

The Human Economy

“The new capitalism, one of the moving forces of globalization,
remains somewhat a mystery.
Up until now we still don’t know very well how it works.”

Anthony Giddens

The conceptual construction of Classical Economics targeted the rationalization of performance. This means that the determinants of the specific goal of the economy are eminently under the influence of Reason. The objectivization of an implacable-mechanism type of certifying performance is insured by the Market.

The particular form of performance for the economy is efficiency. The testing of efficiency is an exclusive attribute of the Market. As efficiency is the expression of a rational linking of resource allocation with quantitative gains condensed in wealth, the Market has an objective-function of maximizing effects.

In other words, the Market does not structurally distinguish resources, being interested only in the formula combining them to generate efficiency. The essential operation of the Market with regard to resources is their efficient allocation.

The indistinction preferred by the Market among resources – perceived as production factors – is compatible with the rationalization assumed by the Classical Economy as its fundamental creation. Rationalization meant, before anything, that the economy be populated by Homo Oeconomicus, a creature of the imagination endowed only with capacities of rational calculus.

The direct consequence of the rational option for Homo Oeconomicus was the rationalization of the human nature, its subscription as an economical resource. Furthermore, it was arrived at reducing the perception of man to a single dimension, which can be rationalized, that of labor force.

The human nature is transformed by the Market in a resource not unlike those provided by Mother Nature.

In this way, an inversion of perspectives is achieved through which the purpose of existence becomes a means fit for rationalization. The economy parts with its condition as a means for achieving the purpose embodied by the quintessence of existence and by the highest expression of the evolution of the living world. Wealth confers legitimacy to the economy as an end in itself, made autonomous, even emancipated of social obligations. The economy accepts Nature, including – may be especially! – Human Nature as a reservoir of resources. Economics perceives Society as an extended resource base.

Classical Economy, in its expansive formula, pushes society into the grinder of the Market. The triumph claimed by Classical Economy is of making the Market Society functional.

A market society is a world with no part left unrationalized.

The inclusion of man in the category of resources and, by this, as a variable in the primary equation of the economy signified the rational legitimization of the economical theory and the validation of the efficiency of economic activity. Except that the method of efficiency, by rationalizing the human being, has exhibited cannibalism at the rank of natural necessity. The purpose of wealth is shown to be a purpose in itself, the pure power whose reification makes it sufficient unto itself. Its promotion means the promoting of homophagia.

The formulas for regulating the functions of the economy, generated by the democratic propensity wealth, is ideologically loaded with, create episodic difficulties to the homophagic economy. The delocalizing of homophagia is the politically correct expression for the freedom of movement of power, under the form of capital especially. Where the rule of the secularization of the cannibal mystique of wealth appears and the networks of cultural and moral protection of the human resource are developed, the relocation of the landed homophagia of wealth is being practiced.

The economy is an invention which self-protects, by constantly separating itself from the society that manages to become the exercise of the rights and responsibilities of the individuals within it. The adaptation of the economy to the values of a society looks every time like the losing of the cohesion of that society. As it centers exclusively on the concept of wealth the economy will not have the potential to sustain the social reference points of justice, the moral norm and the determinants of human nature.

If we accept as truth the fact that in the spiritual universe of the Greeks and Romans – the human pattern of our origin – life’s star reason was comfort, in whose name theft and pillaging were exempt from moral sanction, then the generic spiritual universe of man has an insolvable problem in the method of the economy. Human evolution, in order to be aligned with the law of efficiency, must signify the annulment of the origins, of the spiritual fundaments of the European type of personality.

We arrive at an essential crossroad: if the economy stays what it is, the universe of humanity will be definitively rationalized, the marketization is absolute; if man must stay what he is, an ineffable mix of reason and soul, the economy must remove man from equation of rationalization. In this case the objective-function of economy is happiness, with welfare as its objectivized form. Which means, Economics cannot be classical anymore, but it becomes humane.

Quot tamen potest esse aliter.

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The Analysis of the Reaction of the Romanian Companies Supplying Electrical Energy to the Modification of the Geopolitical Context and of the Internal Legislative Frame

■

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Abstract. *Supplying services in the electrical energy domain that corresponds qualitatively, at acceptable prices, in the context of the respect of the environment preservation standards and of the security of the supply, in accordance with the demands of the economic growth, represents a main component of the lasting development. In the 9th chapter of the 21st Agenda is stated that “energy is essential to the economic and social development and to a better quality of life”. At global level, given the current technological conditions and the permanent growth of the quantity of resources used, a large part of the energy is produced and consumed in an unsustainable manner. The necessity of controlling the greenhouse gas emissions and of other polluting substances imposes the increase of the efficiency of production, transportation, distribution and consumption of the energy and the growth of the use of renewable energy sources. All energy sources must be used in a manner that permits the respect of the environment on the whole. The operational research executed let us state that the defining elements of the geopolitical context influence the behaviour of the companies supplying electrical energy, which has an effect in any branch of the national economy. Such an approach is useful in the determination of the impact of the increase of electrical energy prices on the vulnerable sectors of the national economy.*

Key words: analysis; electrical energy; geopolitical context; market.

■

Energy, in general, and electrical energy, in particular, are essential to the economic and social development of any country, respectively to the growth of the quality of life. At global level it was noticed the unsustainable consumption of a large quantity of the produced energy, including electrical energy. More, the problem of the use of the energy sources with the respect of the environment in its ensemble appears often, practically eliminating the possible polluting sources. Given the role of the electrical

energy in the lasting development of an economy we considered useful to identify the characteristic elements of the geopolitical context that influence in a decisive manner the behaviour of the companies providing electrical energy, in order to, in an ulterior approach, be able to identify the possibilities of increasing the efficiency of the activities of these companies, this one being, in our opinion, the way to the sustainable consumption of the produced energy.

1. Defining elements of the geopolitical context that influence the behaviour of the companies supplying electrical energy as a public utility service

The undertaken research led us to the opinion that the behaviour of the companies supplying electrical energy is clearly influenced by the defining elements of the geopolitical context, such as the degree of energetic security, the degree of energy efficiency, the degree of promotion of the renewable resources, the way of functioning of the energy markets, the competitiveness in the energy field and the new technologies, the restrictions concerning the protection of the environment, the features of the social frame in which the company activates, with an accent on the degree of accessibility of the consumers to the energy services.

The degree of energetic security of a nation constitutes one of the elements with a direct impact on the behaviour of the companies supplying electrical energy. It depends on the degree of diversification of the offer in the electrical energy field, respectively on the security of the distribution networks.

The situation of the electrical energy supplying in the countries members of the European Union is characterized by:

- The increase of the energetic dependence of external energy resources. Taking into consideration the present prognosis, in about 20-30 years the dependence of the EU Member States on importation in the domain of electrical energy will reach 70% (90% for oil, 80% for gas and almost 100% for coal). Even more, the acceptance of new members in the European Union emphasizes the energetic dependence, because the new entered countries will increase the imports in the domain of natural gas (to almost 90% of the present demand), but also in the domain of oil (to almost 94% of the present demand) and they will transform from countries exporting coal, as they are presently, into importing countries of about 12% of the coal necessary in the perspective of the years 2020, given the reorganization of this sector;
- The highly limited capacity of these states to influence the conditions of the energy offer and to answer to the challenge of the climatic change.

The energetic dependence will have different effects on the EU members varying with the degree of economic development and political stability. So, the more emphasized the degree of dependence of a country is, the more the energy offer will be more instable, which will generate an accentuated growth of the electrical energy prices with disastrously effects on the living level and on the territorial economic development. Moreover, the prices of the energetic resources, with a direct impact on the

electrical energy prices, also depend on the extent in which these resources, presently the oil, the natural gas, the nuclear energy and the coal, benefit of an international market.

The future of the electrical energy production depends more and more on these resources, especially on natural gas, the consumption of these being less polluting, so, at a global level, for 2025 it was predicted the doubling of the consumption of natural gas for the production of electrical energy (especially in the countries where the dependence on hydro-energy has created problems due to the large periods of drought). The respective previsions took also into consideration the statistics of the period 1970-2001, according to which the consumption of electrical energy based on natural gas grew annually with 6,9%, occupying the second place from the evolution's point of view, after the evolution of the consumption of electricity based on nuclear energy, which, during the same period, registered a growth rate of 17,5%.

Nuclear energy is another option for the production of electrical energy, but an expensive option in comparison with natural gas or coal, especially because of the restrictions in the domain of the plants' security and of the storage of the radioactive wastage, since the production method and the explored material (uranium) are extremely harmful to the environment. Despite all these, 19 countries insure at least 20% of the electricity necessary using nuclear sources. The global previsions for 2025 in the electrical energy field show a growth of the global nuclear capacity to 385 GW, against 353 GW in 2001, the capacity supplements taking place especially in Asia as it seems (China, India, Japan and South Korea). The European Union has a 95% degree of dependence on the uranium importations, nuclear energy in this area levelling about 23% of the installed capacity of electrical energy production. Nevertheless AIE (Energy Outlook 2004) forecasts a decrease of the weight of nuclear energy in the global electricity offer from 16% in 2001 to 12% in 2025, by taking out of use the groups finding themselves at the end of the normal life period without installing new capacities, given the environment pollution degree that such a capacity implies.

Renewable energy resources contribute to the strengthening of the energetic independence, due to the growth of the offer in the domain. Renewable resources may become in perspective the key to the solution of the problem of the access to the electricity and heating in rural areas, also taking into account the fact that these resources are less polluting, being considered "ecological" resources. In the perspective of year 2025, the global consumption of hydro-energy and of other renewable resources will register a moderate growth. Most of the renewable energy sources will not be able to compete, economically, with fossil fuels, at least for a medium period of time. AIE forecasts for 2025

a growth of 57% of the consumption of electricity produced from renewable resources. In the European Union it was established, by the Directive regarding the promotion of electricity from renewable energy sources on the internal electricity market (2001/77/EC), a goal of 22.1% of the gross consumption of electricity of the 15 member states at that time for the electricity resulting of renewable sources.

The degree of energy efficiency represents another element that influences the behaviour of companies providing electrical energy. The more the energy production increases reported to the quantity of primary energetic resources consumed, the more the companies activating in this domain will reduce the investments necessary in the energetic infrastructure and the expenses for the growth of the competitiveness of their economic activities. Presently, the measures for the increase of the degree of energy efficiency didn't lead to the valorisation of the economic potential of energy preservation not even in the market economies, because the specific markets do not function yet perfectly, and in front of the measures for the growth of the energy efficiency there are barriers such as:

- The lack of information in the domain of knowledge and procedures;
- The lack of the capital necessary to the accomplishment of the investments, respectively to the financing possibilities, especially because of the uncertainty related to the investments' efficiency determined by the extremely high costs in the field of the implementation of new electrical energy production technologies, but also by the high transaction costs for the end product;
- The consumers' behaviour, the habits, the inertia.

According to the statistics in the domain, presently more than 60% of the primary energy obtained is lost during different stages of its transformation and of its use and more than 60% of this loss takes place in the stage of the final consumption. So the electrical energy production technologies are not responsible for the waist in the domain, they are even advanced and capable of catching a large part of the entire economic potential of energy preservation.

The same statistics show that, presently, AIE countries use with 45% less energy to create a GDP unit (Gross Domestic Product), which reveals the growth of the energy efficiency degree of these countries (the growth of the energetic intensity) and, indirectly, the development of the technological level in the electrical energy production domain. The situation was possible because of the structural changes of the economies of these countries, by the reduction of the importance of the energy-intensive sector in the economy, but also due to the change of the consumers' behaviour, further to better information in the domain and to the state's intervention in the field by

establishing norms, quality standards and financial arrangements.

