by v_x the unique real v such that we have $x \in O_{v \cdot I_l}$.

Of course this implies that the quotient of X by the equivalence relation induced by the action of group is identified with R_+ .

Clearly, we can deduce a preference relation on X from a group action which verifies axiom 1. Indeed, we say that x is more desirable than y when $v_x > v_y$, and they are equivalent if $v_x = v_y$.

We simply note that $v_x = v_y \Leftrightarrow \exists g \in G$, such that $\alpha_g(x) = y \Leftrightarrow x \sim y$.

The above axiom is not only a simple mathematical hypothesis, but it has an evident economic meaning which asserts that consumer compares each bundle with a very simple one which is: $v \cdot I_l = v \cdot \begin{pmatrix} 1 \\ \vdots \\ 1 \end{pmatrix}$.

By identifying $v \cdot I_l$ and $v \in R$ further analysis may eventually lead to interpret $v \cdot I_l$ in terms of a medium of exchange. But this is still just a mere eventuality.

In many examples, axiom 1 is available for all R_+^l and the above preference can be extended to all commodities on R_+^l . When this is not the case we assume that all $x \in R_+^l$ are preferred to anything on the boundary. Taking into account this detail, we state the following definition:

Definition 1

We say that a preference relation \geq on commodity set R_+^l is of reference type, or referential, whenever either:

1. It is given by a continuous and globally invariant group action on R_+^l which satisfies axiom 1.
2. It is given by a continuous and globally invariant group action on R_{++}^l which satisfies axiom 1, and everything in R_{++}^l is preferred to anything on the boundary.

Returning to the previous example, where $u(x_1, x_2) = x_1x_2$, we can see that $x \leq y \Leftrightarrow u(x) \leq u(y) \Leftrightarrow v_x \leq v_y$. Actually, $u(x) \leq u(y) \Leftrightarrow x_1x_2 \leq y_1y_2$, but since $(v_x, v_x) \in O_x$ and $(v_y, v_y) \in O_y$, we have $v_x^2 = x_1x_2$ and $v_y^2 = y_1y_2$. Under the condition $v_x, v_y \geq 0$ it follows that $v_x \leq v_y$.

Now we will solve a simple problem of consumer's demand with no use of utility function. The group G are the same as in example 1.

Example 2. Let $p = (\frac{1}{2}, \frac{\sqrt{3}}{2})$ the price vector and $w=200$ the budget of the consumer.

To solve the consumer's problem which is

$$\begin{cases} \text{Maximize } v_x \\ \text{subject to the constraint } p \cdot x \leq w \end{cases}$$

we set that $x = \begin{pmatrix} t & 0 \\ 0 & \frac{1}{t} \end{pmatrix} \begin{pmatrix} v_x \\ v_x \end{pmatrix}$ for some t and $v_x \in R_+^*$. It's not difficult to verify that t and v_x exist and that they are unique. Actually if $x = \begin{pmatrix} x_1 \\ x_2 \end{pmatrix} \in$

R_{++}^2 , then we can see that $v_x = \sqrt{x_1 x_2}$ and $t = \sqrt{\frac{x_1}{x_2}}$. The budget constraint becomes:

$$\langle p, \begin{pmatrix} t & 0 \\ 0 & \frac{1}{t} \end{pmatrix} \begin{pmatrix} v_x \\ v_x \end{pmatrix} \rangle = w \Leftrightarrow \frac{1}{2} t v_x + \frac{\sqrt{3}}{2t} v_x = 200 \Leftrightarrow v_x = \frac{400t}{t^2 + \sqrt{3}}$$

We then obtain $v_x(t) = \frac{400t}{t^2 + \sqrt{3}}$, that reaches its maximum at $t = \sqrt[4]{3}$, for which we have $v_x = 200 (\sqrt[4]{3})^{-1}$. Finally, the solution of this maximization problem gives us $x = \begin{pmatrix} 200 \\ 200 \frac{\sqrt{3}}{3} \end{pmatrix}$ as the consumer's demand.

To treat the general case we must give necessary and/or sufficient conditions on groups and their actions to ensure reliability and efficiency of axiom preference and so the existence of individual demand function. Indeed, under the axiom 1, we have the following theorem:

Theorem 2. Let be a consumer with referential preference on R_+^l given by a group G . Then, the maximization problem under the budget constraint is equivalent to the minimization of a nonnegative continuous real valued function on the group G .

Proof. Since referential preferences are determined by $v = v_x$, where $x = v_x \cdot \alpha_g(I)$, then the demand function is given by the solution of the following problem:

$$\begin{cases} \text{Maximize } v_x \\ \text{subject to the constraint } p \cdot x = w \end{cases}$$

This maximization problem is clearly equivalent to finding the maximal value of v , such that $\langle p, v \cdot \alpha_g(I) \rangle = w$. So, we have to maximize $v(g) = \frac{w}{\langle p, \alpha_g(I) \rangle}$.

But since $\alpha_g(I) \in R_+^l$ and $p \in R_{++}^l$, we have $\langle p, \alpha_g(I) \rangle > 0$. As $\langle p, \alpha_g(I) \rangle \neq 0 \forall g \in G$, continuity of $v(g)$ follows directly from continuity of group action and scalar product on R^l . As w is fixed, and w and $\langle p, \alpha_g(I) \rangle$ are both positive, then the problem is equivalent to minimizing $\langle p, \alpha_g(I) \rangle$ for $g \in G$. \square

In the remainder of this section we assume that referential preferences are given by a subgroup of $GL(l, R)$ which satisfy the following axiom:

Axiom 2. For consumer $i \in I$, $G^i \subset GL(l, R)$, and the group action's $\alpha: G^i \times R_+^l \rightarrow R_+^l$ which defines his preference relations on the commodity space R_+^l , satisfies: there is a unique $g_i \in G^i$ such that $0 < \langle I, \alpha_{g_i}(I) \rangle \leq \langle I, \alpha_g(I) \rangle \forall g \in G^i$.

In the following theorem we can see the fundamental role of this group element g_i , which is to determine level of satisfaction v_{max} and individual demand function. Then our terminology of “referential preferences” is fully justified.

Theorem 3. Let $e_i \in R_+^l$ the initial endowment of consumer i whose preference is defined by a group G^i . Then its demand function is explicitly given by:

$$f_i: R_{++}^l \rightarrow R_+^l, f_i(p) = \frac{w_i}{v_p \langle I, \alpha_{g_i} \rangle} \alpha_{g_p^{-1} g_i} \cdot I$$

where $p = v_p \alpha_{g_p} \cdot I$, and $w_i = \langle p, e_i \rangle$ is the budget of consumer i .

Proof. Let be $p \in R_{++}^l$ the giving vector price. By theorem 2 the maximization problem is equivalent to minimize $\langle p, \alpha_g(I) \rangle$ for $g \in G^i$. But since $p \in R_{++}^l$, there is $G_p \in G^i$ and $v_p > 0$ such that $p = v_p (\alpha_{G_p} \cdot I)$. Then we have to minimize $\langle \alpha_{G_p} \cdot I, \alpha_g \cdot I \rangle$ for $g \in G^i$. Now $\langle \alpha_{G_p} \cdot I, \alpha_g \cdot I \rangle = \langle I, \alpha_{(G_p g)} \cdot I \rangle$ and by axiom 2, the minimum is given for $g_i = g_p \cdot g$ or equivalently $g = g_p^{-1} \cdot g_i$. Finally, $v_{max} = \frac{w_i}{v_p \langle I, \alpha_{g_i} \cdot I \rangle}$ and:

$$f_i(p) = v_{max} \alpha_{g_p^{-1} g_i} \cdot I = \frac{w_i}{v_p \langle I, \alpha_{g_i} \cdot I \rangle} \alpha_{g_p^{-1} g_i} \cdot I \quad \square$$

Remark 4. Since $p \in R_{++}^l$, we can also write $p = M_p \cdot I$, where M_p is the diagonal matrix with entries $M_{ii} = p_i > 0$. In other words $M_p = v_p \cdot \alpha_{G_p} \cdot I$. And $\frac{1}{v_p} \alpha_{G_p^{-1}} \cdot I = M_p^{-1} \cdot I$, and the individual demand function for consumer i takes this form:

$$f_i(p) = \frac{\langle M_p \cdot I, e_i \rangle}{\langle I, \alpha_{g_i} \cdot I \rangle} M_p^{-1} \cdot \alpha_{g_i} \cdot I.$$

Corollary 5. The demand function is homogeneous of degree 0.

Proof. Let $\lambda \in R_+^*$, from the above expression of individual demand function $f_i(p) = \frac{\langle M_p^{-1} \cdot I, e_i \rangle}{\langle I, \alpha_{g_i} \cdot I \rangle} M_p^{-1} \cdot \alpha_{g_i} \cdot I$. As M_p is a diagonal matrix form of the p vector, then $M_{\lambda p} = \lambda M_p$ and $M_{\lambda p}^{-1} = \lambda^{-1} M_p^{-1}$. This clearly implies $f_i(\lambda p) = f_i(p)$. \square

2. Referential preferences and conditions of equilibrium

We start with an example taken from (Aliprantis et al., 1989) to see how our groups' based approach is able to provide same results as the conventional one based on utility function.

Example 3

Let have an economy with two commodities and three agents and note that (p_1, p_2) is the vector price. Utility functions of agents are $u_1 = xy$, $u_2 = x^2y$ and $u_3 = xy^2$, and their initial endowment are $e_1 = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$, $e_2 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$ and $e_3 = \begin{pmatrix} 2 \\ 3 \end{pmatrix}$.

These assumptions are extracted from example 1.4.10 in [Aliprantis & al, 1989, p 34-35].

For us, all preferences are given by groups and their actions on R_+^2 .

Consumer 1. The group of preference is the matricial subgroup $G_1 = \left\{ \begin{pmatrix} t & 0 \\ 0 & 1/t \end{pmatrix}, t > 0 \right\}$.

Its maximization problem

$$\begin{cases} \text{Maximize } v = v_x \\ \text{subject to the constraint } p_1x + p_2y = b_1 \end{cases}$$

where $X = (x, y)$, is equivalent to finding the greatest v such that

$$\langle P, v \begin{pmatrix} t & 0 \\ 0 & 1/t \end{pmatrix} \begin{pmatrix} 1 \\ 1 \end{pmatrix} \rangle = p_1 + 2p_2 \Leftrightarrow \text{since for each } X = (x, y) \text{ there is a unique}$$

$$t > 0 \text{ and } v > 0 \text{ with } X = v \begin{pmatrix} t & 0 \\ 0 & 1/t \end{pmatrix} \begin{pmatrix} 1 \\ 1 \end{pmatrix}.$$

Then, we have to find $Max v$, such that $v \langle \begin{pmatrix} p_1 \\ p_2 \end{pmatrix}, \begin{pmatrix} t \\ 1/t \end{pmatrix} \rangle = p_1 + 2p_2$ which gives: $v [tp_1 + \frac{1}{t}p_2] = p_1 + 2p_2 \Leftrightarrow v = \frac{t(p_1 + 2p_2)}{t^2p_1 + p_2}$.

Now, $v = v(t)$ reaches its optimum when $\frac{dv}{dt} = 0$, and this occurs at $t_0 = \pm \sqrt{\frac{p_2}{p_1}}$. Since for $t_0 = \sqrt{\frac{p_2}{p_1}} > 0$, we have $\frac{d^2v}{dt^2} < 0$, then we obtain $v_{max} = v\left(\sqrt{\frac{p_2}{p_1}}\right) = \frac{p_1+2p_2}{2\sqrt{p_1p_2}}$.