The EU objective concerning the intensity of the final consumption of energy is its annual reduction by 1% starting with 1998. The European directive regarding the energy efficiency of the final consumption and of the energetic services (COM (2003) 739) establishes for the years 2006-2012 the annual saving of 1% of the entire provided energy. All these because, according to the previsions, the growth of the energy efficiency rate with 1% would mean the valorisation of two thirds of the available economy potential until 2010, which will mean the avoidance of 200 million tons of CO₂ emissions. Romania must also become a part of this objective and as a member of the EU Romania must respect its strategy in the energetic field and align to any legislative stipulations in the domain at the Union's level. So, from the year 2000, at the level of the European Union two legislative acts have been adopted that have been laid at the foundation at the Union's strategy regarding the energy efficiency, strategy comprised in:

- The Action Plan for Energy efficiency;
- The European Climate Change Programme.

The European Commission has also adopted in the energetic field, on 22 June 2005, the Green Paper on Energy Efficiency (Doing more with less), whose objective is to realize energy savings equivalent to 20% of the Union's actual consumption, by a number of multi-annual programs among which there is "Intelligent Energy for Europe" (2003-2006) and which suggests a series of actions meant to contribute to the increase of the energy efficiency, such as:

- The elaboration of annual action plans by which it would become easy to identify the measures that have to be taken at national, regional and local level. The action plans may be completed with comparative analysis at European level in order to insure a fast dissemination of the best examples at the Union's level;
- The insurance of a good information of the citizens by advertising campaigns and a better labelling of products;
- The improvement of the taxes' system in order to respect the principle "the contaminator pays", without increasing the general level of the taxes;
- The improvement of the administration of the state aid for the stimulation of efficient energy use;
- The creation of new technologies for the energy preservation;
- The use of new or improved financing instruments at the Union's level, but also at national level, in order to offer stimulants (not aids) to the firms and households;
- The focusing of the attention on the improvement of the buildings' isolation.

The European Commission's decision in the energy field supports the Union's efforts for lasting development. Also in this purpose, the European Commission decided to constitute the European Sustainable Energy Forum, by the model of those in Florence and Madrid – successful examples in the accomplishment of the consensus on the liberalization of the energy market. The forum, which will put together the European Commission, the member states, the European Parliament, the national agencies for regulation, the representatives of the energy industry and NGO, will outline, in 2006, a concrete action plan in the domain.

The energy markets reform aimed especially the transfer of the taking the decisions process from the state to the private companies and to the consumers, the gradual substitution of regulated monopolies with open and competitive markets. The countries which have passed to the reform of the energy sector benefit from a more dynamic and more transparent industry, from an accelerated technological development and an entrepreneurial approach of energy exploration, production and distribution activities. The reform of the energy markets allows their efficient functioning with lower costs. It isn't less true that the involvement of the state is still necessary for various reasons: the long-term uncertainties, the fact that the markets don't always take into consideration the ecological and social objectives (including those of the security of the exploitation and the health of the population), the character of natural monopoly of the natural gas and electricity transportation, the global nature of some problems such as the climate change. It happens that the market's prices do not reflect the integrated ecological and social costs, disorienting the consumers' choices. The correction of the market's signals in order to encourage the rational use of energy – including by the reduction of the consumption and the change of its structure in favor of ecological goods and services – can be realized by a large scale of economic instruments such as taxes or the commercial pre-requisites.

The liberalization of the energy markets in Europe contributed a lot to the reduction of the market's prices for the consumers and exposed a large part of the energy providing chain to the pressure of the competition. Moreover, the liberalization process influences directly the energy security level and the prices' variability on medium and long-term. On a liberalized energy market, there must be a mechanism of stimulation of the investment projects which take into account the long-term priorities determined by the imperatives of the energy security treated at national level, but also at the level of the European Union.

On the 1st of July 2004, the new Directives of the European Union concerning the Gas and the Electricity became valid and they opened the way to the complete

and coordinated opening of the energy markets in Europe. In what concerns the electrical energy, *The Directive of the Electricity* and the other trans-border regulations that find themselves at the foundation of the *Single European Market* impose common rules regarding the access to the networks, the structure of the energetic companies, their obligations in the public utilities domain, the harmonization of the tariffs. In these conditions, the success of the integration of the energy markets depends on the ability of the decision factors in the elaboration of energy policies and the regulative-legislative frame, on the capability of the actors on the market to anticipate the new challenges that will stay in their way and on their commitment to cooperate for the accomplishment of an single market.

The model of the liberalization of the energy market of the Union is an unprecedented global experience which imposes finding the answers to problems such as maintaining the reliability of the electrical energy providing services in a competitive environment, the methods by which the electricity market can become attractive and profitable enough in order to bring sufficient investments in the energy production capacities, the ways by which the tradition of quality public services can be maintained, the possibilities which can provide the concordance between the environment preservation policies and the appropriate functioning of the single energy market, the possibilities of the companies providing electrical energy to remain powerful and profitable in higher risk conditions.

The Directive of the European Union no. 92/1996 established for the member states and for the candidates the obligation to create the mechanisms of the competitive market for the activities of energy production and supply, respectively the possibility of the consumers (who respect the eligibility criteria) to change their supplier.

The competitiveness and the new technologies represent other defining elements of the electrical energy supplier behaviour. The World Economic Forum, in its report regarding the global competitiveness (*Global Competitiveness Report*), uses two main competitiveness evaluation indicators: the growth competitiveness index and the current competitiveness index (WEF, 2002). The first indicator takes into account variables such as *innovation* (the technological sophistication degree, the engagement in the superior education, the expenses for research-development etc.), *the information and communication technology* (Internet access in schools, the number of Internet users, the competition's quality in the communications' sector etc.), *the corruption level*, *the legislative and contractual frame* (the favouritism promoted by the decisional factors, the independence of the justice, the rights of property, the organized crime) and *the macroeconomic environment* (the budgetary surplus/deficit, the real exchange rate, the access to credits). The indicator of the present

competitiveness takes into account variables such as *the complexity of the companies operations and strategies* (the innovation capacity, the products design oneness, the production processes complexity) and *the business environment quality* (the development stage of the industrial or company chains, the level of collaboration for products and processes, the level of the state's subventions).

The United Nations Industrial Development Organization proposes, in addition to all the above, the classification of national economics by the competitive industrial performance index – IPI, which informed of four primary industrial performance index: (a) *the added value in the processing industry, per capital* (VA); (b) *the exportation of processed products per capital* (the quantificational the export catches, among others, the capacity of national industry to follow the technological changes, at least for the exported products); (c) *the weight of medium and high technological activities in the VA* (the bigger the weight of medium and high technological activities in the VA is, the more technological complex the industrial structure of a country is and the more competitive the industry is); (d) *the weight of the medium and high technological activities in the exports*. The analysis of the technological structure of the exports may reveal the industrial structures that lay at the grounds of competitiveness at an international level. During the last 10 years, the highest growth rate of exportations was registered for the products based on science.

The classification of countries by the industrial performances indicator shows that, among the countries with an economy in transition, the leaders are the Czech Republic, Hungary and Slovenia. Hungary has improved its position by 7 places, while the positions of Romania and Poland have deteriorated (table 1).

The classification of countries by the industrial performances indicator

Table 1

Classification		Country	The indicator value	
1998	1985		1998	1985
1	6	Singapore	0.883	0.587
2	1	Switzerland	0.751	0.808
3	15	Ireland	0.739	0.379
4	2	Japan	0.696	0.725
5	3	Germany	0.632	0.635
6	5	USA	0.564	0.599
7	4	Sweden	0.562	0.633
8	7	Finland	0.538	0.494
9	8	Belgium	0.495	0.489
10	12	Great Britain	0.473	0.426
24	-	Czech Republic	0.243	
27	34	Hungary	0.239	0.088
28	-	Slovenia	0.221	
34	25	Poland	0.143	0.176
41	37	Romania	0.095	0.072

Source: United Nations Industrial Development Organization (UNIDO), *Industrial development report 2002/2003, Competing through innovation and learning*, Vienna, 2002.

In 2005, with the Report Industrial Development, UNIDO completes the IPI structure with another two indicators: *the weight of the processing industry in the GDP* and *the weight of the processing industry in the total exports*. A new indicator resulted composed of six primary indicators – index of industrial and technological advancement – ITA. So, ITA has two large components: the industrial advancement and the technological advancement.

The durability supposes that the energy offer must be diverse, without CO₂ emissions and the energetic intensity of the economies must be as reduced as possible. In consequence, the most attractive technological domain is that of technologies with zero emissions. That is why, we can say that the present determinant for technical advancement in the electrical energy production field is *the preservation of the environment* the administration of interactions between the public utilities supply services (especially of the energetic ones) and the environment remains one of the most important challenges that is now in front of the decision factors. The production, the transportation, the use of energy affects the environment from the primary energy resources extraction phase to the one final consumption. The dimension of the impact on the environment varies significantly in function the recognition and combat degree of the ecological risks by regulation actions or by the price structure. The fossils fuels burn is responsible for about fifth of the anthropical CO₂ emissions. The energy sector contributes, also, to the methane and azoth oxide emissions by the activities of extraction and transportation of coal, natural gas and oil and to the problems connected to waist management, especially of the radioactive ones.

The European Commission in the domain starts from the premise that between economic growth and the maintenance of an acceptable level of the environment quality there is no inner contradiction, thus the integration measures of economic and environment policies should reduce the pollution and improve the economy functioning performances in the same time. In its report to the European Council and Parliament, the European Commission pleads for a number of solutions of improvement of the environmental products and services markets functioning such as the right establishment of environmental goods prices, the definition of the property rights for environmental goods and services so that these could be applied by law and commercialized, the determination of a price to pay (under the form of a tax) for pollution, the establishment of a reimbursable guarantees system in order to encourage recycling, the subvention of goods and services that generate positive ecological effects, the negotiation of specific agreements with the industry, the intensification of information supply about ecological features of goods and services.

The social frame and the accessibility of energy services represent an important aspect regarding the behaviour of an electrical energy supply company, as a public utility service. The capacity of a nation to identify the role of the energy in the lasting development, respectively in the improvement of the problems occurred due to poverty, will determine that at national level there must be programs allowing an easier access to the energy services.

2. The impact in Romania of the geopolitical context defining elements that influence the behaviour of the electrical energy supply companies

Romania has a high degree of energy security, in the perspective of years 2015-2020, only about 15% of the electrical energy necessary being dependent on gas and oil importation, the rest of the electrical energy being nuclear or coal based. So, Romania has the necessary uranium sources for the functioning of the group 1 of the Cernavoda nuclear-electrical plant for until 2036, respectively for the functioning during 40 years for the group 2. In what concerns the coal in our country, the lignite production satisfies the electric plants internal demand. For pit, on the contrary, thermo-centrals resort to importation. In the perspective of year 2015, coal weight in the electrical energy production will grow to almost 45% (lignite about 35% and pit – 10%), growth due to the competitiveness of the coal centrals in comparison with those based on hydrocarbons.

In what concerns the oil, In Romania, in 2004 were imported 7,312 thousands ton of oil, respectively 1825 thousands of oil products. In the same year, the thermo-electrical energy production based on this type of resource levels 5.4% (in against 8.4% in the precedent year) of the

production total. The future oil pipeline Constanta – Trieste will have a 60 million oil tons capacity, against the initial plans that indicated a level of only 5-10 millions of tons. Among the factors that have determined the modification of the strategic options concerning the oil pipeline there are the development of the oil production in the Caspian sea area, the reduction of the oil reserves in the North sea, the growth of the oil price at international level and the increase of the consumption on the markets in China and USA. The oil pipeline, about 1,360 km long, will be called the Pan European oil pipeline.