An easy calculation establishes the demand for the first consumer:

$$x_1 = \begin{pmatrix} \sqrt{\frac{p_2}{p_1}} & 0 \\ 0 & \frac{1}{\sqrt{\frac{p_2}{p_1}}} \end{pmatrix} \begin{pmatrix} \frac{p_1+2p_2}{2\sqrt{p_1p_2}} \\ 1 \end{pmatrix} = \left(\frac{p_1+2p_2}{2p_1}, \frac{p_1+2p_2}{2p_2} \right).$$

Same argument and relatively simple calculation gives the following results:

Consumer 2 The group is subgroup $G_2 = \left\{ \begin{pmatrix} t & 0 \\ 0 & 1/t^2 \end{pmatrix}, t > 0 \right\}$, $v = \frac{t^2(p_1+p_2)}{t^3p_1+p_2}$ reaches its maximum at $t_0 = \sqrt[3]{\frac{2p_2}{p_1}}$ where $v_{max} = \frac{p_1+p_2}{p_1\left(\frac{2p_2}{p_1}\right)^{1/3} + p_2\left(\frac{p_1}{2p_2}\right)^{2/3}}$. From this, we deduce that the demand of the 2nd consumer is:

$$x_2 = \left(\frac{2p_1+2p_2}{3p_1}, \frac{p_1+p_2}{3p_2} \right).$$

Consumer 3 The group is $G_3 = \left\{ \begin{pmatrix} t^2 & 0 \\ 0 & 1/t \end{pmatrix}, t > 0 \right\}$, the maximum of $v(t) = \frac{t(2p_1+3p_2)}{t^3p_1+p_2}$ is reached at $t_0 = \sqrt[3]{\frac{p_2}{2p_1}}$ and $v_{max} = \frac{2p_1+3p_2}{p_1\left(\frac{p_2}{2p_1}\right)^{2/3} + p_2\left(\frac{2p_1}{p_2}\right)^{1/3}}$.

Then we find $x_3 = \left(\frac{2p_1+3p_2}{3p_1}, \frac{4p_1+6p_2}{3p_2} \right)$ as the demand of consumer 3.

To calculate the equilibrium price, it suffices to establish the common equilibrium condition:

$Z(p) = \sum_{i=1}^3 x_i(p) - \sum_{i=1}^3 e_i = 0$. It follows immediately that $\left(\frac{16p_2-13p_1}{6p_1}, \frac{13p_1-16p_2}{6p_2} \right) = 0$. The last equality gives, under the condition

$p_1 + p_2 = 1$, the value of price equilibrium, $P_{eq} = \left(\frac{16}{29}, \frac{13}{29}\right)$. All these results are exactly the same obtained by the use of utility functions.

Based on the above examples and results, we suggest to define a new mathematical framework of an exchange economy where the set I of agents is finite. This is to be defined as:

Definition 6

An exchange economy is said to be of referential preferences if:

- 1) The consumption set coincides with R_+^l ;
- 2) Each agent i has a non-zero initial endowment, i.e., $e_i \in R_+^l$ and;
- 3) The preference relation \succsim^i is referential (definition 1), and satisfies axiom 2, for all $i \in I$.

The proof of our main result (theorem 8) is based on the following mathematical result.

Theorem 7. Let $S = \{p \in R^l, p_i > 0 \text{ for } i = 1, 2, \dots, l, p_1 + p_2 + \dots + p_l = 1\}$ the set of all strictly positive prices. For a function $\zeta(\cdot) = (\zeta_1(\cdot), \zeta_2(\cdot), \dots, \zeta_l(\cdot))$ from S into R^l assume that:

1. ζ is continuous and bounded from below;
2. ζ satisfies Walra's Law, i.e., $p \cdot \zeta(p) = 0$ holds for each $p \in S$;
3. $\{p_n\} \subseteq S$, $p_n \rightarrow p = (p_1, \dots, p_l)$ and $p_k > 0$ imply that the sequence $\zeta_k(p_n)$ of the k^{th} components of $\zeta(p_n)$ is bounded; and
4. $p_n \rightarrow p \in \partial S$ with $\{p_n\} \subseteq S$ imply $\lim_{n \rightarrow \infty} \|\zeta(p_n)\|_1 = \infty$.

Then, there exists at least one vector $p \in S$ satisfying $\zeta(p) = 0$.

For proof of theorem 7 we refer the reader to (Aliprantis et al., 1989, pp. 32-34).

The main result of this paper is provided below:

Theorem 8. Every exchange economy of referential preferences has an equilibrium price.

Proof. It is based on Theorem 7. According to theorem 3 and remark 4, the excess demand function in ERP is given by $Z: S \rightarrow R^l, Z(p) = \sum_i f_i(p) - \sum_i e_i = \sum_{i \in I} \frac{\langle M_p^{-1}, e_i \rangle}{\langle I, \alpha_{g_i} \cdot I \rangle} M_p^{-1} \cdot \alpha_{g_i} \cdot I - e$ where $e = \sum_i e_i \in R_{++}^l$.

First, continuity of Z is a consequence of continuity of application: $S \rightarrow GL(l, R), p \rightarrow M_p$, the inversion of matrix, and scalar product on R^l . And since all $f_i \in R_+^l$, then Z is clearly bounded from below.

Second, as f_i is the solution of maximization problem under the budget constraint then $\langle p, f_i(p) \rangle = \langle p, e_i \rangle$, and $\langle p, Z(p) \rangle = 0$ follows from the equality: $Z(p) = \sum_i f_i(p) - \sum_i e_i$.

Third, let now $\{p^n\} \subseteq S, p^n \rightarrow p = (p_1, \dots, p_l)$ and $p_k > 0$. To see why the sequence $Z_k(p^n)$ of the k^{th} component of $\{Z(p^n)\}$ is bounded, we consider remark 4 and this expression of demand function: $\sum_i f_i(p) = \sum_{i \in I} \frac{\langle M_p^{-1} \cdot e_i \rangle}{\langle I, \alpha_{g_i} \cdot I \rangle} M_p^{-1} \cdot (\alpha_{g_i} \cdot I)$. Since $p^n \in S$, then the k^{th} component of M_{p^n} and $M_{p^n}^{-1}$ are nonnegative for all n and tend respectively to p_k and $(p_k)^{-1}$, which clearly implies $f_i(p_k^n)$ is bounded for all $i \in \{1, 2, \dots, m\}$, and consequently the same holds for $\{Z_k(p^n)\}$.

Last, it remains to prove that $\lim_{n \rightarrow \infty} \|Z(p_n)\|_1 = \infty$ if $p_n \rightarrow p \in \partial S$ with $\{p_n\} \subseteq S$. Let $j \in \{1, 2, \dots, m\}$ such that $p_j = 0$. Then $p_j^n \rightarrow 0$, and $(p_j^n)^{-1} \rightarrow +\infty$ which implies that the j^{th} component of individual demand tends to infinity, namely $(M_{p^n}^{-1} \cdot (\alpha_{g_i} \cdot I))_j \rightarrow +\infty$ for all consumer i . Since $\frac{\langle M_{p^n}^{-1} \cdot e_i \rangle}{\langle I, \alpha_{g_i} \cdot I \rangle} > 0$ for all i , then $(f_i(p))_j \rightarrow +\infty$ and it follows immediately that $\lim_{n \rightarrow \infty} \|Z(p_n)\|_1 = \infty$. \square

Conclusions

In his theory of value, Gerard Debreu wrote: “A state of the economy is a specification of the action of each agent ... But these actions are not necessarily compatible with the total resources. Can one find a price system which makes them compatible?” (Debreu, 1959, p. 74).

In this work we prove that if all agents choose their preference in some group setting, and make their choice in compliance with a simple general rule of referential nature, then we can find a system of price which makes all choices compatible.

An in depth work using additional examples will certainly allow us to come across other properties of referential preference and to better grasp its economic interpretations.

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The industry of copies – obstacle for the economic recovery. Examples from the markets

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Abstract. *Taking into consideration that the world economy is seriously hit, we realize there is a need for solutions, either new or old, which should support the economic re-launch and recovery. In this paper we will not focus on solutions, but on the obstacles which arise in the way of economic recovery, due to the industry of copies (counterfeit products), that had a tremendous growth during the last years, jeopardizing thus both the economic security and the consumer security, according to the examples provided hereinafter.*

Keywords: counterfeiting; research & development; economic recovery.

JEL Codes: D23; F01; O34.

REL Code: 7H.

Four fundamental forces (forces profundes) have been indicated as the main pillars which support globalisation. These forces are: the trade, production, finances and technology (Malita, 2001). These are the most dynamic activities which make the global world spin. The figures related to the above activities have continuously increased, since 1950 till the year 2007 (for instance, only in the USA, the GDP nominal figures are approximately 50 times higher than in 1950). The main actors of globalisation are not the states, as we might be tented to believe, but the industries, the banking sector, the multinational companies, the research and development centres, new technologies discovered day after day; also, there should be mentioned as contributors, with a similar importance, the non-governmental organisations and the civil society. As all these actors to be able to play their part on the economic scene, they need products to be sold afterwards. These products are based on ideas which must be defended.

In a world having an expanding economy until four years ago, both the economists and those with the power of decision from the governmental institutions have to face a challenge, captured in the global framework. This challenge is more and more often brought into discussion. The challenge consists in defending the intellectual property. This notion has its origins in the Middle Ages, where many craftsmen and artisans used distinctive marks for the products they made, in order to be distinguished from fakes. According to WIPO (World Intellectual Property Organisation), the most recent definition of the concept of intellectual property refers to the mind creations like: inventions, literary and artistic works, symbols, names, images and models used for trade. The intellectual property is structured into two parts, according to the definition:

- *The industrial property*, which includes inventions (patents), models of industrial design and the geographical indications of the source;
- *The Copyright*, which includes the literary and artistic works (novels, poems, movies, musical works, artistic works like sculptures and paintings and also the architectural projects). Also, the innovations and the creative expression of the local and indigenous communities are examples of intellectual property, because they are “traditional”, but they are not always covered by the law which protects the intellectual property.

In this paper below, the debated subject will be from the first category, i.e. industrial property, an area which should be defended by the production companies, hoping that the original products that involve considerable

investments (e.g. the R & D funds), might return by their sales funds for the economic recovery, through the taxes.

Both on a domestic or on a supranational market (spatial concepts defined in this way from the perspective of the administered territory), a real threat is represented by the counterfeit products, which are subject to sales. During the last decades, given the current economic trends, counterfeiting became a real business and there is a tendency of certain economies to become specialised in this field. Of course, to this situation contribute also the technical, economical, social, political and geographical factors; however, the economic factors are the engine of the industry of copies.

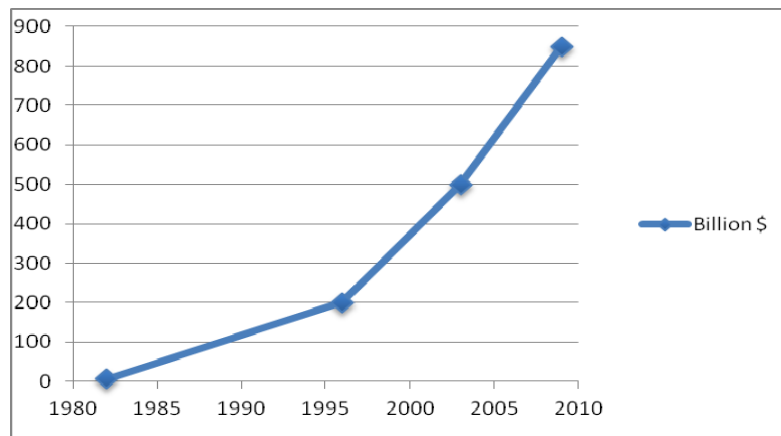
Thus, the counterfeit products' producers are driven by important and almost instant gains, and they do not need major investments, at least regarding intangible assets in the process of research and development. The biggest profit margin in this industry belongs to the luxury products, but in the same time the fast moving consumer goods, like cosmetics and clothing are not exempted by the technology theft. Which are the effects generated by this phenomenon of the illegal reproduction of products? First, we are confronted with a decrease of the quality of these products; also, among the emergent effects one may notice the increase of the underground economy, illegal employment, tax evasion or cross-border crime, but also dirty money used in financing terrorist activities (Anghel et al., 2007).

An abrupt increase of the violation of the intellectual property during the last decades has brought serious damages to the legal producers of these goods. Also, there are bigger concerns regarding the health and safety of the consumers of counterfeit products. Public health is in danger when the buyer, most of the times well intended, relies on the safety and integrity of a legitimate product to accomplish tasks which might be dangerous.

The illegal business of counterfeit products (actually belonging to another producer) and their sale of much more smaller prices than the real prices, having – most of the times – an inferior quality compared with the original goods, this represents a billion dollars' business globally. During the 1980's, this industry was worth 5.5 billion US dollars. At the beginning of 2000 this figure was around 500 billion US dollars, according to a study made by ICC (International Chamber of Commerce). Currently, this industry might worth around 850 billion US dollars.

Certain global institutions, like Interpol, estimates that the counterfeit products industry has a share of 6 to 9 percent from the entire global trade. FBI named counterfeiting the crime of the 21st Century, taking into consideration that the procurement of the equipments for producing sophisticated copies can

be rather easily realised. To account for the above-mentioned idea, we use the following graph, which was made based on the figures of the same ICC report:



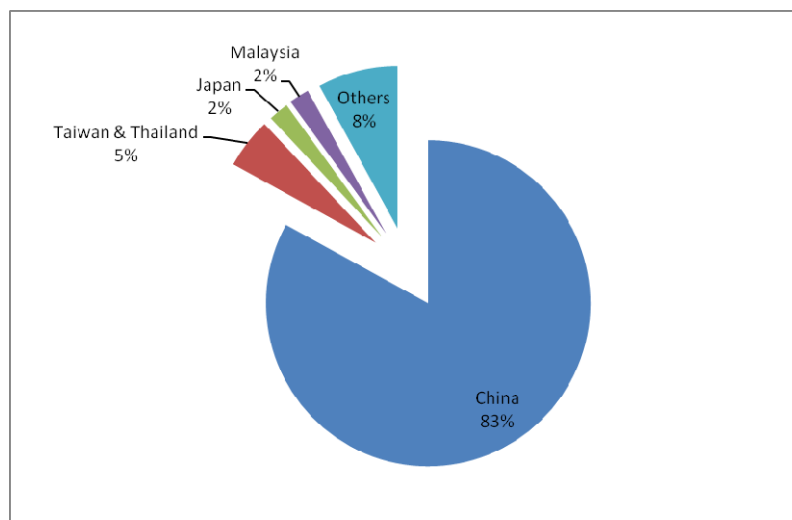
Source: www.iccwbo.org.

Figure 1. *The economic value of global counterfeiting*

Thus, the big companies have to defend their technology, but also their intangible assets. The transnational companies should by all means take into consideration the counterfeiting phenomenon in their scenario; they need to pay increased attention to the markets where they sell, as well as to the security of the technologies used in production, once they extend their market in the developing countries. Only in China the music industry, but also the soft industry (where most of the final products are on optical storage, easy to be reproduced) have a 90% rate of counterfeiting. According to Microsoft company, just 5% of the software packages they produce and which are installed on the computers in this country are legal copies (von Keller et al., 2005). The vast expansion of China's territory and also the higher integration in the chain of global suppliers determine that the problem of intellectual property become a global problem, being not any more just a domestic issue, related to this specific country. A support for the industry of copies is represented by the weak legislation framework China has, compared with its neighbours, framework which actually stimulates the activities in this field. Today China is, without any doubt, the worst offender with regard to the theft of intellectual property and industrial piracy, being responsible for 80% of the total counterfeit products reaching the borders of the United States⁽¹⁾.

In order to better exemplify the way in which this system functions, we will use one of the most significant world industries, the automotive industry. In

comparison with the above-mentioned sectors (software and music industry), the counterfeiting phenomenon in the automotive industry produces not just economic damages, but also endangers the consumers' health and physical security. It is estimated that in 2011 the market of the Chinese counterfeit products in auto spare parts has a value of 45 billion USD. Out of the total counterfeit products, China is responsible for 83%⁽²⁾, and is followed by Taiwan and Thailand, with 5% together, while the last rank Japan and Malaysia, with 2% for each of the two countries.⁽³⁾



Source: the author calculations.

Figure 2. Main countries responsible for fake automotive spare parts

The counterfeit compounds for the automotive industry cause loss not just for the legal producers, but also for the consumers of the “bad” goods; however this is not the biggest threat from the economic point of view for the automotive industry with regard to the intellectual property. A more subtle way of theft of intellectual property is what we call subtle pick-off. What does this type of theft mean? It is a way of theft of intellectual property in relation with the high technology; when a foreign producer comes in a country with a well developed industry of the copies; entire technology becomes accessible to the manufacture with which the developer (producer) co-operates. This is dangerous for the producers who relocated their production units and who externalised certain production sectors. So, the valuable results obtained in the R & D process (the research and development processes which cost the

developer million of dollars) are fraudulently acquired and used under the sign of a different brand which will compete with the initial (original) product.

A well-known victim of such a technique was General Motors. In 2004 the American company sued the Chinese company Chery Automobile Co. The subject of the trial was the car piracy, with regard to a car developed by the South Korean branch of the Group, Daewoo: the Spark model of company GM, almost identical with the model QQ from Chery. The results of the investigations initiated as a result of the claim put by GM were that the two cars had almost the same car body, the same external and internal design, as well as similar defining elements existing to both cars. By the time the trial started, GM had the sales for Spark models below the sales of the QQ model from Chery, and Spark had a higher price than the faked model. Why did this happen? It happened because in an early stage of the research of General Motors some data, both technical and design information, were not adequately secured, being thus “purchased” by Chery Automobile Co. The information was used by the Chinese company to get a car mainly identical with the Spark model, without investing resources (time and the necessary money to develop such a model). Finally, Chery could launch earlier the car on the market, selling it cheaper than the competitors.

In the automotive industry, General Motors was not the only company who had to face this kind of theft of intellectual property. Honda Motors sued another Chinese company: Shunghuam Automobile. Honda claimed that the model of the Chinese company, called Laibao SRV, has important similarities compared with their model, Honda CR-V (sport utility vehicle)⁽⁴⁾.

In both cases, General Motors and Honda didn't win the trials. It is to be noticed that some companies which look for business opportunities in China or in other emergent markets have to consider a high grade of security for the technologies they are to use in these areas.

Conclusions

The entire industry of counterfeit goods generates unplanned and undesired costs both for the producers and developers and for the consumers. The costs reflected from the perspective of the producer and/or developer consists in:

- losing the efficiency (in General Motors case we could notice that the counterfeit product was cheaper and launched earlier than the original product);

- losing confidence on the developing markets (which might cause abstinence/restriction from/on certain markets, generating a decrease of the sales turnover and of the income for certain companies);
- a more difficult process of innovation for the products of mass consumption (the difficulties are generated by the focus on the information security and on the concern of finalising the R & D process within a ‘normal’ term for the products involving high technology).

The consumer is also affected by the undesired effects of consume of counterfeit goods (for instance security, health).

In the current economic environment, with reference to the crises which started at the end of 2007, the industry of copies comes as an extra threat to innovation, if we take into consideration the fact that the innovation closely followed the GDP trend in most of the states during the last years (the tendencies were positively correlated, both having a descending trend, as shown in a previous paper). Therefore, we can actually conclude that these illegal counterfeiting and copying activities of some products are nothing else but a real obstacle for the economic recovery.

Acknowledgements

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Notes

- (1) *Counterfeiting, Crime of the 21st Century*, MEMA.
- (2) See <http://www.havocscope.com/counterfeit-auto-parts-sales-in-china/>.
- (3) See <http://motoren.wordpress.com/2011/02/17/counterfeit-parts-industry/>.
- (4) See http://www.chinadaily.com.cn/english/doc/2004-12/18/content_401235.htm.

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The road to the new economy

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Abstract. *This paper has the goal of making an analysis over the foundation, determination and implication of the economic phenomenon, also over the connections between it and the other parts of social by an interdisciplinary approach in the current world economic context.*

The start point is my belief in the necessity of rediscovering the economic science basis with regards to the last years: accentuation of inequalities and low-disparities, poverty, the decline of educational system, the incoherence of the monetary evolution, culminating with the economic-financial depression in the last years.

All these represent only epiphenomenon, surface manifestation of deeper causes that reveals a certain spiritual decadence, a world crisis of culture and civilization.

The real object for the economic knowledge is not the wealth, but the absolute human being.

Keywords: economic paradigm, economic humanizing, rationality, speculative balloon, knowledge economy.

JEL Code: A1.

REL Code: 19H.

The current economic paradigm has several key elements like: the rational individual as an economic factor, the corporation as value creating organization, a new equilibrium, economic optic and others.

Many of the recent doctrinaire approaches review the economic reality in its historical component, with an accent over the economic practice. The economist must go to history in order to probate the concepts, having as criteria the correspondence with reality.

The historical approach, even if reveals arguable perspectives and formal disputes, also offers certain explanations to start with: the past explains the present and both explain the future. The past can be approached based on the present acquisition – revisionist analysis.

A remarkable aspect for the current crisis is the fact that, on a deeper analysis, the crisis seems to be very similar with many others that went off before it, also in United States and abroad – the same speculative balloon that cracked and brought the destruction with it. Nevertheless, we deal today with the new failure of the economic policies.

Economy must improve and the evolution process is not self-sufficient, but a result of the cultural, spiritual and anthropological foundations. Economy remains a human science, with social and historical, moral and political links, therefore, the economists must keep their multidimensional approach.

There are several trials of economic science reconstruction by enlarging the analysis field, integrating new ethical, moral, political dimensions. They are searching for new criteria, new concepts, new values and new trustworthiness.

In the last years, we can notice more and more the tendency to bring in again the ethical criteria, the moral in economic analysis and economy interpretation as a way of decrypting the world.

There are economists that propose a set of values like justice, equity, tolerance, civic sense, the availability for dialog and compromise. “These values depreciate and must be constantly renewed through their permanent restatement and update” (Rawls, 1993, p. 157).

The study of current economic reality has become a first class activity, there are a lot of new economic councilors and the information processing by informatics programs has reached new records. Even though, the process of choosing the right economic policies and finding the economic equilibrium remain a problem.

The society feels the need of change, of creating a new economic system that should come with a “revolution” and that should resettle man in the center of creative process. Economy must be humanized, burst out from the political power for a subjective freedom of human nature. There feels the need for the human being to become again a living being in the economic system.

The economic theory has become self sufficient among the social sciences through a strong analysis of the national economy processes. Starting with the world economy free fall, also the beliefs of the economy science started to fall down.

The modern economy theory, upholder of the market's freedom and globalization has promised prosperity for all. With a better risk management, "The New Economy", with its extraordinary innovation in deregulation and financial engineering should close the concept of economic cycle or at least should temperate the economic fluctuation, not to exclude it. But the Big Depression from 2008 succeeded in annihilating these illusions.