Romania's national strategy in the energy efficiency domain establishes a reduction, by the end of year 2015, by 50% of energetic intensity (optimistically script), by 40% (moderate script) and by 30% (pessimistically script), in the conditions of an estimated dynamic of the GDP of 5.4% for the period 2003-2015.

As most of the countries in Eastern Europe, in Romania the energetic efficiency suffers from the existing disequilibrium between the high conservation potential, and the insufficient allocated resources. Romania must learn from the example of some former communist states, like Hungary, Slovakia, Slovenia, that have registered remarkable results in the domain. So, Hungary integrated the energy saving problem in the medium-term economic development plan (the Szechenyi plan, 1999). In 2002 the Slovakian government, with the support of the World Bank, elaborated an action plan for the 2002-2012 period that established a substantial financial aid from the state for energetic efficiency programs and institutions. Slovenia has adopted in 1996 a program meant to improve the energy efficiency, the Energy Efficiency Agency benefiting of 5.3 million euros (in 2003) financial aid from the state.

The evolution of energetic intensity in different countries of the world, for the 1994-2004 period
(kgp/1000 euro)

Table 2

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
EU(25)	231.3	230.4	235.0	227.6	224.2	214.9	208.8	209.7	206.5	207.6	204.9
EU (15)	206.1	205.4	209.4	202.7	201.0	195.7	190.5	191.4	188.4	189.5	187.5
Germany	177.2	175.2	179.2	174.2	170.2	163.9	159.7	162.5	158.7	161.0	158.8
France	196.7	199.7	209.3	198.6	197.7	191.0	186.6	188.3	186.1	188.5	185.5
Italy	187.3	192.4	190.1	189.0	191.4	190.9	186.9	184.0	184.1	189.2	189.1
Hungary	730.6	740.6	747.5	700.5	661.9	642.0	600.5	588.6	579.6	566.6	534.1
Poland	1064.8	962.8	972.9	878.5	792.3	730.2	680.2	673.5	654.2	623.1	586.6
Sweden	272.4	265.5	268.4	255.4	248.5	238.2	215.0	228.9	224.3	217.1	217.5
Bulgaria	2192.1	2326.0	2543.8	2392.2	2250.7	1986.6	1931.1	1930.0	1804.3	1769.2	1628.2
Romania	1724.3	1738.3	1793.3	1717.1	1638.3	1481.5	1457.2	1368.6	1316.5	1353.7	1227.0

Source: EUROSTAT, www.europa.eu.int/comm/eurostat/

Analyzing the data from Table 2, we notice the very good position of our country from the energy intensity point of view, in report with the European Union, but also

with the other member states. In 2004 Romania's intensity was still six times bigger than in the EU (25), even if the difference reduced each year beginning with 1996.

The situation changes radically, but in what concerns the final consumption per inhabitant, so that in 2004 a

citizen of the European Union consumers twice more energy than a Romanian one (Table 3).

The evolution of the energy final consumption in the household sector per inhabitant, in different countries, for the period 1994-2004 (kgpe/inhab.)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
EU-25	602.4	607.6	652.0	627.4	622.9	616.1	625.5	659.0	637.3	658.4	656.0
EU-15	610.5	616.7	667.9	642.4	645.3	637.5	655.3	686.4	663.0	685.5	685.0
Germany	753.5	772.6	839.5	834.0	816.5	765.3	879.5	933.5	896.4	931.8	933.2
France	622.0	608.4	671.0	631.3	646.6	659.0	635.3	679.8	630.3	667.5	675.4
Italy	431.7	469.2	479.6	466.8	489.5	518.1	497.7	519.6	497.5	519.6	519.1
Hungary	544.4	563.1	566.4	530.3	504.5	522.4	516.5	538.6	582.5	650.4	593.3
Poland	624.2	603.5	593.0	571.6	511.8	513.0	453.2	502.4	473.3	462.3	456.2
Sweden	951.2	911.0	961.8	930.0	923.3	867.5	851.1	844.2	853.3	777.8	795.5
Bulgaria	261.4	267.8	302.8	271.7	290.3	267.7	264.3	254.1	275.0	289.5	269.7
Romania	281.3	279.7	357.8	427.2	422.8	388.8	375.2	324.7	330.6	359.3	367.1

Source: EUROSTAT data processing.

In Romania the weight of electrical energy produced of *renewable sources* is provisioned to 33% of the gross national electricity consumption, for the same year, 2010. Romania has a technical hydro-energetically potential of 40,000 GWh/year (of which about 50% is already exploited) and an adjustable economic hydro-energetic potential of 23,000 GWh/year. In a medium hydrological year in Romania 16,080 GWh can be produced. Another renewable resource category is the aeolian energy, which for the developing countries represents a solution for rural areas, that can't be connected to the existent electricity networks. According to the evaluation and registered data, the temperate-continental climate of Romania and the variety of the landscapes determines the possibility of aeolian installations emplacement with a total power up to 14,000 MW, which would mass an electrical energy contribution of about 23,000 GWh/year, but because of the financial impossibility of Romania to acquire the technologies and the equipments appropriated for the aeolian energy exploitation in *The valorisation of renewable energy sources strategy* is mentioned that "in Romania, the weight of aeolian electrical energy in the energetic balance remains for now under the real possibilities of its efficient valorisation". In what concerns the solar energy potential of Romania, it levels up to 1,100 KWh/m²/year, the contribution of solar systems to the electrical energy production by photovalvic systems being of about 1,200 GWh/year. The necessary investments for the realization of photovalvic systems in a solar modules network decreased gradually during the last years; they were realized mostly in a differentiated functioning regime in the frame of research – development – demonstration programs for the alimentation of isolated consumers (individual households, social-cultural centres in the Apuseni Mountains, the Black Sea coast, the Danube Delta etc.), for

radio-telecommunication stations, for water pumping installations, public lightening or traffic signalization, all these registered as objectives in the rural electrification program; systems connected to the electrical network (photovalvic pilot stations with mobile panels, integrated immobile system etc.).

In the frame of the *electrical energy market* in Romania, the transaction of electrical energy developed until now on two market segments: the regulated market and the competitive market. According to the secondary legislation, the electrical energy market is competitive at the level of electrical energy producers and suppliers, and the transportation and distribution activities, considered as a natural monopoly, are entirely regulated with the respect of the principle of insurance by the network operators of the obligatory public service of connection, transportation and distribution of the electrical energy for the license owners. Beginning with the first of July 2005, the electrical energy market functioning regulations are established by the Commercial Code of the wholesale electrical energy market approved by ANRE. The transaction of electrical energy between economic agents takes place on the following markets:

- the market of bilateral contracts, regulated (negotiated);
- the next day market – PZV, which is a voluntary market, on which the energy is sold one day before the delivery, by selling buying offers;
- the equalization market, which is an obligatory market, where equilibrated energy offers or mode (increase decrease of power/, the producers.

For the first time, in 2002, Romania was included in the International Economic Forum Report. Concerning the competitiveness growth potential, Romania was placed, in 2001, on the 56th place and by the current *competitiveness* indicator on the 61st place.

The classification of countries by competitiveness growth potential and the current competitiveness index

Table 4

Country	Countries rank by competitiveness index	Country	Countries rank by current competitiveness index
Finland	1	Finland	1
USA	2	USA	2
Canada	3	Netherlands	3
Singapore	4	Germany	4
Australia	5	Switzerland	5
Norway	6	Sweden	6
Taiwan	7	Great Britain	7
Netherlands	8	Denmark	8
Sweden	9	Australia	9
New Zealand	10	Singapore	10
Hungary	28	Hungary	26
Slovenia	31	Slovenia	32
Czech Republic	37	Czech Republic	35
Slovakia	40	Slovakia	39
Poland	41	Poland	41
Romania	56	Romania	61
Bulgaria	59	Bulgaria	68

Source: World Economic Forum, Global Competitiveness Report, 2002.

In Romania, in 2002, the weight of medium and high technology activities in the added value decreased to 27.4%, against 43.5% in 1990. Also, the weight of the same activities in exportations decreased from 39.4% in 1990, to 31.5% in 2002. In what concerns the ITA, Romania registered an important regression in the 1990-2002 period, for the industrial progress component and, especially, for the technological advancement component. The international classification by the ITA in 2002 shows the supremacy of Asian countries.

The industrial performance index, in different countries

Table 5

Country	Industrial and technological growth index ITA		Industrial growth index		Technological growth index	
	1990	2002	1990	2002	1990	2002
Malaysia	0.269	0.457	0.523	0.646	0.515	0.707
Japan	0.466	0.456	0.620	0.590	0.752	0.772
Korea	0.338	0.439	0.625	0.652	0.540	0.674
Republic						
Germany	0.418	0.407	0.619	0.589	0.676	0.690
Malta	0.300	0.400	0.609	0.614	0.492	0.652
Hungary	0.253	0.396	0.534	0.626	0.474	0.633
Ireland	0.293	0.389	0.539	0.593	0.544	0.657
Switzerland	0.351	0.389	0.576	0.604	0.610	0.644
USA	0.338	0.371	0.496	0.529	0.682	0.702
Great Britain	0.328	0.353	0.515	0.509	0.637	0.694
Poland	0.208	0.236	0.428	0.554	0.487	0.426
Romania	0.269	0.171	0.650	0.581	0.415	0.295

Source: United Nations Industrial Development Organization (UNIDO), *Industrial development report 2005, Capability building for catching-up – Historical, empirical and policy dimensions*, Vienna, 2005, pp.161-163.

Regression of industrial performances notion factors is caused, mainly, by the lack of investment funds and the lack of trust of the foreign investors in the Romanian business environment. In addition to these there is also the lack of a coherent industrial policy based on the growth of the branches competitiveness.

The energetically integration of Romania in the European Union structures will signify, besides the fulfilment of the demands imposed by the existent legislation in the chapter “The Industrial Pollution Control and the Risk Management”, and the respect of the conditions established by two important documents in the domain: “The energy chart treaty” and “The energy efficiency protocols”; these establish the cooperation conditions in the energy domain and contain as main subjects the promotion of the fixation of the energy prices on the grooves of the market economy, the reflection in the prices of the environmental costs and benefits on the entire energetically cycle, the promotion of the energy efficiency, the use of clean fuels and of renewable energy resources.

For Romania, the electrification of all the localities needs an ambitious investment program, with a powerful economic and social impact, the finalization of which has as term the year 2007. By the HG no. 702/20 07 June 2003, Electrica engaged unionized credits for the financing of the rural and urban electrification works of 19.6 million Euro. In the frame of these works, it is mentioned that 287 localities with 15,433 households must be supplied with electrical energy.

3. The organizational structure of the electrical energy distribution and supply system in Romania and its main features

The energy sector is a strategically important sector; it constitutes one of the decisive factors for the social and economic evolution of the country. Because the operating mode of this sector has an impact on all the other domains of activity, the Romanian state has founded through the Electrical Energy Law no. 318/2003 the National Authority for Energy Regulation – ANRE, as an autonomic public institution of national interest, with juridical personality, that functions under the direct coordination of the Prime minister and on the basis of its own organization and operating regulation, approved by the Decision of the government no. 1816/2004, modified and completed by the Governmental Decision no. 1847/2005. According to the Law no. 318/2003, ANRE *elaborates, establishes and follows the application of the ensemble of national obligatory regulations, necessary to the functioning of the energy market and sector, in efficiency, competitiveness, transparency and consumers’ protection conditions.*

The present organizational structure of the electrical energy distribution and supply system includes eight

branches, among which two are privatized in favor of the Italian investor ENEL SpA (Electrica Banat SA and Electrica Dobrogea SA), one undertaken by the German company E.ON (Electrica Moldova SA), one privatized in favor of the Cez company from the Czech Republic (Electrica Oltenia SA) and other four owned by the society Electrica SA (Muntenia Sud, Muntenia Nord, Transilvania Sud, Transilvania Nord).