Today, we are forced to examine again conceptions considered axiomatic until now, the doctrines of market freedom: the free and unrestricted market are efficient, if they make mistakes, they correct them quickly, the best state is the low state, the regulation disturbs the innovation, the central banks must be independent and not focus only on keeping the low inflation.

In the last decades, the economists succeeding in understanding when a market works well and when it doesn't work very well anymore, being generally a manner of incentive and motivation. Thus, they made a list of possible market failures, caused by a incongruity between the social incentives and the private ones, monopoly, externalities and informational imperfections.

But their recommendations were vicious and, even more, they registered a failure in their basic obligation of issuing right predictions and prognosis.

Caused by the crisis, the economic science will defiantly change, and so will the economy.

As I said before, Economics is a social science, having as a study object the way that people interact in order to produce goods and services. In order to study it, we must describe their behavior in a more general pattern.

We ask ourselves the question: Are people "rational"?

The rationality belief is an important part of economic theory. When they talk about rationality, economists do not mean the same thing as most people do. The sense that economist use for the word is more like coherence.

Across the years, the economists didn't say many things about the correlation between what individuals do and what brings happiness or a good feeling, therefore, they are focusing on a much restricted problem of coherence.

The research from the last quarter of century revealed that the individuals do act coherent – but in particular ways that contrast with the ones preset by the standards model of rationality. By this, they are irrational in a predictably manner.

What we learned is that to base on the standard economic theory in explaining the markets can be dangerous. In his book, "Predictably Irrational",

Dan Ariely claims the fact that the errors we all make are not casual, but a part of the human condition. And the judgment errors may combine in the market, producing a scenario, in which, similar to an earthquake, nobody knows what happens. All of a sudden, in the crisis context it seems that some people started to understand that the errors study at a small scale is not just a source of amusement. The world crisis created new opportunities for the behavioral economy and for those who are ready to learn and modify their way of thinking and acting.

The economic models claimed, in an unreal manner, that the individuals are not just rational, but over rational – that they can use sophisticated statistics, using all the past data in order to make the best prediction for the future. The irony consists in the fact that not even the economists that considered others capable of such performance didn't manage to make prediction close to reality.

They didn't manage to see the growing speculative balloon, furthermore, not even after his crack, they didn't manage to see what's next for the economy. They have ignored, in an irrational way, essential data and they become in an irrational way devoted to the idea that the markets are rational, that there are no speculative balloons and that the markets are efficient and they self adjust.

Another aspect of rationality is the basic principle of not remaining in the past. The individuals must always look to the future. From this point of view, the individuals are rational.

For an economist, the rationality does not mean that the individuals act by all means in a way that respond in a general matter with what makes them happy. The Americans affirm about themselves that they work hard for their families – but some of them work so much, that they don't have much time for the family.

In their studies about happiness, the psychologists show that many of the individual choices and many of the changes from our economic structure might not contribute to the magnifying happiness feeling.

The individual purpose is to be happy and this is a fact starting with Aristotle who said that no matter what we want, we want that to make us happy. Therefore, what can a society do for their individuals to be happier? In his book, "Happiness: Lessons from a New Science", Richard Layard mentions seven factors that have the greatest weight in the determination of people happiness: family relationships, financial situation, labor, the community and friends, the health, the personal freedom and personal values.

They say that an imminent life experience force you to reevaluate your priorities and values. The global economy has just passed through such an experience. The crisis revealed not only the deficiency of a prevalent economic

model, but also the deficiency of our society. Too many people have taken advantage of others!

In Buddhist kingdom of Bhutan, a country from Himalaya, the king Jigme Singye Wangchuck enacted that “the gross national happiness is more important than the gross national product because happiness comes in front of the economic prosperity in the national developing process”.

Some aspects like spiritual values can't be and probably shouldn't be measured. But there are others, like social communion. Even without measuring, the focus on these values shows some ways of conducting the economy and the society that we should reflect on.

There are economists that are convinced that more and more countries will come to this conclusion. The materialistic western culture has made us happy for the last decades, but the growing consumerism will eventually change our view. We won't be happier because we can buy more things, more time and a better capacity of enjoying the friend company, the family and community is something totally different and here is where society should focus.

Keynes used to say that investors may be best described as being motivated by the “animal spirits” – a spontaneous impulse of doing something more than not doing anything, and not as a result of a weighted average of quantitative benefits multiplied by quantitative probabilities.

If this is the way things work and if we could modify the animal spirits of our times maybe we would succeed in saving the economy from a mental state of depression and move it into a hope one, and maybe even one of joy thinking that what was the worst already passed away.

The economists insisted for a long period of time on the important role of the expectations over the behavioral acts: the beliefs may influence the reality. It is true that, among many domains, economists have built patterns with many equilibrium types, each one with its own auto validating expectations. If the market participants think that there will be a crash, they will levy higher interests in order to compensate their losses; with high interests will actually exist more crashes. But if they believe that there won't be any crashes, the interests will be lower, and when the interests are lower, in fact there are fewer crashes.

The moment that we live now should be one of judgment and reflection. Because, near financial deficiency, a “moral deficiency” has also been shown. When money is the supreme goal of the life, there are no limits for the tolerable behavior, leading to the trust loss.

The Chinese pictographs for the word crisis means “danger” and “favorable occasion”. Until now, we've only seen the danger. Here comes the question: Will we take the opportunity to get back the equilibrium between the

market and the state, between the individualism and community, between human and nature, between means and goals? Now we have the opportunity to create a new financial system that should make the things that people need, a new economic system that should generate the jobs where those who want to work get the professional satisfaction and a decent income and that should reduce, not enlarge the difference between rich and poor and moreover, to create a new society where any individual has the possibility to fulfill his aspirations and valorize his potential, where we'll be educated as citizen ready to live new ideals and common values of a community that treats the planet with the respect that it deserves. These are favorable opportunities, the real danger consists now in the risk of us not using them.

The new culture of the economic and social life has a basis of freedom and responsibility values, social community and human solidarity as integrated values under the "freedom in responsibility".

The individual does not react mechanical, based on some physical or moral causes. He is active and creative autonomously.

The individualist paradigm considers the individuals as acting first of all as individuals, whereas the holistic paradigm considers that the individuals actions makes sense only in relation to the social integrality in which it grows.

The conflict between the two paradigms is a theoretical one, explicative and normative. From normative point of view, we can affirm that the individualism deficiency consists in the fact that the individual cannot be the source for the collective rules, whereas the holism fails in trying to justify the rules only by the collectivities point of view.

If we take happiness as an example, it had a meaning first of all at the individual level. O society cannot be happy and prosperous if its members are unhappy and poor.

The dominant doctrine in this moment at a global level has some essential concepts. First of all, it affirms the priority of the individual, the state is a minimum one, and society is based on a inter-individual economic transactions network which have a goal in interchanging the goods and services, skills and knowledge, including time as an economic fundamental resource, in order to maximize the profits and obtain the individual satisfaction. These inter-individual complex relations that harmonize and optimize each other represent the specific of the free market. The society becomes a market society that assures the equity of chances, encouraging the initiative and the free competitiveness between individuals. It is not guaranteed the right for labor, everybody has to prove his utility through his labor. The permanent training had an essential role. The state has to ensure the access to education for the social equity.

The private corporation, which produces added value is another element of the new political and economical orthodoxy, being in the same time the main beneficiary of the current rules of the economic games by conducting the transactions and reallocating the costs and profits at a global level.

Then we have the capital, especially the financial one, all the economic system elements – people, goods and services – being appreciated by their contribution to the rentability of the social capital.

Therefore, we are witnesses to a process of economical and political reconstruction, to a redefining of the individual and collective identities.

We live in a strange era, characterized by the loss of sense and the necessity of a new society model, the knowledge society.

Knowledge becomes the main source of power, the basis criteria for the separation and classification of people.

Knowledge, unlike any other goods, have some irreducible characteristics.

First of all, they have a public specific – if they are not secret, they can be used by the entire community.

Second of all, from the moment they were released, the knowledge is non-exclusive, which means that they can be distributed without being divided. The knowledge does not stop to belong to the one that holds it if that someone shared it with somebody else. Once knowledge has been released in public, one cannot exercise a private control over its usage, the regulations regards only the individual property rights.

Third of all, unlike any other goods, knowledge is an inexhaustible resource, meaning that it is not destroyed in time if it is not used, being endless consumable. The usage of a public knowledge by an economic agent does not assume its product especially for this agent. Therefore, the economic agents don't compete against themselves about some knowledge already public.

Another specific property of knowledge is their cumulative character, at least regarding their economic usages, meaning that the new knowledge comes along those already existing, forming a research tradition in innovation that offers them authenticity.

Being understood as immaterial economic resources, the knowledge is analyzed in different discipline and inter-discipline contexts. Therefore, epistemology is the science for analyzing the sources and forms of knowledge, an analysis of the scientific knowledge specific is made by the philosophy of science and, lately, the cognitive sciences propose a new research integrated over the different knowledge processes.

The main problem of the knowledge economy consists in analyzing the relation between the knowledge growth and the economic growth, a positive

dependency that shows that it is efficient to spend more money for education and research.

In conclusion, we have to admit that we need a new order to inaugurate on the fundamental virtues of the individual, market and freedom.

Today's values in which we must start to strongly believe are the primacy of the individual, the free market, the social justice, the private company.

As I said before, the current crisis is not just an economic one, but a crisis of civilization and a crisis of conscience, therefore, the New Age must determine a fundamental change in our way of producing and consuming, in our way of living if we hope for a real change to come.

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Globalization and the identity dilemma

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Abstract. *The paper begins with a review of theoretical aspects including a conceptual delimitation of the term “economic globalization” from the perspective of different theorists, its main features, dimensions and vectors that boost and promote the process expansion. The phenomenon is extensive, complex and difficult to control, fact that includes in this “wave” of globalization advantages and disadvantages also.*

The globalization of the economic activity is studied through globalization indicators such as: FDI, financial dimension, the role of transnational economic actors in the global economy, the relationship between international trade growth and increased domestic production, internationalization of the financial markets. The structure of the global economic system and the problems that the current global economy is facing are also analysed.

The “thorny” subject of the influence that globalization has on national identity from an economic perspective is seen through the eyes of Romania, analyzing the economic implications of globalization for our country, how much the identity of Romanian companies was affected over the last years, which are now the Romanian multinationals and what challenges and opportunities globalization has brought to the country that was written with envy during the interwar period that is has “oil and wheat”.

Keywords: globalization; national identity; Romania; global economy; competitiveness.

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Globalization is one of the words “most used and abused, most defined and probably the most misunderstood, nebulous and politically spectacular over the past and future years” (Beck, 2003, p. 37). The subject arises disputes, passionate reactions, fears and suspicions and it is invoked as a cause for many of the contemporary world events and transformations. It is said to be the disease that this century suffers off. The worst sin that globalization is accused of is the levelling of the specific character of the countries, whether from an economic, cultural or religious point of view. There are few issues that manage to assemble different voices to support in an homogeneous manner the importance that they represent, the way national identity does. The general perception on the phenomenon is that it encourages uniformity, homogenization, Westernization or Americanization of cultures, but there are in this area, as in all topics related to this process, conflicting points of views supported with more or less viable arguments.

Economic dependencies and recently interdependencies are not a new thing, but the spectacular way that they have evolved in the recent years have turned the word globalization into a leitmotiv for the specialists concerned with the subject and also for the public.

The literature offers a wide range of definitions of the concept of globalization, each author showing only a certain aspect or dimension of the phenomenon, depending on his specialization or on the side of the problem he is, pro or against it.

Anthony Giddens describes globalization as being “not new, but revolutionary” and demonstrates that it’s a multifaceted a process, with different aspects that are often contradictory. The author has a contrast vision and perceives nowadays globalization as a second wave of the process, unprecedented in terms of characteristics and number of states involved.

Globalization is seen by many experts as a purely economic phenomenon, involving a growing economic interaction of states or an integration of national economic systems, through increased trade activities, capital flows and investments. Suggestive from this point of view is George Soros's definition of globalization: “the development of global financial markets and of transnational corporations and an increasing dominance of the latter over the national economies (Soros, 2002, p. 23).

Thomas Friedman defines globalization as “the process of global integration of financial markets, nation-states and technologies in a capitalist free market on a scale like never before “; or as a “process or set of processes

that include the transformation of social relations and transactions into a space organization, expressed in transcontinental flows and networks of activities, interactions and power” (Chican, 2007, p. 52).

Including *The Economist* in “*Overview of the global economy*”, 1992 tries to answer the question which is the accurate and comprehensive definition of globalization. According to the magazine, the term “can be easily adapted to all sorts of things” including “the expansion of international trade, the growth of multinational companies, the rise of joint ventures and the increasing interdependencies through capital flows.”

According to Zbigniew Brzezinski globalization is a way of ordering/reordering economically and politically the world, the latest manifestation of this principle being the current stage of the American hegemonies (Brzezinski, 2000, p. 100).

In his attempt to give a working definition of the concept, Malcolm Waters believes that “probably the best approach to such a definition would be trying to specify where would the process of globalization get to an end and how would a completely globalized world look like. And the imagination of the author, proponent of globalization, also gives us the answer: “in a globalized world there will be a single society and a single culture that will occupy the planet. This society and culture are not likely to be harmoniously integrated, although it would be convenient. They will rather tend to high levels of differentiation, multicentricity and chaos.” In the global village, there will not be a central government, and no narrow set of preferences and cultural requirements. “To the extent that culture will be merged, the author continues, it will be very abstract, expressing tolerance for diversity and individual choice. The important thing is that territoriality will disappear as the organizing principle for social and cultural life, it will be a borderless society and space.” In the same author's view, globalization is “a process in which geographical constraints on social and cultural compositions retire and people become in a larger extend aware that they retire” (Cobianu, 2008, p. 62).

Paul Virilio suggests that if it seems premature to talk about the “end of history” announced by Francis Fukuyama, we can still talk earnestly about “the end of geography”. Distances do not matter anymore and the idea geophysical border becomes increasingly difficult to sustain in the “real world”. Far from being an objective, impersonal, physical fact, distance is a social product; its size will varies depending on the speed with which it can be covered (in terms

of monetary economy, the necessary expenditure to achieve that speed) (Bauman, 2002, p. 16).

Concluding and trying to maintain an objective approach, it can be said that globalization is a large set of complex processes aimed to achieve full integration in different fields: economic, political, military, security, social, cultural. Consequently, this process gives not very many chances for states to live in isolation. Basically, globalization also means freedom and dependence, uniformity, free movement of goods, people and ideas worldwide, local features combined and confused with the global ones, the world being found in each locality and, simultaneously, each locality, region or nation being found throughout the world.

Economical dimension

Examples regarding this dimension of globalization can be found without any difficulties in mass-media every day, this dimension is the most visible one and, therefore, the most discussed (the growth of international trade and direct investment, globalization of financial markets, integrated production, transnational companies, global competition).

Key features include the increase of global interdependencies between all actors, the internationalization of trade and production, a new international labour division, new migratory movements from South to North, a new competitive environment, financial market liberalization, free movement of capital, information, people and goods, the third industrial revolution and the transnationalization of technology, domination of multinationals, increased global competition (extremely high), compressing time and space (real-time transactions), affirming the contract culture, the birth of a global civil society, affecting national sovereignty, cultural and spiritual identity and internationalization of the state, making it an agent of the globalized world (Brăilean, 2004, p. 3).

The most important levers of globalization are: transnationalization of communication, production and trade, individualism, consumption, organizational decentralization, the transfer of public resources in the private sector and reallocation of U.S. manufacturing activities in Eastern Europe, Asia and in poor geographical regions (Săgeată, 2009, pp. 31-32).

The consequences of globalization are among the most diverse and can be seen as both positive and negative. Thus:

- extraordinary opportunities arise for some countries, allowing them to capitalize in a better way the technological progress and the benefits of open markets;
- distances are reduced and communication in real time becomes possible;
- a global conscience is formed and requires, ideally speaking, a planetary-scale approach of the issues;
- an era of severe inequality is inaugurated, primarily through a deterioration of income distribution but concerns about the growth of inequalities appear internally and externally, the old conflict between the rich North and South poor is being replaced by a new labour division;
- the nation-state has to face serious competition (international governmental organizations and multinational corporations) in the primacy on the international scene (Dobrescu, 2003, p. 371).

In the field of concrete results, globalization should appear as a process of growth diffusion and general welfare, contributing through technology transfer to a sustainable development that does not affect the basic resources of the planet. Unfortunately, up to date, at least from this point of view, globalization's effects are still very unfavourable, causing the appearance of new economic gaps at a continental or subcontinental scale by developing major growth poles (Săgeată, 2009, p. 20).

The harsh reality confirmed already that the promoters of globalization can only those countries that have the necessary means, reflected in the strong economic development. Therefore, there is a simplistic attempt, yet not without reason, to believe that globalization promotes and protects the interests of those states and especially the ones of the United States that were classified a priori, by the end of the Cold War, as the only global superpower.

Referring to this subject, former French Foreign Minister, Hubert Védrine, making an analysis of the place and role of France in the era of globalization, said: "The United States are like a big fish swimming in the waters of globalization and easily dominate them. Again, globalization is not the fulfilment of a US plan, even if the big American companies have supported it and have profited most from it. Americans get most of the advantages of globalization process for several reasons: the fact that globalization takes place in English, that globalization is conceived in the light of neoliberal economic

principles, that the Americans impose their legislative, financial and technical approach and promote individualism (Vedrine, 2001, p. 3).

But it should also note that the advanced capitalist states are also under the impact of contemporary globalization. They are forced to compete with each other in the wish to attract FDI. They also face tensions caused by economic discontent, unrest caused by the destruction of the classic hierarchy of values. On the other hand, it is true that for developing countries the global economy is a given – they must adapt to the rules established by the more powerful states, finding themselves in a subordinate, dependent, postcolonial position. This fact has led some to wonder whether globalization represents a powerful ideological tool that supports the export of certain values and systems. Nowadays, we can no longer clearly distinguish between the internal and the external side of a state policy, because relationships are becoming less a strict attribute of the government management.

As an emphasis and generalization of the internationalization, globalization has meant the qualitative evolution of multinational companies, by the expanding of the markets and by increasing global competition. Companies are now facing both local and abroad competition.

This brief consideration on the implications of globalization can not concluded without mentioning the global crisis as an ultimate and concrete argument of this phenomenon. As the world-wide economic and financial evolutions have demonstrated, the crisis in the US and the state intervention to stop it was followed by similar reactions in the European countries. In this context, it is clearly highlighted the domino effect that an event from a corner of the world triggers in another part of the world. The crisis can thus be regarded either as a catalyst for globalization, but also as an obstacle to it, through the efforts done at the local or regional level to limit it's effects or containment.

On the challenges more and more things are added to be managed at a global level. It is difficult to make a hierarchy according to their importance and priority, but randomly we can mention:

- the reconsideration of the state, of its sovereignty, assuming the attributes of sovereignty transfer, permeability of borders and the emergence of supranational bodies determined by regionalization and globalization;
- the clash of civilizations due to the dramatic differentiation of economic and techno-scientific capacity and even to the political subordination of the great economic and financial-bank mergers;

- underground economy, joined to the internationalization of terrorism and organized crime, drug trafficking;
- demographic explosion, along with chronic poverty, environmental degradation, pollution with major consequences on the living;
- translation of conflicts from regional level to a worldwide one (Stănescu, 2005, p. 38).

In conclusion, globalization is a process or set of processes, which embodies a transformation in the spatial organization of social relations and transactions - in terms of extension, intensity, velocity and impact, generating transcontinental or interregional flows and networks of activity, interaction and exercise of power (Held, McGrew, 2004, p. 40).

Globalization of the economic activity

Economic globalization is related to integration of capital and commercial markets, to a massive privatization of production and means of production, so that free competition could obtain the right results. There are debates about high labour mobility, about the income distribution between countries, about removing the existing fragmentation in the world, about streamlining assets circulation traffic, linked to labour migration financial capital. All these require a decrease of the existing influence of national states, that are considered a slow down factor.⁽¹⁾

Globalization could be defined as a highly dynamic process of increasing interdependences between nation states, as a result of the enlargement and of deepening the transnational connections in varied economic, political, social and cultural spheres. The problems are rather global than national, requiring frequently a global approach.

Globalization is the stage reached today by the secular process of internationalization of economies and economic activities as a result of the mutations occurred in domestic and international economic structures. It is a strategic tool to which big companies and banks have resorted to ensure themselves profitability and to overcome the superficial or deep oscillations occurring in different economies where they have invested capital (Postelnicu, 2000, p. 120).

The main characteristic of the current global economy lies in the dominance of financial markets over the trade with goods and values, and that's also due to the place that knowledge has as a production factor. Science and

human brain's ability to innovate have an increasingly important role in productivity and therefore in economic growth.

Economic globalization indicators

The degree of globalization of a country is primarily measured by the openness of its economy, also by the investment environment, and of course by share of international commerce in GDP. At the assessment level of globalization of world economy is its degree of internationalization. Deepening economic integration between nations has led to the erosion of differences between national economies and to a decrease in autonomy of national governments, trend that no sign will stop.

The superior development of international trade over the growth of national production, the internationalization of financial markets, the rise of big companies influences on governments, the homogenization of lifestyles are some of the indicators of economic globalization (Săcălean, 2008, p. 46).

Malcolm Waters considers as dimensions of economic globalization: trade, production, investment, organizational ideology (imposing a certain style to production), financial market and the labour one. Financial market and trade of these items are those in which globalization is almost completed (Than, 2001, p. 7).

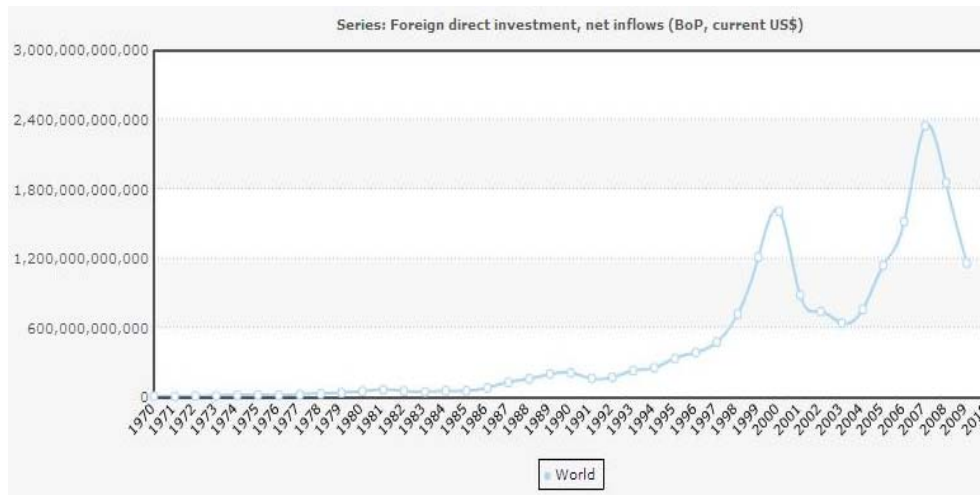
In the francophone world globalization is seen as a moment in the process of “*mondialisation*” and its main actor is the company, preferably a multinational. Global oligopoly has been defined by many authors as the concentration of capital in the Triad (US, EU, Japan), but things begin to change even here (Pop, 2005, p. 23).