The electrical energy distribution network in Romania includes the electric lines of high tension of 110kV (18.3 thousands km), medium and low tension (117.7 respectively, 170 thousands km), the 110/M.T. and M.T./M.T. stations (1,222), as the transforming posts or the alimentation points (61,754). In the period 2000-2003 investments have been made for the total amount of 325,98 million US dollars, that have had for purpose rehabilitation-modernization works, electrifications (29,623 households have been connected to the electrical energy network) and projects in the automation, telecommunications and process informatics field (the implementation of the SAP R-3 management integrated system, of the distribution automation system etc.). During the same period the electrical energy delivered in the electrical networks has been realized in a proportion of 34.3% by SC "Hidroelectrica" SA, 2.1% by SC "Termoelectrica" SA, 9.8% by SC "Electrocentrale Bucharest" SA, 9.7% by SC "Complexul Energetic Turceni" SA, 9.4% by SN "Nuclearelectrica" SA, 9.3% by SC "Complexul Energetic Rovinari" SA, 6.1% by SC "Electrocentrale Deva" SA, 6.9% by SC "Complexul Energetic Craiova" SA and 12.4% by other producers. The concentration degree of the market power at the electrical energy suppliers' level is lower than in the case of the electricity production. Presently, a number of 112 commercial companies own electrical energy supply licenses. So, the market share of each of the eight branches of Electrica SA (four of them privatized) is comprised between 5 and 11%, insuring the captive consumers necessary. Besides these, a few other tenth suppliers activate that own altogether a market share of about 38%.

The declared purpose of the privatization of the electrical energy distribution companies was the attraction of necessary capital that would lead to their consolidation, the increase of the competitiveness and the insurance of fees that would allow the access of the population to the electricity supply services. The privatization strategy, the one of the capital injection combined with the stocks sale was preferred by the regulatory authorities. The flexibility for the accommodation to the practices used by the investors was also maintained.

The main problem that appears in the privatization field is the degree of novelty of the specific legislation and the lack of experience of the regulating authorities and of the market players in the use of this legislative. The first two electricity distribution and supply companies privatized were Electrica Dobrogea and Electrica Banat. The Romanian Government had to negotiate under the pression of the international financial organisms. In 2004 the decision was taken to list at the Bucharest Stock Exchange of a 10% amount of the Transilvania Nord and Muntenia Nord stocks.

The electrical energy sector needs a more intense regulation than many other activity sectors, as its organization structure has major implications in the national economy. The main objectives of the electrical energy sector regulation are the guarantee of the competitiveness in the sector, the consumers' protection and the implementation of the European directives regarding the energy market. The 22nd Article of the Electricity Directive stipulates that the member states of the EU create adequate and efficient mechanisms of regulation, control and transparency guarantee. In Romania, the National Authority for Energy Regulation – ANRE has the entire responsibility concerning the fulfilling of this demand. The commercial relations on the energy market determine the appropriation of special responsibilities by the two sides involved in the transaction, namely the supplier (understanding by that the whole chain production – transportation – distribution – supply) on one hand, and the consumer (no matter the nature: household, industry, eligible or captive) on the other. One of the main responsibilities of the supplier in the relations with the consumer is the quality of the delivered energy.

The electrical energy quality is a complex and disputed problem, and its complexity lays in the multitude of factors that influence the quality level, in their interdependence, in the lack of methods and means of precise and expedite getting of the information referring to the electrical energy quality indicators. Assuring a customers' security minimum level, as the transparency of the performances in the achievement of the supply service have imposed a new type of regulations dedicated to this service, *the performance standards*. The stipulations of these documents join those of the supply licenses and frame contracts, on this grounds being realized an unitary and synergetic frame for the supply activity. The introduction of performance standards is one of the measures stipulated in the purpose of the integration of the Romanian energy sector in the European energy system.

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Transaction of the Derivated Financial Products on the Romanian Capital Market. Advantages and Risks

■

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Abstract. *The volatility and the uncertainty are extended in the global world, being favorised of the vast proportion of the internet and by the IT development. The volatility and the uncertainty are contributing to the apperance of the speculative movements that increase the possibilities of the price overestimation of some financial actives on the new markets. The overestimated and optimistic foretell on the flow of some stock exchange deeds, on the new markets, lead to the collapse of the flow and to the fast migration of the capital on the other markets, reason for which the economy of some countries or big areas could be destroyed. Taking all this into account the development of the opperations with derivated financial instruments have offerd for the market participants bothe the possibility of hedging and a way of speculation. There are advantages and also disadvantages resulted from the derivated use. The derivated market, similar with the financial markets, either creates welfare, or destroies it, because provides a way to transfer the risk. The derivated help the financial markets to become more efficient and also offers better opportunities for the risk management. There is the possibility that the failure of some big transactions with derivatives to lead at the appearance of a systemic risk that could spread inside the financial system.*

Key words: futures contract; options; hedging; risk; derivated market.

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Clasification REL: 11B

In the last decades, we can see that the global economy has change thanks to financial high tide integration. The financial high tide has known a developed expansion, both inside of the economies of each country and global.

The collapse of the centralised economies has lead to an attraction for the new markets with high opportunities of investment in this way attractig the privat financial capital in the fast train finance of same extreme unbalance of the countries under way of development.

The volatility and the uncertainty are extended in the global world, being favorised of the vast proportion of the internet and by the IT development. The volatility and the uncertainty are contributing to the apperance of the speculative movements that increase the possibilities of the price supraevaluation of some financial actives on the new markets. The overestimated and optimistic foretell on the flow of some stock exchange deeds, on the new markets, lead to the collapse of the flow and to the fast migration of

the capital on the other markets, reason for which the economy of some countries or big areas could be destroyed.

Taking all this into account the development of the operations with derivated financial instruments have offered for the market participants both the possibility of hedging and a way of speculation.

Lately, the volume and the value of the operations with derivated financial instruments has surpassed the operations on sight markets. We well know that before the future markets are always the one sight markets, that operate with a well defined gamut of instruments and financial products. We can see an unprecedented growth of the derivated products (future and option), so that the nowadays financial market resembles with an overturned pyramid. The pyramid top represents what

should normally be the basis, that is the support actives (actions, obligations, coins, etc.) and the pyramid basis is represented by the derivated products volume.

This continuous development was and still is accompanied by the growing complexity of the derivated products, explained through the economic variables instability (the interest instalment, the exchange flow, the stock exchange index, etc.). The continuous development has led to the use of instruments drawn up for a good administration of the risks, that are more and more obvious.

The annual rhythm of growing for the derivated products market is stunning. We can see the annual rhythm of growing in the next table, the rhythm continuing to grow also in this period, being placed between 10% and 40%.

The volume of the derivated financial instruments that are transactionated-national capital

Table 1
Billion dollars

Instruments	2000	2001	2002	2003	2004	2005	2006	Jun2007
FUTURES	8.388,9	9.672,5	10.340,4	13.752,9	18.903,7	21.600,3	25.683,0	31.682,3
- interest instalment	7.966,8	9.265,3	9.958,5	13.123,7	18.164,9	20.708,8	24.476,2	30.165,1
- currency	61,0	65,6	47,3	79,9	103,5	107,6	161,4	201,9
- stock exchange index	361,2	341,7	334,5	549,3	635,2	784,0	1.045,3	1.315,3
OPTIONS	5.922,2	14.125,5	13.540,1	23.034,0	27.688,8	36.186,6	44.759,1	64.983,9
- interest instalment	4.719,2	12.492,8	11.759,8	20.793,8	24.604,1	31.588,3	38.116,5	55.985,5
- currency	20,4	27,4	26,6	37,9	60,7	66,1	78,6	101,2
- stock exchange index	1.182,5	1.605,2	1.753,8	2.202,4	3.024,0	4.532,3	6.564,0	8.897,2

Source: BIS Quarterly Review, December 2000-September 2007.

The growth of the operations volume is due to the opening of new markets, the appearance of new types of agreements but also due to the techniques improvement of the existent transactions. Now, the most important domain is the one of the interest. This domain registers a market share of 95,2% in the case of the future agreements and 86,2% in the case of the options agreement.

Nowadays, these structural situations, that are all over the world, have also a certain impact over the stock exchange market in Romania.

So in Romania the evolution of the derivated financial products market are enrolled in the global tendencies, confirming the expectations. The 2006 was an excellent year, an historic one for the BMFMS, the transaction value with derivated financial instruments being of 2.77 billions Euro. The future and the options agreement have known a remarkable growth taking into account the transaction volume size, the number of the transactionated agreements and the number of the opened positions. These were 6 times bigger than in 2005.

By comparing the evolution of the market of the derivated financial instruments in Romania with Poland and Hungary we can see that in 2005 the volume of the derivated financial instruments that have been transactionated was of 13% of the Warsaw stock exchange volume and 8% of the Budapest stock exchange, in 2006

the volume of the future and options agreements transactionated is comparable among Romania, Poland and Hungary.

So the volume of the operations with derivated financial products has overspread any expectation. Although, till now, there is no consensus regarding the way these products are being used and the reasons why the enterprises are using it.

There are advantages and also disadvantages resulted from the derivated use.

The main role of the derivated financial products usage and also the goal of their creation is that of instrument of control and administration of the risk.

The risk that the market prices will be modified before a transaction takes place is extremely high. The derivated products allow the operators to stick the price or the interest instalment at a present level, so that they could assure a protection against the opposite movements of the prices in the future (hedging). Taking into account the stunning volatility of the interest instalment, the exchange instalment and of the prices of other actives lately, the ability to be protect against the market risks with derivated products has become essential for a lot of business.

If the enterprises use the derivated to cover the risks, the actions volatility and their exposure to the market risks could be diminished after the enterprises will start to use

the derivated. In finance, the sensitivity of an action to the exposition of the market risks is typically estimated thanks to the regress coefficient. A study published in Journal Accountig& Economics in 1999 revealed that when the entreprises start to use the derivated, the action volatility diminishes with 5%, the exposition to the interest instalment diminishes with 22% and the exposition to the extern exchanges diminishes also with 11%.

The entreprises are also using the derivated from other reasones, like the speculation. The speculation is different from the hedging because is an activity used not for the protection against the risk. The speculation is an activity of taking a risk in the hope of obtainig a profit because of the price modification. The speculators provide the market with liquidity and this is the reason why the future markets become the places where we can not buy actives because these kind of markets sell the risk. The speculators make the market efficient regarding the prices because they oust the big differences between the buy prices and the sell prices. By taking the risk and bringing liquidity and capital, the speculators contribute to the guarantee of the market stability.

Also, the derivated allow to the individual and institutional investors to obtain incomes that normally they could not obtain without it or could obtain but with high prices. Because of the fact that the entreprises and the individuals can not obtain efficient incoms from the derivated by creating a department, the derivated make tha markets more complex, and they also make possible the risk covering.

Another important advantage of the derivated usage is the fact that the derivated make the *support active markets to be more efficient*. This thing is possible because the derivated markets produce important informations and the investors by thaking into account these informations can trasaction more cheaper.

We can say that the derivated products have the role of primary instruments of foresight, offering enough index about the present and future economic tendences. These can be a precious aid for the investments on long and short terms.

The conclusion is that by observing the future price we can foresight the market evolution, we can obtain high prices because of the market volatility and in the same time there is the posibility of protection against the risk of growts or diminish, with a reduced cost, that can be negociated at a broker agency.