The current economy needs, as always, three elements to function properly: demand, supply and intermediaries, just that the space where it takes place moved from the physical in the virtual in order to ensure the essential condition of the economical game of globalization: the availability of information. The internationalization of capital has made it difficult for companies to belong to a certain state, especially because of their foreign subsidiaries.

Among the main economic drivers of globalization can be mentioned:

- Liberalization of services trade, particularly in telecommunications, insurance and banking

- Liberalization of capital markets due to the phasing out of barriers imposed to the free circulation of currencies and capital
- Foreign direct investment liberalization and expansion



Source: World Bank, *Indicators*, 2010.

Figure 1. World foreign direct investments

The FDI volume has increased significantly from 1970 to present, which comes to support the idea of the expanding of globalization.

FDI have registered new records from one year to another due to the increased activity of multinational corporations work and to the efforts to liberalize markets and trade.

The financial dimension is another relevant aspect in the process of globalization. The financial services and customers portfolio extension on a global scale shows the tendency of creating a planetary finance market. Markets are interconnected and events have an impact on all stakeholders. The opening or the dismantling of national exchange control has been a driver of financial globalization. Financial transactions are the head display on the global stage in the profit economy. They exceed the value of international trade of goods and services, fact that can easily volatilize stable considered economies. The systemic risk in financial markets has increased and that brings economies in the position when the levers of action have lost their efficiency. Another aspect of globalization is the fundamental economic exchanges meaning the o capital

flows on different national markets which have become increasingly difficult to control (Săcălean, 2008, p. 50).

The global village we live in is economically dominated by large transnational corporations that, as the name suggests, transcend National boundaries and exceed out from the national authority. There are no economic sectors where large corporations are not present.

The role of transnational economic actors in the global economy has grown considerably through the concept of transnational company referring to the global player with a strong influence in the international political, economic, social sphere. They play an essential role in specific sectors of economic activity including (Moisiuc, 2001, pp. 200-202):

- banking and financial sector, where transnational companies build true global and local monopolies;
- international trade where transnational companies impose their highly-competitive products on all national markets, over 50% of global trade of goods is controlled by them, as manipulating the levels of transfer prices in the domestic trade agencies, subsidiaries and branches of the same company;
- technology by FDI, contributing to the development of this level in the host country;
- the host state's economic development by contributing with financial, technological and management resources, by job creation, through the creation and development of new companies or by upgrading and modernizing them;
- services sector, especially hotels, banking, travel, transport industry;
- environmental issues by reducing emissions or by influencing the adoption of less restrictive legislation regarding polluting investments;
- introduction of a new a type of modern management, staff training, providing experience and know-how;
- political, as a consequence of their importance for the host country's production and exports but also for the origin one.

World finances are dominated by the dollar, Euro and yen and a few large transnational banks. These big banks influence many of the world economic and political decisions and affect each of us more or less in different ways.

Another key issue is tax, the control possibility over the finances of such companies is generally low. It is thus favoured the transfer of large sums of money from commercial activities, with the risk of dissimulation in order to

avoid the payment of tax obligations to the state. By international money laundering considerable costs were imposed the global economy, affecting even the efficient operations of the national economy and, by promoting a wrong economic policy, has slowly corrupted the financial markets, has reduced public confidence in the international financial system and as a result, had diminished the of global economy. Facing these problems, the country's policy makers would be forced to tighten the fiscal policy in order to create a budgetary surplus, used to neutralize the monetary effects of capital influences (Săcălean, 2008, p. 55).

The structure of the globalized world economy

The national framework, where business processes over many centuries were held, ceased being the ultimate reference of the economic policy. For a long period of time, the citizens of America, England, France or Germany believed, justified, that their welfare depends only on the welfare of their nation. Nowadays, things are different. The welfare of their nation is essential for everyone's welfare, but it now depends on complex mechanisms, on so expanded connections that much that is not exaggerated to say that we all perceptibly begin to depend on the global economy that covers as all (Marga, 2003, p. 14).

The most relevant indicator for the high degree of autonomy enjoyed by actors in the postindustrial international system is the proliferation of transnational corporations. If international trade until the nineteenth century used to take place within companies under the banner of their country of origin, today everything is more open, more liberal and it extends beyond the political authority of national governments. The market economy was not only widespread, but has replaced world trade by “binding together the international transactions”.

The existence of these companies and market globalization are mutually interrelated. Certain industries such as pharmaceuticals, aerospace and microelectronics have economic and technical systems that are global by their nature and transcend national framework. In the current era of computerization, national borders become more permeable for material and financial flows that can be instantly transferred from one market to another. In terms of real trade flows (trade in goods and services), due to the international integration of production, most of them currently take place within companies at the expense

of world trade between companies. The administrative hierarchy of companies has replaced the market as type of international economic organization (Than, 2001, pp. 45-47).

Aircraft construction became a monopoly of two companies: Airbus and Boeing. Air transport are also dominated by a few giant American, Western European and Japanese companies. The pharmaceutical industry is also dominated by several large multinational based in the US, Switzerland, Germany, France and Britain. The almost completed liberalization of world trade with goods and services and the creation of WTO disbanded the last barriers and divisions. Boundaries and states national sovereignties are presently almost insignificant. What is left of these boundaries has not much sense or importance (Suian, 2005, p. 51).

Global problems of the current global economy and international economic crises

From an economic perspective, globalization means global integration of production, trade and banking and financial system. At a first glance this integration should offer poor countries a chance to grow faster, but in reality, so far, globalization has led sooner to the marginalization of poor countries. Their participation in world trade has remained limited, their access to international financial market is virtually nonexistent and their share of total international investment diminishes. Globalization reduces the margin of autonomy and decision making of national governments and makes that they can no longer successfully intervene in supporting their own economies. Macroeconomic stabilization is required, even for those economies that are not caught in the global system, in the case when there are such countries. In the era of globalization if a poor country is not well managed in terms of financial policies, the remedies can not come from national governments, but from the International Monetary Fund which will require macroeconomic reforms through structural adjustment as it had done so far in the countries where it was called to help (Suian, 2005, p. 51).

It has been said that the globalization of the financial system would bring certain advantages to all countries. The financial crises that have reached Asia, Mexico and Russia, all of them produced in full period of globalism, have put in doubt this supposed advantage. Some authors go further and argue that the increased number of financial crisis after 1980 would be just the result of

financial liberalization and the possibility of operating of a large number of banks. In explaining why crises occur it is also added the so called contagion phenomenon that can occur more freely in a global economy. Another explanation may be the bank's difficulty to gather information, to constantly update and effectively use them (Suian, 2005, p. 57).

Table 1

Financial crises

Country	Date of financial liberalization	Number of banks and monetary crisis after liberalization	Total number of crises in the analyzez period
Argentina	1977	8	10
Indonesia	1983-1988	4	6
Chile	1974-1976	5	8
Thailand	1989-1990	1	6
Malaysia	1978-1985	2	3
Spain	1974	6	6
México	1974 and 1991	4 and 2	4 and 2
Finland	1982-1991	4	5
Sweden	1980-1990	4	5
Norwegian	1980-1990	4	5
Columbia	1980	3	2
Denmark	1980	2	5
Bolivia	1985	2	4
Brasilia	1975	7	7
Peru	1991	0	3
Philippines	1980-1984	5	6
Uruguay	1975-1990	2	4
Turkey	1980 and 1987	3	4
Venezuela	1981 and 1989	5	6

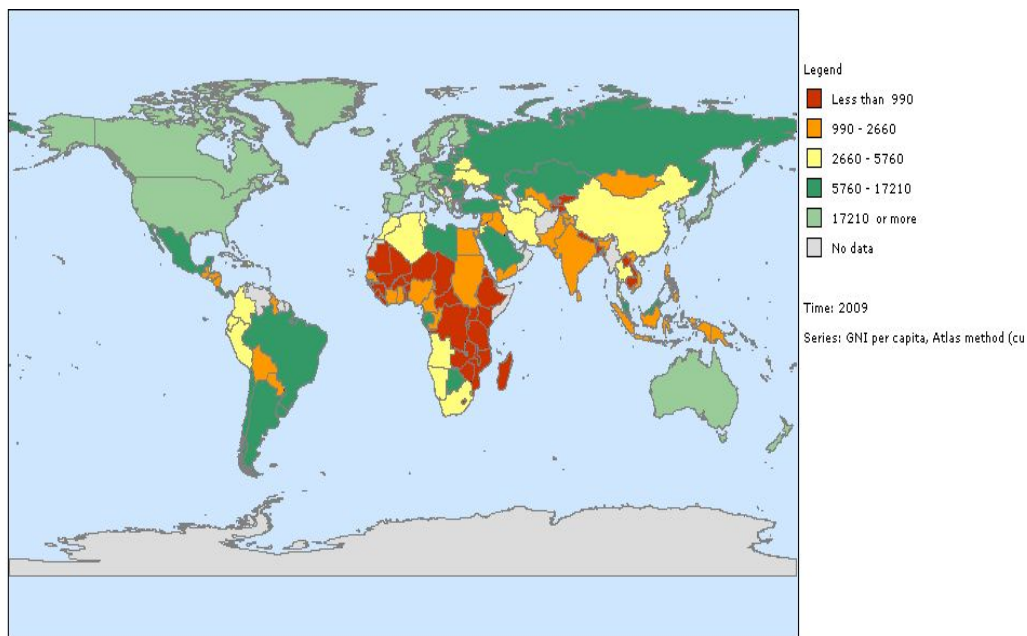
Source: *Globalization, marginalization and development*, S. Mansoob Murshed, Routledge, London and New York, 2003, p. 22.

The data in the table lead to the conclusion that the costs of financial crisis for developing countries are much higher than the ones for the developed ones. This shows the great vulnerability of developing countries to external factors and the inadequate institutions to the requirements of a global world.

To overcome the crisis, hiper globalists propose the control of the entire world economy through a single bank, perhaps a single currency or a single authority of monetary control. Here's what Rockefeller said: "We are in the process of global transformation. We only need a major crisis and the nations will accept the required New World Order. FD Roosevelt: "The truth is that the financial element of the big centers are in control over the government of US

since the days of Andrew Jackson”. And finally, the banker JP Warburg: “We will have a world government whether we like it or not” (Brăilean, 2001, p. 22).

Globalization cements the polarization between rich and poor and leads to the formation of two camps, one with high income and the other with low incomes. Inevitably, it produces winners and losers, it accelerates the process of stratification of underdeveloped countries, helping some countries like China, some countries of South Asian, Brazil and Mexico at the expense of the rest of the world's poor. Statistics show that world income distribution has worsened in the era of globalization.



Source: World Bank, World Development Indicators 2009.

Figure 2. World income distribution: World map according to per capita GNP of each country

Another criticism made towards globalization is that it has led to free trade, while the real need is of fair trade. *Fair Trade Not Free Trade* is what experts say that would be the key of the development issues. Because of free trade Southern nations have become more vulnerable than they were before. Not even the rules and regulations imposed by the WTO don't have the ability

to protect the economies of these countries against the commercial aggressivity of the strong and nor against the harmful effects of unfair trade.