Another advantage of the derivated usage is the fact that the derivated allow a certain income produced by an active to be decompose in its essential elements and in this way growing the active value. When the cash-flow is generated by an entreprise, the derivated usage to share the risk will lead to the growth of the value obtained by the stockholder and in the same time the value of the entreprise.

On the romanian capital market, although the derivated have been recently launched (1997), the advantages offered by them have been imediately identified and used by the investors.

A special advantage is the transaction on stock system that allows the transaction of certain active on the future market, and paying only a part from its value (10-20%). In fact it is not transactionated the active but its price. This transaction system allows an investor to play with the same money a quantity of actives of 5-6 times higher than on the spot market, the services extremely reduced being a very important advantage.

In the same time, on the future market it is possible to "sell what you don't have". Due to the fact that the derivated are not materialised, because they are payment agreements at a certain price an a certain term, an operation on this market can start directly through the agency of a sell. In this way a speculator can achieve profit both on the on the growth and the diminishing of the price, in contrast with the spot market where for now only the shopper has profit.

The both characteristics described earlier, together with the high degree of standardisation and the corelated movement beteewn the prices on the deeds market and the derivated on the deeds market have attracted on the BMFMS market a lot of speculators from the capital market.

The derivated market, similar with the financial markets, either creates welfare or destroys it, because provides a way to transfer the risk. The derivated help the financial markets to become more efficient and also offers better opportunities for the risk management. There is the posibility that the failure of some big transactions with derivatives to lead at the appearance of a systemic risk that could spread inside the financial system.

The potential ways in which a derivate could determine the appearance of the systemic risk appear in the situation when the exposition to the credit is focused in the hands of some dealers, if the market is not liquid or if the derivatives transmit the impacts on the one market to the other.

The danger of exposure to the credit appears because the dealers usually make derivated transactions among them on the OTC market. Because of the fact that the dealers avoid the organised stock exchange, they don't pay anymore the guarantees to the Clearing House that assure the agreement payment in case that one of the parts can not pay. Because of the frequent transactions among them, outside of the organised market, the probability of systemic risk appearance grows, and the difficulties of an entreprise can cause wastage and difficulties to other entreprises, the result being the threat of the financial system stability.

The danger of the markets less liquid is represented by the fact that the hedging strategies are not efficient if the actives can not be sell or it can be sell at low prices. This can lead to the incapacity of the enterprises to pay and the

risk transmission to the other enterprises. The danger of the gathered connections among the markets is the one that the failure of an important enterprise from a financial market from all around the world can affect and even can lead to the failure of other enterprises on the globe.

The globalisation makes that the bankruptcy of one of the most important dealers on the financial market to cause liquidity problems on the market and to subjugate the others players from the market to the risk, inclusively the federal banks and the financial system on its whole.

Althought there were some scandals around the derivatives, the enterprises go on using the hedging instruments to protect themselves against the fluctuations of the interest instalment, the price of the merchandise, the steady interest and the price of the deeds. In the last decade of this century, the risks have increased, everybody knowing that the risks have been caused by the corporations that used the future and the options instruments. These instruments have played an important role in the bankruptcy of the Orange Country, California, in 1994 and the fail of Enron in 2001. With all these evnts it is wrong to say that the hedging instruments were the primary reason of the scandals around the derivatives. The reality is that Enron eighter has unproper used these instruments or these instruments have been deceptives. If the instruments are used paying enought attention then the products and the hedging strategies can help the corporation to reduce the risks.

For some corporations the derivatives are very important. For example the companies from the energetic domain. In 2004 the barrel petroleum cost was 34 dollars and at the end

of the year, in October, the cost of it has grown to 55 dollars. If the corporations didn't use the hedging agreements, the business that depend of this fuel should have managed with a huge growth of the operational prices. The corporations are using the hedging transactions to protect themselves from a series of exposions like the fluctuations in the interest instalment, the marchandise prices, the deeds prices. More than that, in the domain of the business the hedging transactions against the risk of credit have grown, the exposition results from the point of vue of the debt of the other corporation. The companies can make hedging through the agency of a stock exchange, but the future agreements imply an important work because the parts must register the market value of the support deeds and to establish a certain profit or loss in contrast with the start flow. The derivate transactions that take place inside the stock exchange are used firstly by dealers or profesional traders. A lot of companies prefer to use the OTC market. To make a hedging transaction the companies are dealing directly with a dealer.

The instability that characterises the contemporary global economy is synonymous with the risk. With all the cristicism, the fluctuation of the interest instalment exists for more than 20 years, without achieving a possible system of replacement.

If the stability alternative is far, we can not talk about the vanishing of the derivated market.

In the absence of a global macro-economical coordonation, there is no sense to put the guilt on it. These markets are no more than the result of the mondial economy running, in conditions of risk and incertitude.

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Technology and its Strategic Implications

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Abstract. *The drawing up of a good strategy is, in many cases, influenced by factors found inside or outside the organization. Concerned to identify and diminish the obstacles created by many of these factors, the managers and the theorists, interested in understanding these phenomena, produced and implemented methods and techniques by the means of which the environment is analyzed and there are drawn up various strategies able to ensure the competitive advantage of a company. In the following, we will analyze the role of the technology on the strategy of an organization and we will see the advantages and inconveniences of certain unprofessional and irresponsible actions.*

The conclusions that result in the end support the need to use the technologies that favour the performance and to create partnerships that should favour an authentic accelerated development.

Key words: technology; strategy; competition; organization; sustainable investment.

1. The impact of the technology on the strategy of the organization

A careful review of the main models of strategic analysis reveals the fact that technology is an element to which is not paid a lot of attention; the evolution of the technology is generally considered an external phenomenon, imposed to an organization by the competitive environment.

However, the evolution of the technology, either undergone or induced by the organization, has often a decisive effect on its competitive position. There are numerous examples of organizations that encountered significant difficulties or that disappeared as a consequence of some technological changes produced in their field of activity.

The evolution of the technology can represent for organizations a threat or an opportunity to strengthen their competitive position.

According to its definition, technology consists of the concrete use of the scientific and technical knowledge for conceiving, developing and producing a product; this

stresses the fact that it represents a decisive factor for the success or the failure of an organization.

The impact of the technology evolution on the competitive situation of an organization can be analyzed at three levels:

- that of the activity as a whole;
- that of the competitive positions of the organizations in the same activity field;
- that of the competitive structure.

The impact of the technology evolution on the competitive situation

Table 1

LEVEL I Activity as a whole	LEVEL II Competitive positions	LEVEL III Competitive structure
Growth Maturity Value Segmentary limits	Structure of the costs Differentiation of the products	Disappearance of the existent competitors Emergence of new competitors

In order to understand these influences, we will analyze each case separately.

a. The impact of the technology on the activity as a whole

The technology evolution can strongly influence the development of an activity field by its effect on the *growth* and *maturity* of the field. Moreover, it can modify the borders between the strategic segments and can thus lead to a repositioning of the organizations in their competitive environment.

First of all, the technology evolutions, either in the segment or in other segments, can influence directly the rhythm of development of the activity and, on the long term, the maturity stage and the potential of development. Some evolutions are able to refresh the increase of the activity, rejuvenating it, while others can slow down its increase, inducing phenomena of accelerated ageing.

Here are two examples that confirm the previous statements:

- The progress of the microelectronics which led to the increase of the performance, the decrease of the cost of the components, the significant reducing of the dimensions and of weight favoured a large spread of the products generating a potential of growth very important in the industry of semi-conductors or in the downstream sectors (video, hi-fi, micro informatics, etc.).
- On the other hand, the increased resistance of certain materials, such as the rubber, can reduce the need of renewal of the products that incorporate these materials (ex.: tires), limiting thus the development of this field.

In the models of strategic analysis, especially in the models of portfolio, it can be noticed the fact that technology evolution is an essential determinant of one of the two dimensions on which the model is based: the increase of the sector in the case of the Boston Consulting Group – BCG method, the maturity of the industry in the case of Arthur D. Little – ADL method, the value or the attraction of the activity for the McKinsey method.

Yet, the influence of the technology evolution does not stop here: it can be found in the field of the strategic segmentation. This means that it determines the segregation of the whole activity in homogenous segments and defining the systems or the competitive fields to which the organization belongs. The technological changes can attenuate progressively the borders between industries that, for a long time, have been perceived as different and eventually create a new unique segment.

The technology evolution can also lead to a segregation of the activity segmentation in fields that become distinct. Thus, the field of the aeronautics construction evolved in this regard, being progressively segregated in *jet planes*, *strike planes*, *commercial planes*, as a consequence of the increased specialization of the technologies used in each of these fields.

b. The impact of the technology on the competitive positions

Technology can be the starting point of the competitive advantages of the organization as it:

- can provide a cost advantage;
- can be a source of differentiation.

Using more performing technologies can allow reducing certain cost elements, offering thus to an organization a global advantage in comparison with its competitors.

Frequently, technological learning is one of the main causes of the experience effect and, consequently, a motor that acts toward the reduction of the costs. However, if the experience effect connects the level of the cost to the size of the market, advantaging thus the big competitors, the technological innovation can counteract the experience effect and the obstacle related to the dimension of the organization, favouring thus the small, but innovative competitors.

Besides its effect on the costs, technology is one of the most important sources of differentiation for an organization. Having performing technologies favours offering certain products with characteristics superior in comparison with those of other products of the competition that exist on the market.

The arguments displayed so far demonstrate that technology, on the one hand, can lead to the cost advantages and, on the other hand, can generate the differentiation of the products. It is useful however to specify that these effects do not exclude one another under any circumstances.

c. The impact of the technology on the competitive structure

Leading to a modification of the key factors in an activity, the technology evolutions can alter the mobility border of the activity and cause the disappearance of certain existent competitors or facilitate the entrance to this sector of other new competitors. Right after the new technologies get a decisive importance in an activity, the organizations that do not master very well these technologies, which do not have the means or the will to purchase them, can be tempted to abandon this activity. On the other hand, the organizations outside the field, which master very well these technologies, can take advantage of the opportunity to enter the market.

2. The technology choices

The choices in the technology field can be influenced by three main concepts:

- the technological patrimony;
- the competitive typology of the technologies and of the portfolio of technologies and,
- the life cycle of the technologies.

a. The technological patrimony

Taking into account the process of drawing up the strategy requires in a first stage the identification of the assembly of elementary technologies necessary for carrying

out an activity. Inventorying the assembly of technologies used in various activities of the organization, as well as of the possible yet unexploited technologies, makes possible to draw up the technological patrimony of the organization.

This inventory points out which are the technologies necessary or the activities of the organizations but which do not belong directly to it (if it appealed to external suppliers) and which are the potential applications (unexploited yet) of the existent technologies. Comparing the technologies used by organization with those used by the competitors reveals technological alternatives and allows indicating the possible weaknesses of the competitors.

The inventory of the technologies is not a purpose in itself; it should lead to an evaluation of the competitive impact of various technologies.

b. The competitive typology and the portfolio of technologies

Not all the technologies involved in the development of an activity have the same competitive impact. Using some of them is essential for the success of an activity and this is determined by the influence of the technology on the cost or on the differentiation. Other technologies are involved only secondarily in the success of the organization, because their impact on the performances of the product or on the cost is extremely low or because they are at hand of the competitors.

Arthur D. Little consultancy office proposes a repartition of the technologies in three main categories:

- *The basic technologies* that are widely spread in carrying out the development of an activity; although their implementation was at the origin of the activity, they do not have any more currently a decisive impact because they are widely spread or paralleled by other similar technologies.
- *The key technologies* are those whose competitive impact is the most important. They are the core of the competition and mastering them confers distinctive competences, essential for the success of an activity.
- *The emerging technologies* are those still in development, in the first application phase, and have a limited impact on the activity. However, they have though an important potential and some of them can become in time key technologies.

In order to enter a technology in one of the three categories, we start rather from the role they play in the competitive game within a certain activity field than from the own characteristics of a technology. One and the same technology can be considered basic in a field, key in another and emerging in others. We can see this phenomenon, for example, if we analyze the computer assisted design and fabrication in the aeronautics, cars or textile fields.

A complementary approach, developed especially by the office of consultancy in strategic problems – SR International –, is based on the concept of *portfolio of technologies*. Inspired from the steps used for constituting the

activity portfolio of the organization, this approach positions various elementary technologies applied in a bidimensional matrix:

- the competitive impact of the technologies, measured from the point of view of the efficacy/cost, of the added value and of the differentiation potential;
- the degree of mastering the technologies by the organization.

Here is thus the following matrix:

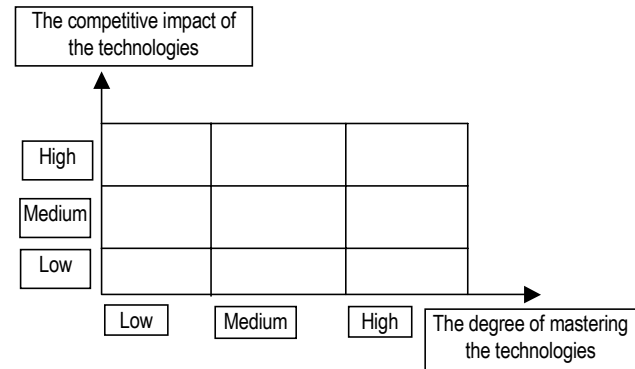


Figure 1. *The portfolio of the technologies*

The positioning of the technologies in this matrix allows the evaluation of the technological patrimony of the organization and confronting it with the activity portfolio; the organization obtains interesting information that can help it strengthen its strategic position.

The various possible classifications of the technologies do not lead though to a static image of the situation of the organization and of its environment. The competitive impact of the technologies evolves in time and, in a more dynamic prospective, is may be useful to examine the life cycle of the technologies.

c. The life cycle of the technologies

In order to guide the technological choices, there are necessary rigorous forecasts regarding the development of various technologies and of the evolution of their competitive impact on certain activities.

A useful concept for orientating the choices in the technological field proves to be the *life cycle of the technologies*, directly inspired from the concept of product lifecycle or activity lifecycle. The development of the technologies seems in fact to be carried out according to a process that can be represented by an “S” shaped curve.

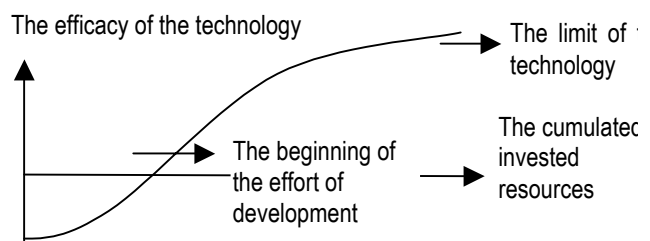


Figure 2. *The development of the technologies*

In a first phase, the organization has to invest substantially in the development of a technology, though the results of this investment should not be felt significantly. In the second phase, when the organization has accumulated a certain amount of knowledge and competences regarding the concerned technology, the progress is much faster. In the third phase, they slow down again because the proper physical limits of this technology begin to come out. Certain analyses point out much more detailed the various development stages of a technology: embryonic, growth, maturity and then ageing.

The success of the positioning of a technology in its lifecycle is a decisive element of the technological strategy of the organization. It can be established if it is justified to continue the investment in this technology or if it is preferable to invest in substitution technologies.

In order to do the technological choice and the resources allocation according to a coherent strategy, it is very important for the organization to draw up genuine technological strategies, starting from a diagnosis of the technological patrimony and from an analysis of the competitive positions in various segments that create its activity portfolio.

3. The technological strategies

In order to harmonize the technological choices of the organization, the global strategy of its activity portfolio and the competitive strategies that it wants to apply for each of its strategic segments, it is essential to take into account the followings:

- the value of various activity fields of the organization;
- its competitive position in each of these fields;
- the degree of mastering the main technologies essential for carrying out these activities.

The efficient management of this process requires some useful specifications:

■ *The ways to access the new technologies*

The ways to access the new technologies are numerous. We have chosen the following five:

- *Internal competition*; they require time and important investments. This is however the solution that offers the biggest independence to the organization. If it is about technologies whose competitive impact proves to be important, this can ensure the strongest and the most durable competitive advantage. It should not be ignored this aspect: this solution is also the riskiest.
- *Cooperation agreements* associate the efforts of more organizations in the view of the development of new technologies. This solution has the advantage to share the costs and limit the risks, but it emerges only between organizations that reach

full agreements regarding the necessary means and the directions of research and development.

- *Acquisition of the organization* that masters the desired technology. Even if this solution can seem very tempting, it can be applied only when such an organization exists and it is for sale.
- *Contracts of external research* – by which the organization resorts to an external body (lab, institute of studies, centre of university research) for carrying out a special technology.
- *Licenses purchasing*. On the basis of very strict use conditions, this solution offers the possibility to access technologies developed by others, often by competitors in the same activity field, but from others geographical areas.

We can also mention the solution to buy finite products or assembling the components. The products are then sold under the brand of the organization, this solution allowing a provisory maintaining of the position got on a certain market.

These various solutions cannot be chosen starting only from technological criteria. Their evaluations have to take into account the global strategic situation of the organization.

■ *The exploitation of the technology patrimony*

The exploitation by the organization of their technologies can have two main forms:

- using these technologies for conceiving, developing, producing and selling of the products and,
- the transfer of these technologies to other organizations that will use them for their activities.

These two options do not exclude each other. Certain organizations chose deliberately not to use the technologies they developed, becoming thus study societies; others, from reasons rather psychological than strategic, refuse to sell and thus to share with others the technological competence they dispose of.

Most of the organizations have though intermediate behaviours, exploiting directly certain technologies and renouncing to others. Thus, they can use the own technologies on certain markets and can transfer them to the partners to exploit them on other markets. The choice between various options of exploiting, combining these options according to the considered technologies, activities and markets, within a coherent policy, must be made taking into account both the strategic criteria and the technological one.

■ *The models of the technological strategies*

According to the classical models of strategic analysis, the technological factors are taken into account when the competitive position of an organization is evaluated and are lost among many other factors. In order to eliminate this disadvantage, there were drawn up analysis scales that

isolate the technological dimension and articulate it around other two more classical dimensions of strategic analysis.

Arthur D. Little consultancy office, which proposed the most complete analysis of the connection between strategy and technology, take into account at the same time the maturity of the activity, the competitive position and the technological position of the organization and deduces, starting from here, the best technological strategies for each situation. In the following we can see the synthesis of these analyses:

		TECHNOLOGICAL POSITION		
		STRONG	FAVOURABLE	WEAK
COMPETITIVE POSITION	STRONG	Innovative	Innovative	Following
	FAVOURABLE	Innovative	Following	Acquisition
	WEAK	Niche	Joint-Venture	Rationalization

Figure 3. Branch in the phase of starting/at the beginning of growth

		TECHNOLOGICAL POSITION		
		STRONG	FAVOURABLE	WEAK
COMPETITIVE POSITION	STRONG	Innovative	Following	Acquisition
	FAVOURABLE	Niche	Acquisition	Acquisition
	WEAK	Joint-Venture	Rationalization	Liquidation

Figure 4. Branch in the phase of starting at the beginning of growth

This approach allows though a certain ambiguity, because the competitive position of the organization is not independent from its technological position. For this reason we retain the following analysis scale taking into account three much more differentiated possibilities:

- the potential of the development of the activity (its value), a classical variable in the models of strategic analysis;
- the commercial presence of the organization on the market, measured according to its degree of penetration, to the distribution network, to its notoriety or image; this second variable shows the control power that the organization has on its consumer;
- its technological position, measured by the degree of mastering the technologies considered to have a major competitive impact, of the key technologies of tomorrow, according to the ADL typology; this last variable reveals the extent to which the organization can count on the technology to ensure itself a strong competitive position.

Doubling to a certain extent the competitive position variable to make more visible the technology variable, we

can reanalyze the activities of the organization and deduce the allocation of the resources necessary for developing activities on the one hand and technologies on the other hand. The ways of development will be based either on the stronger technologies or on the strongest commercial presence. Adopting a binary evaluation – weak/strong – for each variable, we obtain a classification of the activities of the organization in eight categories, resulting from the following possible combinations:

1. *Activities with strong potential of development for which the commercial presence of the organization and its technological position are strong.* These activities correspond to the “star” activities in the traditional matrices; the organization has to maintain its position on the market, to strengthen the technological progress and to allow the development of the activity.

2. *Activities with limited potential of development for which the commercial presence of the organization and its technological position are weak.* These activities are “deadlocks” to which the organization should give up, except from the cases when it succeeds into making them profitable without investing excessively.

3. *Activities with limited potential of development for which the commercial presence of the organization and its technological position are strong.* These are the “milking cow” activities from which the organization has to obtain the maximum of liquidities, limiting to minimum its investments. As regards the technology, they have to try to exploit their capacities, either applying them to fields with a stronger potential of development or making a transfer.

4. *Activities with strong potential of development for which the commercial presence of the organization and its technological position are weak.* These are the classical “dilemma” activities, for which it is recommended either to invest a lot in order to improve in the same time both the aspects connected to mastering the technology by the organization and to its force on the market, or to retreat.

Taking into account separately the two dimensions – “technological position” and “commercial presence” – reveals the fact that there are risky dilemmas on both levels.

The four cases examined previously are those that correspond the best to the classical situations analyzed by the means of the traditional portfolio methods; these are situations for which evaluations are made on the basis of the two dimensions “technological position” and “commercial presence”, are convergent and, consequently, separating them brings only supplementary further information.

When these situations are divergent, the separations enrich considerably the analysis.

5. *Activities with strong potential of development for which the organization has a strong technological position, yet a weak commercial presence, are also “dilemmas”;* though, taking into account the solid

technological bases, the undertaken risk is low. Under these circumstances, the organization, first of all, has to try to develop its market and to try an association with a partner which has a strong commercial base, but which does not master the essential technologies. If the organization does not want to invest in such an activity, it should exploit its potential by selling its technology.

6. *Activities with important potential of development for which the organization has a strong commercial presence, but a weak technological position* are also partial dilemmas. It is necessary in this case to purchase as soon as possible the necessary technological competences, so that to exploit the advantage that the organization has at the level of the market. The time is decisive here and it is recommended to proceed to an external acquisition of technologies rather to try to create internally the competences, which is a much longer process. In this two last situations, taking into account separately the two variants “technological position” and “commercial presence” allows to highlight the strategic complementarities between organization and its external partners; the organization searches for partnerships and alliances so that it could capitalize the strengths and compensate its weaknesses.

7. *Activities with weak potential of development for which the organization has a strong commercial presence, yet a weak technological position*, have to be managed as “milking cows”, limiting strongly the investments in order to obtain maximum of liquidities. Purchasing technologies for strengthening the position of the organization should be made only if it is immediately profitable.

8. *Activities with low potential of development for which the organization is weakly presented from the commercial point of view, but disposes of a strong technological position* should be considered rather “deadlocks”. The main objective to the organization should be in this case to restrict progressively, if it is possible by generating liquidities, and especially to try to exploit their technological capacities, either applying them to fields with a stronger development potential or accepting the transfer to external partners.

The explicit introduction of the technological variable in the strategic analysis allows a more detailed interpretation of the reality of the encountered situations and the proposal of more diverse strategic options in comparison with the monolithic recommendations of the traditional models.