Nobody claims that globalization is responsible for all evils in the developing South world or that globalization would not provide at least theoretically better chances of development for many countries. The difficulty lies in the fact that so far no evidence or cases of countries that were helped in their development by economic globalization were seen.⁽²⁾

Advantages and disadvantages of globalization

Directly or not, globalization affects us all. In this context, an important and useful thing would be a prudent assessment of the opportunities and risks of globalization, keeping a distance from the current trend to demonize, or, conversely, to worship the consequences of this phenomenon. Objectively speaking, globalization can not be held guilty for all the evils with which mankind faces today, no matter how badly we would need a scapegoat. There are clearly some benefits that have occurred from the expansion of this phenomenon.

If globalization has succeeded in something, that is in forcing countries to improve their efficiency or at least reduce the role of government in the economy. However, it has also led to an increased level of interdependence and risk of propagation of internal problems of certain countries, areas to the entire world.

The liberalization of the international trade has helped many countries to grow by boosting exports. The key element of industrial policy that has enriched much of Eastern Asia and has improved the life of their millions of inhabitants was export-led growth. Globalization has reduced the sense of isolation that used to dominate in many of the poor countries and gave many of their people access to knowledge. Also, a well done public campaign managed to convince the international community to cancel the debts of some very poor countries (Bari, 2003, p. 22).

Regarding the criticism brought to multinational companies and their tendency to eliminate domestic companies from the national market, it is true that these often lead not so orthodox policies, but they also bring along new technologies, know-how, they open markets, create sectors of activity. In addition, private companies are often more apt to generate wealth than the State, which sometimes has the tendency to abuse of its power. Globalization

offers an individual degree of freedom that the state can not provide. Free competition on a global scale has encouraged entrepreneurial and creative talents and has accelerated technological innovations.

It is a fact, globalization somehow limits the space of action of national policies and economies, but it also offers the advantage of a quicker resolution of those problems that can not, due to their very nature and complexity, be solved otherwise than global: resource allocation, access to technology and information, environmental issues, combating extremism of any kind.

Those who blame globalization neglect the benefits that it has brought to the world, but those who worship it are in a greater error. In their vision, globalization is the same as progress. Developing countries are forced to accept it if they want to develop and to combat poverty, but for many residents of these countries, and elsewhere, globalization hasn't brought the promised benefits.

The negative effects of globalization consist mainly in the fact that, at least until now, there is a tendency to concentrate the power of decision in the hands of big companies. This, with an increasing development, can get out of states control, can promote their policies without taking into account the restrictions imposed by national states, may choke smaller competitors, may cause an excessive congestion of wealth fare at one pole of humanity and an widespread poverty in other parts of the globe (Săgeată, 2009, p. 26). Western banks took advantage of the attenuation of control on the capital markets in Latin America and Asia and went to "conquer" them, but these regions have suffered when the accumulated capital was suddenly withdrew. This brutal reflux left behind extremely vulnerable national currencies and banking systems (Bari, 2003, p. 23).

In trade liberalization, but also in other areas affected by globalization, even seemingly well-intentioned efforts have had sometimes negative effects. When agricultural or infrastructure projects recommended by the West and financed by the World Bank or other institutions of this kind fail, the citizens of that country are the ones that have to pay, excepting of course the case when the debt it's cleared.

The impact that globalization can have on developing countries, and mainly on the inhabitants of these countries can sometimes be a devastating one. It is true that globalization can be beneficial by suppressing the effects of barriers, by integrating national economies, having the potential to improve the economic situation of Earth's inhabitants, but to do so it requires a different way of managing things. An issue to consider could be the international trade

agreements that have greatly contributed to the suppression of barriers without exception and have imposed policies to developing countries. There is no doubt that some suffering is inevitable, but those incurred by some of the developing countries were much higher than it would have been necessary and they could have been avoided through a different way of managing things. These countries do not receive any support regarding their social security system, some have been marginalized by global markets, the sacrifices made and the price paid by them is not important and worth of attention by those who come out winners from the globalization table.

If, in most of the cases, the benefits of globalization have been less than its supporters claim, the price paid was way higher than the benefits to be gained: the environment was irreversibly affected, corruption dominates the political class and the rapidity of changes does not allow any time for countries to adapt and keep up. Globalization has produced an undesired allocation of resources between private and public goods. Markets are able to generate wealth, but are not capable nor intended to meet other social needs.

Few resources were devoted to correct the deficiencies and damages made by globalization. As a result, the gap between rich and poor continued to grow instead of diminish, as promised for so long.

In 1960 the ratio between the 20% of the world's richest population and the 20% poorest was of 1-30. In 1995, this ratio was 1-82. The richest 20% have 86% of the planet's resources. The 20% of the poorest have only 1%. The number of people living in absolute poverty – under a dollar a day – reaches 1.5 billion and is growing steadily. Wealth held by only 1% of the richest people in the world equals the part of the remaining 75%, a reality that does no longer require any other arguments. Over a billion people live on less than a dollar a day. Nearly one billion have no access to running water and 826 million people suffer from malnutrition, this type data showing a different face of the world. Of course, globalization is not responsible for all of these facts, but the defenders of the process claim that it helps raising the standard of living ... still an unproved fact...⁽³⁾

In the end, what really matters is if this interaction is only for the benefit of some of the players, or for the benefit of all, considering that the process is called globalization.

The implications for Romania

„Romanian economy is no longer Romanian!”

Ilie Șerbănescu

The world is changing and with it, Romania also. What does globalization brings for the country that was called in the interwar period with envy that it has “oil and wheat”?

Economic globalization creates new challenges for all countries, especially through the free movement of capital and through rapid changes in comparative advantages. In the context of globalization, challenges to macroeconomic stability are more numerous, generated by the increasing openness of economies, financial liberalization and by the increasing complexity of markets and financial products. Financial stability has become a crucial part of the macroeconomic stability due to the fact that capital flows exploit the vulnerabilities in the financial system so that they can promptly sanction the errors or inconsistencies of the economic policy (BNR, 2007).

One of the problems that Romania is facing in terms of globalization is related to the delayed start in this race. Part of the Communist zone, of the directed economy and state controlled, Romania was among the last countries to benefit of the transport, communications, productivity, and ultimately, of the information innovations. Only after the revolution, shy, the information society has made its presence felt but with devastating effects due to the fact that we it has found us totally unprepared. Expensive products, inefficient economy, hyperinflation, overwhelming western competition, all in all have rapidly put the Romanian economy in a bad start. The meeting with the West occurred quickly and dramatically, taking the appearance of a destructive wave that has left Romania with two million of unemployed people, one million less inhabitants, 85% of the population living in poverty and 5.5 million pensioners, in other words, an exhausted country⁽⁴⁾. Openness to foreign capital was done in Romania with more difficulty than in other former communist states.

Romania is now one of the poorest country on the continent in terms of GDP per capita and its level of industrial production (averaged over the past ten years) is somewhere at the level of 60% of the production in 1989 - the most poorly planned year of the regime. A poor country and deprived of a social and economic project is even more exposed to all kinds of “import” crisis and it is more vulnerable to the challenges of globalization.⁽⁵⁾

The economic analyst Ilie Serbanescu describes the current state of the Romanian economy as „an economic model of consumption without production, imports without exports, hypermarkets without factories, cars without roads and banks without a real economy”. Romania has no poles of competitiveness, is unable to realize added value, export potential and to count in global competition, has only very few local brands that count on.⁽⁶⁾

In other words, Romania seems rather surprised by the wave of globalization than prepared to deal with it. It's no longer „the land of oil and wheat” from the early twentieth century, but a state located in a painful transition from the command economy to the free market, with a nascent political class and a management one as well.

The Romanian economy is trying to reinvent itself under the pressure of the Western capitalism, but although Romanian entrepreneurs have created some strong brands after Western templates, foreign brands have gradually captured the notoriety international top. Under the head of Romanian brands, Synovate study puts in the top: Dacia (39%), Arctic (25%) and BCR (20%). BRD, Dorna, Ursus, Bergenbier, Borsec, Romtelecom, Farmec and Bucegi are other Romanian brands with high fragrance. The Number of Romanian groups in 2009 was of 4.696, while those of multinationals were three times more, respectively 15 258, most of them controlled from abroad, according to the National Statistics Institute (INS). Of all multinational groups of companies, 33 are controlled from Romania and 15,225 abroad. The results of 2009 show that on the first place, according to the percentage of employees, are the subgroups controlled by individuals or legal entities located in Germany (17%), on the second place are those controlled from France (11%), while 9% of firms are controlled by subgroups of Austria.⁽⁷⁾

Romanian multinationals

Strong Romanian domestic companies have already begun to expand their businesses abroad. Pioneering were the chemical and petroleum companies, followed by the retailers, furniture manufacturers and the IT industry. The history of Romanian investments abroad began in 1998, when the manufacturer of varnishes and paints, Policolor, bought Orgachim from Bulgaria and Petrom gas stations opened its first gas stations abroad. The number of Romanian companies that extend their work also outside the country's boundaries through regional offices or through stores is much higher today and it continues growing: Rompetrol, Flamingo, Softwin, Mobexpert, Jolidon, “the only Romanian multinational on the catwalk”.⁽⁸⁾

One of the most courageous Romanian multinational group is shown to be Tender not only in Serbia (energy, pharmaceutical), it is exploring in Senegal, Colombia, Venezuela, Iran, Pakistan and Afghanistan. The most vigorous figures of Romanian capital today are the five financial investment companies (known as the SIF), former private property funds. These five companies (SIF Transilvania, SIF Moldova, SIF Muntenia, SIF Banat-Crisana and SIF Oltenia) jointly have assets worth over 2 billion Euros in companies operating in Romania. They, along with Property Fund (whose assets are valued in perspective at about 4 billion Euros), will be the future engines of Romanian capital, and not just in the Romanian space. In the next 15 years, Romania could “export” about 200 companies, at least in the region. A recent study by PricewaterhouseCoopers calculated that in the next 15 years about 190 new multinational companies Romanian majority will occur.⁽⁹⁾

Romania has made in recent years important steps towards deepening its integration into the global economy: full liberalization of capital account (foreign exchange transactions of EUR 1 billion currently and about 600-700 million in 2006), an increase in the economic openness (76.7% in 2006), the EU accession (BNR, 2007).

Opportunities and challenges of globalization for Romania

Globalisation can have two types of consequences for Romania, beneficial or harmful. Romania needs foreign investment for economic development, being unable to produce the capital from domestic sources only. As a country with multiple economic opportunities – from tourism and agriculture to the oil and metallurgy industry - Romania can become attractive to foreign capital if it ensures propitious internal conditions (legal, fiscal). The rapid movement of capital alleged by globalization – in which companies lose their classical national identity – may become advantageous for Romania in terms of a highly qualified workforce, but comparative cheap.

On the other hand, gradually, some Romanian economic forces – companies – can begin to play a in the future a regional or international role. Stripped of the complex of former communist states; exceeding the phase of transition to a market economy, Eastern and Central Europe countries that have emerged from the former communist camp will come to play an increasingly important role in the European economy, as they get their interests closer to the Union.

Transnational companies have had a positive effect on the development of management techniques, marketing, staff training, infrastructure improvements (Nokia case near Cluj) and diffusion of technology in many fields. Increased competition was another positive aspect of transnational companies in the Romanian economy. Higher standards of living in areas where large companies have invested, as a result of newly created jobs, the drag along effect generated by the activity of these companies are also benefits that big foreign companies have generated into the Romanian economy. Increasing FDI in Romania led to the competitiveness growth of the Romanian economy, in terms of labor productivity.

Among the benefits brought by globalization can also be included: free movement of persons, goods, services, capital and knowledge (including, or especially scientific and technical), unlimited participation in the world flow of values, the possibility of solving in better conditions of the problems that transcend national borders (lack of resources, international trade, economic cooperation and international financial assistance, pollution, security of critical infrastructure, poverty, underdevelopment, illiteracy, peace, including defense against terrorism, migration, natural disasters and emergencies, health and human climate issues, etc.) and not least a cost reduction through economies of scale by great series production destined for export to larger areas.