It is obvious the fact that, for certain strategies, the technology represents the central point while for others these strategies are based firstly on the market domination.

■ *Strategies based on technologies and market*

Some organizations have the tendency to make from the technology the main axis along which they develop their strategy; mastering a technology or a convergent assembly of technologies represents their main distinctive competence. The dominant characteristic of these technologies reveals in the context of certain strategic changes, such as diversification, when the organizations manage to exploit the technological competences on new markets and within new activities.

The development of certain companies, especially the Japanese ones, is founded on the application of these strategies based on the technology. Based on an assembly of generic technologies, these create an own, sound and coherent technological and industrial potential, used for very different products, on various markets.

The strategies based on the technology in the Japanese companies were represented as a tree, a bonsai, in which:

- the roots are the generic technologies;
- the trunk is the own technological potential, developed by the company;
- the branches are the sectors in which it is applied and,
- the fruit represents products/markets.

Things are different in the case of the organizations that follow a commercial logic. For these, the main axis of their development is the client and the technology is only a way among others, which helps to satisfy the client. The organization passes easily from a technology to another and gets progressively the technical competences necessary to enlarge the product range and to serve the client.

These two axes of development, based on technology or on market, are in fact extremes of a high range of situations in which organizations define their field in an own combination of competences that involve, as we showed above, mastering the technologies or the commercial presence on the market.

All the arguments used for presenting the role and the implications of the technologies on the strategic options of the organizations reveal the complexity of the strategic process and the need to reinforce complementary points of view in the analyses that we make and in the decisions the managers make.

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Considerations Regarding the Decoupling Thesis under Conditions of Demographic Growth and Industrialization

■

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Abstract. *Many individuals and organizational leaders are well aware that their activities affect the natural environment. This awareness grows out of growing evidence of the effects of environmental use and some thirty years of environmental activism. Our paper aims to look at the worldwide interconnections in the natural environment that result from the use of global commons and other resources. A special emphasis will be given to examine the combined effects of population growth and industrialization as pressures on the natural environment. Together population growth and economic development hasten natural resources consumption, putting pressure on the global commons, spreading disease, threatening species, and extending the impact of global natural disasters. Their interrelated nature will be enlightened thoroughly toward “boom” and “doom” perspectives.*

Key words: pressure on natural systems; environmental issues; population growth; industrialization; Kuznets curve.

■

Introduction

The Earth became more and more small. At least this is the impression of each of its inhabitants. In assembly, the physic dimension never changed, but on the relativity perspective of each of us is accrue a vital space more and more reduced. We are living on a planet more and more populated, thus it is logical that “the slice” is diminishing. Unfortunately, the dimension of the “slice” is not depending only by our number. In fact, there is an unfair assessment of the resources.

Within the context of contemporary evolutions, the access to the resources is not a sufficient condition for the welfare. The material and energetically flows are modelled by the complex economical relations, developed within a world much different from this of today, in which the restrictions were less numerous.

The natural systems are under an increased pressure, generated on one side by the demographical increase, and on the other side by the industrialization. The equilibrium

point cannot be discovered, so there is a continuous debate with more and more proofs, which are not tilting the balance. Even the legitimacy of the environment protection is recognised, the way in which we have to act, the decisions of which the global leaders must adopt are challenges for the society of the XXI century is asked to answer. In that context, we are proposing to clarify a serious of aspects related on the interaction relationships between economy and environment, from a global perspective.

The increased pressure on the natural systems. The concentrated action of demographically increase and the economical development accelerates the natural resources consumption, increasing the pressure on the global commune goods, favourizing the spread of pathogenesis agents, threaten the species and extending the impact of natural disasters. The relations established between those factors of antropic pressure are presented within figure 1.

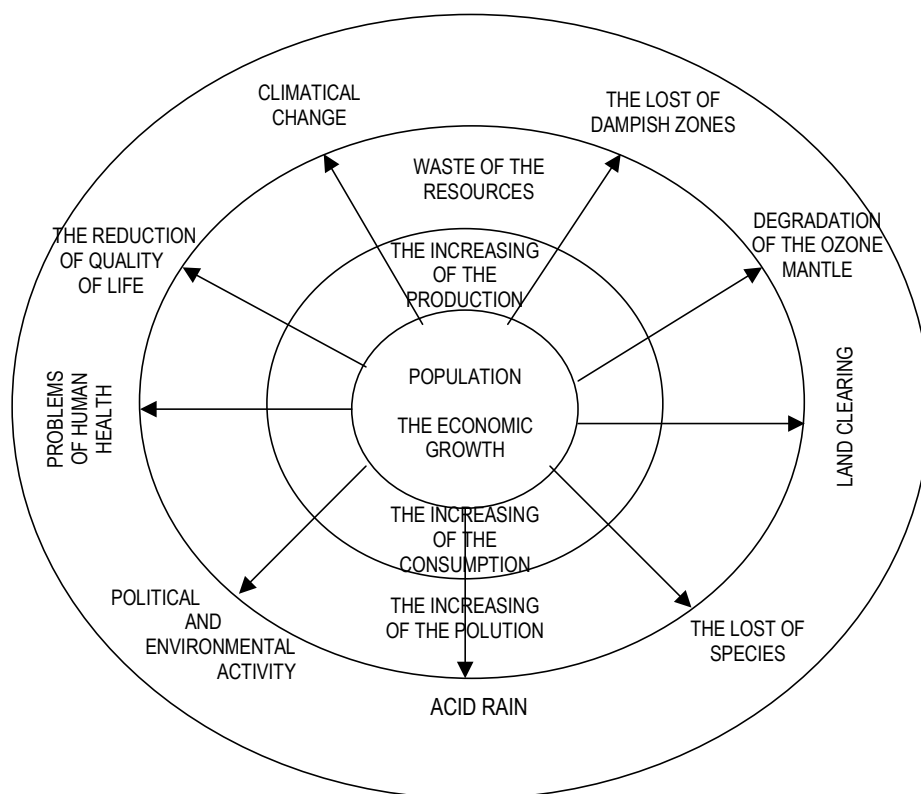


Figure 1. *The environmental problems wheel*
(after Stead and Stead, 1996)

The demographical evolutions

The demographical problem, remembered as “demographical bombe” or “demographical explosion”, is brought here into attention of specialists within years '60 by the alarming evolution of demographical indicators. The mentioned name are eloquent, in the matter of effects, those results from the increasing pressure of which population will practice on the resources and, first of all, on the food resources (Bran et al., 2004, p. 102).

The Terra population represents the newest component of geo-system, of which quantitative increasing benefited by the “informational speeding process”, generating the biggest changes in report with every planet species, if that comparison is permitted.

According to the report “Naught Demographical Increasing”, there were necessary four million years for the earth population to reach two milliard people within 1927. The growth has been continued, so that in the 12th of October 1999 it numbered six milliard of inhabitants (The United Nations Population Fund, 1999) and there were expressed a series of fears related to the fact that in 2050 the support capacity of nature will be overwhelmed, this being estimated as between four and fourteen milliard of inhabitants.

Fortunately, the year 2000 marks a decline of the fertility; thus, by the recalculation of the prognosis it is estimated to

a global population of 9 – 10 milliard within 2100. The causes which determined the decrease of the fertility are:

- the women became more educated, so they have more employment opportunities and more financial independence for those who choose to raise less children;
- the contraceptive means are more accessible;
- there are governmental initiatives which limits the family dimension, especially in India and China, and others which discourage families with children;
- AIDS epidemics; especially within Africa, they kills the women on the maternity age;
- the television creates expectations for the small, but happy and health families, which are presented on lot's of promotional materials.

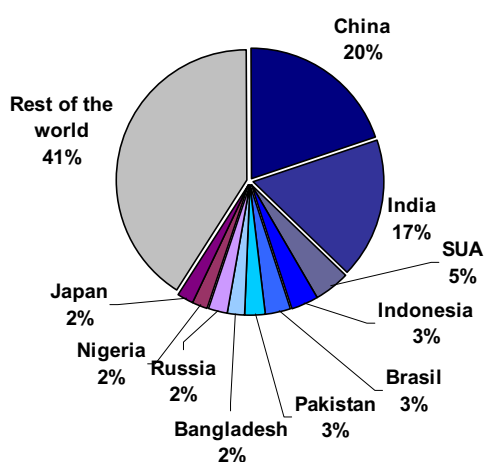
About 80% from the global population lives within the developing countries, but China and India are responsible for one third of the births of the world. As a consequence, the increase at the global scale can be unleashed anytime if in those countries the demographical tendencies are changing. Within the table 1 we present the situation of the most populated countries and the demographical estimations at the time horizon of the year 2025.

The classification of the most populated countries of the world

Table 1

Position	State	Population within 2006 (million)	Position	State	Estimated population within 2050 (million)
1	China	1,311	1	India	1,628
2	India	1,122	2	China	1,437
3	USA	299	3	USA	420
4	Indonesia	225	4	Nigeria	299
5	Brasil	187	5	Pakistan	295
6	Pakistan	166	6	Indonesia	285
7	Bangladesh	147	7	Brasil	260
8	Russia	142	8	Bangladesh	231
9	Nigeria	135	9	RD Congo	183
10	Japan	128	10	Etiopia	145

Source: 2006 World Population Data Sheet, <http://www.prb.org>



Source: 2006 World Population Data Sheet, <http://www.prb.org>

Figure 2. „The demographical giants” and the proportion of their population within global population

In the majority of advanced states and within industrialized economies the demographical increase was closed to zero or decreased under that level within years 1970, meanwhile the growth remains positive within countries with developing economies.

Europe registrated a sequence of aproximately 50 years of decling of the fertility from 2.66 children/woman in the period 1955-1960 to 1.34 in the period 2000-2005. Within 1976, the fertility rates was by 1.3 in Italy (Politics of population, 1994).

In the same time, in Japan the fertility declined from 2.75 to 1.33. With the exception of USA, were the fertility is mentaining increased, within the big imigrant communities the fertility rate was in 2000 by 1.7 in the most developed countries. The socio-economical consequences of the demographical decreasing are the diminuation of the work force, a smaller potential PIB and more illness associated to the ageing phenomen.

Not so long time ago the decreased rates of the birth rate within developing countries were compensated by the big values registered within the developing countries. Under socio-economic report the demographical increase results in the problems related by the food security, education, dwellings, and the economic development has to make a step back for assuring the satisfaction of the main necessities.

The fact that within the developing economies the fertility decreased from 6.2 percent in 1960 to 1.5 percent in 2006 is a pleasant one⁽¹⁾.

Even if the global demographical growth tends to zero, the developing countries and those which are developing – countries are confronting with different demographical requests.

Those are referring to the structure on the age classes, the lack of balance between sexes, immigration and consumption habits. Each of these demands has different implications for the economic activities. For example, the demographical ageing brings opportunities for the development of new services and products, but requires also solutions for the maintaining within activity for a long period of time.

Populations from the most advanced countries consume the biggest part of the global resources. For example, the richest nations consume until 86% from the total of the goods and services, meanwhile the fifth part of the poorest part of the population consume only 1.3% from the total. This lack of balance invites to reflection on two key aspects: equity and the exhaustion of the resources. The economical development and the prosperity results, in general, in the increase of the consumption. That model from the advanced countries is the one that wants to adopt also the poor economies. By sequel, the logical consequences of the demographical increase and of the world economy growth is very probably a request more and more higher for the limited natural resources and, in consequences, a more rapid exhaustion of the available stocks.

The equity problem is referring also to the distribution within territory. Only few are the citizens of the developed countries who want to renounce to their goods and many are those from the developing countries who wants also to own cars, televisions, refrigerators etc. Is very easy to anticipate that those from reward will be inclined to kill the natural resources as forests ore the quality of air for obtaining goods or for sustaining the economic growth. The both types of consumption emphasises the pressure on the natural resources.