At the same time, negative consequences, risks of globalization are not insignificant. In the past 20 years, globalization has had negative consequences for Romania: poverty, alienation of resources, population decline, migration. We have to take into account the economic risks first. The phenomenon of globalization is accompanied more than any other by a winners philosophy and we step into a world where there is little mercy for losers.

Economists have concluded that nation-states reaction to the Great Depression of the last century – that of isolationism, the economically closure – was a wrong response and that an appropriate response would have been openness. Drawing a parallel, Romania certainly can not defend itself of the tide of globalization by closing itself, trying to preserve obsolete structures, playing “shows” of the last century when the great scenes of the world are fitted with different types of performances. Economy should be opened gradually to continental and international structures, but at the same time developing institutions, and reflexes to be prepared to face, if necessary, a different type of crisis.

Another problem arise from the excessive dependence that we have toward foreign capital. The risk comes from the tendency they companies have in crisis periods, to leave the peripheral economies and withdraw to the center, and also from the fact that domestic capital is totally insufficient. Reality has confirmed this risk: during the current crisis parent banks withdrew significant liquidity from their branches in Romania.

We lack a specialization so necessary in our global society. The global society rewards only the idea, the information, the invention, not the giants producing nails or cement. The future belongs to the countries that produce ideas.

Some other important changes are: the abolition of borders, the emergence of European governments and parliaments, the role of global financial institutions (IMF and World Bank), the abolition of national currencies and the euro adoption, the abolition of national armies in favor of NATO. All this shows that the nation state, that the ninth and twentieth centuries were to, gradually reaches the end of history mission, that is "Goodbye, Romania, "Welcome Europe!". The free movement of people and of capital values, the construction of economic areas, restricting state's authority, all this will radically change the Romania we know.

If the national state of Romania will be massively transformed, it does not mean that the Romanian nation will disappear. On the contrary, like other European nations, Romanians will also have to learn to love and to impose more their language, traditions and history. The French concept of resistance by culture, not as an anti-globalization, but as an avoidance of denationalization, it should be applied to Romania. Romania's picture compared to the ten years ago one has improved, the new stages of development of the global society do not find us so different from the rest of the world, isolated and without any experience. In other words we are on track. However, unfortunately, there are enough voices that rank Romania among the losers of globalization and unable to enter the class of winners. Globalization makes the strong stronger and the weak weaker. If Romania fails to evolve rapidly, it will certainly will be a part of the second category.

Comparing gravity with globalization, they must be accepted as a "physical "phenomenon; it is pointless to try to repeal or bypasses it: you must necessarily understand it both in terms of causes and effects. You have to learn how to use it without letting it to destroy you. Especially for small nations, as Romania, understanding this phenomenon and the action in the "aikido way –

make use of its strength and not let it crush you – will make the difference between losers and winners.⁽⁴⁾

Thus, Romanians will have to make efforts to promote everything that is national: Romanian economy (with preference given to Romanian products), Romanian culture and customs. In other words, as the motto of the Club of Rome says, “you have to think global and act local”. Not loosing your identity into a large anonymous, nor to practice a narrowed and anachronistic nationalism.

Notes

- (1) See http://www.nistea.com/media/internet/crestinism_si_globalizare.htm.
- (2) China represents a special case whose development and extraordinary growth rate is due to a multitude of factors.
- (3) http://cssas.unap.ro/ro/pdf_carti/Perspective_ale_securitatii_si_apararii_in_Europa_vol3.pdf, 10.11.2011.
- (4) www.mmssf.ro.
- (5) <http://clubeuro.ro/club/?p=85>.
- (6) <http://www.theinvestor.ro/media/identitatea-romaneasca-reinventata-prin-marketing/>
- (7) <http://www.wall-street.ro/articol/Companii/102818/De-trei-ori-mai-multe-multinationale-decat-grupuri-de-firme-romanesti.html>.
- (8) <http://www.wall-street.ro/articol/Companii/5141/Multinationale-romanesti.html>.
- (9) Simpozion - Globalizare și identitate națională, 18 mai 2006, București – Editura Ministerului Administrației și Internelor, București, 2006

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Economic fundamentals: between consecration and contestation

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Abstract. *Currently, the whole world has fallen prey to the most profound and long recession in the history after the war. Based on the causes and effects of the current crisis, can we say exactly which is the best economic trend that evokes the reality of today? Representatives of classicism, neoclassicism, Keynesianism, monetarism, economic liberalism etc.? Economic laws will remain in the same stage or will change? Certainly, there will be an adjustment in economic thinking and the economic crisis will force us to choose a different economic model, based primarily on rationality, morality and temperance.*

We can even say that a quick return to the Middle Ages, the economic thinking of the scholars, who maintain those principles of economic life dependent and religious morality, by accepting the conditions of inequality as a source of virtue practiced, and detachment from wealth, combined with the principles of economic life in capitalism, could lead to a moral economic model, linking the two categories of facts: religion and economic development, as Max Weber stated in his book "Protestant Ethics and the Spirit of Capitalism".

Keywords: global economic crisis; government role; Keynesianism; neoclassicism; economic liberalism.

JEL Codes: G01, H12, E12.

REL Code: 6E.

The purpose for studying economics science is not finding ready-made answers to economic problems, but learning how to avoid being misled by the economists.” (Joan Robinson)

Taking into account the three years since the onset of the most severe financial and economic crisis from the last decades, the world economy seems to no longer find its way to a new economic cycle. How it evolved and still involves the global economic crises is forcing us to meditate how much things have taken a wrong turn, how soon has it happened and, especially what can we learn from this experience. What is happening in the world is proof of the most obvious that economy can not adjust itself. As the prophet of the economic crisis, Nouriel Roubini, said, Karl Marx was right when he stressed the idea of self-destruction of the capitalism, because you can not transfer income from labour to capital without having to register an excess of production capacity and the lack of aggregate demand.

The unique feature is the fact that the current crisis is a crisis of the balance sheets, a credit excess whose origin is found in the financial sector. The credit is the air the markets breathe, thus infecting all types of toxic credit assets. However, professionals have not managed to foresee the crisis, not even when the economy suffered from imbalances, because their models stated that the markets are always right and they have developed new theories to explain why the markets behaves in this way. Therefore, we must understand that to avoid harm caused by free functioning of markets, government intervention is required by adequate regulations to prevent excesses, abuses and damages incurred by all citizens.

In this respect, we could give right to Keynes' point of view, when he agreed to the interventionism in the economy, unlike the economic liberalism that is committed to laissez – faire formula. Keynes made his famous observation that “ in a long run, we are all dead” in the argument against the value of long-term economic forecasts. He believes that the variability of the basic relations of the economy was likely to turn the projections extended into something very uncertain. And he was extremely skeptical about imposing heroic sacrifices now for the sake of distant benefits promised by the economists. This is in itself a good reason to reflect on economic fundamentals known so far. The current economic crisis confirms the validity of Keynesian ideas to accumulate resources in times of economic boom to finance the government fiscal stimulus needed in times of recession. Economic activity is not only a technical operation without regard to morality, although in the past ethics and economics were united, and now the two are separate, this is a negative aspect that can generate a serious economic situation worldwide.

The difference between monetarists and neo-Keynesianism representatives is small. Both theories are built around economic models that focus on mathematics and on the assumption that the natural state of a market economy is in balance. Neo-Keynesianism officials emphasizing on mathematical models was an important step that has been removed from the importance attributed by Keynes himself to non-quantifiable factors. They were more likely than the monetarists to accept that there are rigid elements the real economy – the privileges, trade unions, illegal combinations – which often impedes a very effective balance. The long years of the Great Depression was a clear example of an economy blocked below its real potential. But they think they can successfully force the economy to bring it in a more desirable condition, by a well thought measurement, in the form of a reduction in taxes or increased spending.

Is it time to give justice to economic analysts stating that the crisis will mean the end of capitalism? It is hard to say. But economic theories will certainly change, as has been observed in all periods of economic crisis. The effects of economic collapse in the years 1929-1939 due to reduced consumption led John Maynard Keynes to support government intervention, a theory that was accepted as a solution to the economic decline of the saving of those years, by creating new jobs, which will determine the welfare, but the long-awaited growth also. Later, in the 1940s, the Bretton Woods system changed the theory of reference currencies and the oil crisis of the '70s showed that Keynes' theory no longer functioned, marking the appearance of Milton Friedman, the leader of the Chicago school, which stands on for the minimized role of the state supported, the demand and the supply should confront and find themselves the balance, the neoliberalism operating until recently. Recent developments, the Fed and central banks that engage increasingly more, Nobel prize awarded to a neokeynesianist, many analysts issue an opinion that the state is actually saving the economy. The fundamental idea of economics, which dominated economic thinking for more than two centuries, refers to two concepts: economic liberalism and economic totalitarianism. First economic trend supported a non-interference in the economy, the exchange being achieved by the supply-demand mechanism. The "founding founder of economics", Adam Smith, stated that "*invisible hand*" is present on the market and that lead producers to promote the interests of society. On the other hand, economic totalitarianism means that the individual is subordinated to the state, his rights deriving from his own will. Neoclassical concept is among the essential foundation that the state is located above economic interests, with a small role in the economy. Twentieth century – considered by neoclassical economic as a self-limiting system, considering that the manufacturer creates its own demand by its supply.

Between these two extremes, Keynesian dirigism admitted inability of the market to self-regulate through market mechanism with free competition, suggesting to complete it with the state intervention to correct cycle imbalances and prevent them from amplification. The theory of dirigism supposed that the negative economic effects, like inflation, recession, unemployment can be prevented by the state interventionism.

Economics provides a theoretical analysis and interpretation of issues such as how to reduce inflation, how to ensure full employment of labor and reduce unemployment, the government's macroeconomic policies, why the evolution of the economy is cyclic and what are the causes of the cyclic evolution, the ways to increase national income and its distribution, etc.

The appearance of new theory of economic regulation has not diminished the controversy between the two trends of economic adjustment mechanism. Liberal current assigns the imbalances in the developed countries to state intervention in the following domains: income, prices, loans, savings. Milton Friedman argued that any intervention in the economy disturbs the money supply and that the monetary stability would be an essential component of the economic stability. Paul Samuelson believes that the government intervention in economic life should be as most limited and indirect having the the main objective balancing the supply and the overall demand in order to ensure balanced economic growth. James Tobin, considering theory of state intervention in economic life, is in favor of an active role of state intervention in economic life, mainly through the state central bank, in justified cases, through fiscal policy.

Another economic fundamental to be reviewed is the answer to the famous dilemma: "*Should good laws or good people lead?*". If almost all economic trends answered "good laws", today's reality shows that this is not enough: good laws must be implemented by good people, taking into account the consequences of their actions and decisions. Without the existence of morality, the effects can be disastrous in any fundamental domain, especially in economics. The example of economic crisis speaks for itself, people want more material goods than their purchasing power can buy, which in time generates major structural imbalances, amplifying the signals of not speeding-up of the world economy, in the context of mitigating the impact of the expansionist macroeconomic policies implemented in crisis' context. However, we can not say that we are witnessing a conflict between the economic schools: Keynesian school, adherent to stimulate aggregate demand through the intervention of macroeconomic policy, neo-Keynesian school, which emphasizes the importance of reducing spending and budget deficit for the economic recovery.

In economics, as in anatomy, a group is more than the sum of its parts. Traditional economic science says that people's motivation and economic institutions that are involved in these slowly changes, that once economic truth is established, this is largely immutable, like in physics or botanical science.

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