The cosmopolitanism is a result of the demographical increase that influences the production and the consumption. The town represents a concentration point of the social-economic activities, respectively the place where the most important decisions are taken, the business developing, the space is transformed and where the nature rates are left behind. Here everything can be sold on and bought – inclusively ideas, workforce, peoples. The last decades are witnesses of an intensive cosmopolitanism.

The number of towns, their dimensions, but mostly the proportion of the urban population increased. Thus, more than three milliard of town's lives about half of the world population and 19 from those have a population more than 10 million inhabitants.

According to ONU reports, the process will assure the continuity on the future, so that in 2030 more than 60% from the world population will live within towns (respectively 4.9 milliard people, from 8.1 milliard people). *Homo urbanus* can be defined by his habit of living within agglomerating places, tolerance for the strangers, predictable behaviour based on the accepted rules, very good access to the information and an almost total discount from the natural world (Bran et al., 2007, p. 64). The accelerated cosmopolitanism intensifies the pressure on the global common goods – the air and the water –, as well as on other resources as living space and food.

In plus, the wastes generated by the increase of the consumption are involved into global process. For example, the wastes produced in London are, in proportion by 90%, stored in the exterior of the town, an important proportion being exported in China. The similar practices characterises also the USA, where the wastes flow leaves to China, India and other nations where those are used as staples. The values of the waste exports from the USA to China were in 2002 by 1.2. Milliard USD. The majority of nations who receive those wastes have ecological standards less exigent or insufficient implemented.

The growth of the consumption, the over cost ore the consumerism are responsible for a serious health problems which overloads the bill of the society. The obesity, the hard problems, the disease of the circulatory apparatus, lung cancer are only few of modernity illnesses associated to the comfort and the excessive consumption and represents the main cause of death within developed countries. The world development added the incidence of the richness diseases. The richness diseases influence the global affairs and have implications regarding the use of the resources.

Industrialization

The industrial model of the economic growth was one of the leading forces of the world economical integration and of the global intercommunions of cultures, policies, industries, technologies and the natural environments. The industrial units which emits pollutants creates, in the same time, work places and a higher standards of life, required from each of us and by each of nations. Those units attract, also, the people in most agglomerating places where the urban problems of the wastes emerge; as well as those related to water treating and filtering; the noise and the air pollution.

The industrialization can contribute to the increase of the prosperity if the measurement of the welfare is realizing

by the use of GDP, but in the same time increases the potential for the ecological disequilibrium which, at their turn, contributes to the decreasing of the quality of life.

In those conditions there is the problem of the way in which the international organizations and the multinationals firms have to act. The answers are different even in the interior of the same sector of activity and on this basis the world leaders are re-evaluating the global role within environment protection.

The legitimacy of environment protection is today far away from any controversies, indifferently if we analyse the agenda of global or national policies, or the agenda of main corporations. More than that, the research processes brought a series of solutions more and more innovative. Thus, the environment is linked by the decision on the way in which the environment protection will be realised.

A possible guide in that extend is constituted by the extreme situations. Thus, two scenarios are debated: the prosperity scenarios, in which the economical growth will lead to the intensification of the ecological efforts, and the deprivation scenarios, according to which the sustainability cannot be realised without restricting the consumption. The both scenarios admit the fact that the demographical growth and the industrialization affect the environment, but evaluate the different implications of the future evolutions. Thus, both scenarios of prosperity or deprivation are different as regards (Wilson, 2002, pp. 82-92):

- the anticipation of the world state;
- the projected time period;
- the measure in which the life of the other human beings is appreciated.

The "boom" perspective. The fast economical increase will generate the necessary technologies for the solving of ecological problems. As examples we can mention the online systems that necessitate a more reduce consumption on the paper, the reducing quantities of industrial wastes by recycling of the secondary products, more efficient use of the resources by the capitalization of the solar energy and biotechnologies. The prevision is positive and don't involved non-human beings.

That scenario was constituted starting from a series of hypothesis. Even similar as regards the results those differs by the starting point, which is considered the level of incomes, innovative ideas, respectively the resilience of the environment.

The first anticipation of that type is made by early time and is today one of the most known work hypothesis. Is about the environmental Kuznets curve, according to which from a starting level of incomes the impact on the environment by pollution starts to diminish, even if the industrialization responsible by the increase of the incomes will bring, on a short time, a worsen of the environment state (figure 3).

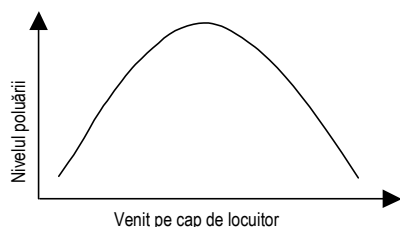


Figure 3. *The environmental Kuznets curve*

Another hypothesis underlines the fact that the capacity of creating new ideas is the key factor for the economical growth and for the nature conservation (Simon, 1998). The argumentation of the prosperities scenarios is based also on a risky assumption that the natural environment has a more cancellation than it's estimated and the economical development brings to the improvement of the use of natural resources. For example, the emissions control of the cars with motors with internal combustion contributes meaningful to the reduction of the pollution (Easterbrook, 1995). In the box one are presented the examples who justify this scenarios.

Box 1

A study realized by the World Bank, for a period of six years, showed that the whole volume of the total emission is decreasing in the zones in which an internal industrialization process had the place. Thus, in China, where the economical development is very accelerated and the pollution too much extended, the quality of the air was maintained stable or even were improved in the last decade.

The technological innovations improve the relation of the people with the environment and reduce also the consumption. For example, the irrigation system with drop is more efficient and efficacious than classical systems and the electric machines use fewer resources and generate less pollution. As a consequence, the technology is a key factor for the environment protection.

The supporters of the prosperity scenarios believe in the levers and the equilibrium of the economic systems that will stimulates the development of new technologies if the old ones do not correspond anymore. For example, if the fossil resources are exhausted the alternative energies will develop.

The "doom" perspective. One of the fervent supporters of that scenario is Paul Erlich (1969), from whose acceptation the environment impact (I) is equal with the population (P) multiplied by the consumption or with the richness evidences (O) and multiplied again with the technology (T):

$$I = P \times O \times T \quad (1)$$

Equation (1) reveals the fact that the technology is an environment problem not a solution of it. On the other side, Lester Brown shows in its writings that the industrial production entered into a curse that will "rive" by the natural limits of the planet. The acceleration of the economical, political and cultural globalisation are considered major restriction for the environment that will determine the aggravation of the problems related to the food, quality of water and air or petrol and natural resources. Another argument is brought by Hawken (1993) who shows that the technological innovations lead to the intensification of the degradation of the environment.

Those examples shows us the fact that the adepts of the pessimistically scenario tend to look to the problems on a longer term. For example, the bio-combustibles are considered an ingenious solution at two environment problems – emissions of gas and the petrol crisis. The analysis of external costs revealed that in the case of bio-diesel, obtained by the till of oleaginous plants, the difference for the use diesel is only appreciatively 15-20% (function of the used method) (Nocker et al., 1998).

Final observations

Even the economists have the tendency to look at the economic phenomenon as being the main sources for the solving the problems, more and more people reflects on the secondary ecological effects resulted by the acceleration of growth and begins to change their opinion.

Some of them adopt the Erlich hypothesis, considering that the industrial growth rate conduct to an escalate of the environment costs which outruns the benefices brought by production.

Analysing the specialty literature we can't tip the balance. There are arguments for both scenarios. To decide where is the truth it is very important because after the analysis it follows is the action, and that may aggravate the problems already existing if the theoretical and practical premises were not correct.

The debate regarding the role of the economical growth and the realism of the disconnection may continue to the never end. Even it is possible to detach a benchmark – in the measure in which it is adopted the optimistically perspective of the prosperity and that decision is proof to be wrong, the costs will be the highest. The mistake may by an irreversible degradation of the planet.

Note

- ⁽¹⁾ According to 2006 World Population Data Sheet, <http://www.prb.org>

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The Emergence of Ethic Banks and Social Responsibility in Financing Local Development

■

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Abstract. *The evaluation of the present offer of banking products and services in the developed countries as well in the emerging ones shows the extent to which they fulfill or not the principles specific to social responsibility and ethics in economics. Considering heightened competition, some institutions adopt new strategies based on the creation of new concepts where human finality is to replace economical finality. Thus, banking ethics and social responsibility are concepts which are found at the level of credit cooperative and ethical banks. Oriented mainly towards rural financing and financing social responsible projects, within the study, the two approaches complete and sustain each other.*

Key words: ethic bank; credit cooperation; microcredits; social responsibility; rural financing.

■

The ethic interrogation in economics constitutes today a turning point in approaching global humanity problems, as some authors show (Passet, 2003, pp. 1-3). The pure instrumental rationality which is specific to the satisfying the needs of the productive apparatus must give its place to a rationality founded on human finality: this is the idea which generated a true current of ethic thinking in economy. Such an approach is particularly applicable to the enterprise, durable development and globalization.

At an institutional level, UNESCO's medium-term strategy can be highlighted for the 2002-2007 period, which had as theme "humanizing and globalization", the objective being to sustain those initiatives which contribute to promoting and introducing ethic values in the economic life (final report of the special reflection team on UNESCO in the 21st century, Document 160 Ex/48 of the UNESCO Executive Council – Ninou Garabaghi responsible for the inter-disciplinary program "Ethics in economics").

Favoring the development of a "social or solidarity" economy brings the issue of an institutional framing of the market and the necessity of a norm to channel the market in opposition to the principles of self regulating market. Such an economy generates collective actions regarding the introducing of international and local rules to complete the national rules or to substitute their absence. This approach is necessary in the present, as the contemporary vision in economics has evolved to a multidimensional economy, a dynamic and collective economy, and subordinated to the ethical imperatives of human finality.

In such a situation, where any economic process belongs, in the same time, to the human and natural spheres, and where the advent of computer has created the possibility of economic functioning in real time at a global level, institutions and processes founded on the principle of ethics are required such as: equitable commerce, solidarity financing (the ethic bank and micro-credits), the

non-monetary exchange network (local exchange systems – SEL and services exchange systems).

The contemporary current in favor of corporate ethics is also highlighted by the initiatives and measures adopted internationally. Thus, ONU has proposed to multinational companies “The Global Pact” through which it promotes the ethic issue at the corporate level, and the European Commission has created the document “The Green Charter”. In the same time organizations were created such as “*Corporate Social Responsibility Europe*”, which groups companies such as: British Telecom, Suez, IBM, France Telecom, Danone, Shell and “World Business Council for sustainable Development”, which groups multinational companies in 30 countries.

These are only a few landmarks of the genuine current of managerial thinking oriented towards business ethics, which has developed considerable just in the 90’s, although the first approaches were signaled in the US, in the 60’s.

The ethic current in banking activity

In the context where developing new technologies of information and opening of international financial markets has determined a major modification of the market structure, banks were launched in a race of innovation, conceiving new services offered to the customers but also in diversifying the investments into new activity sectors.

Some institutions, being exclusively preoccupied with the turnover, have neglected the means used; in return, other banks have adopted *positioning strategies* differing to those of other banks, aware of their capacity of innovation and expertise, and other banks (credit cooperatives and ethical banks) launched *new concepts*.

Market studies on the concept of banking ethics have proved that the goal is identifying the level of interest of customers regarding the knowing of ways and activities through which the bank places their money.

The concept of *banking ethics*, which consists of valuing the ethic banking actions, has introduced an already existent dimension but less used in inter-bank relationships. The importance of the concept is also proved by the existence of the *European Federation of Ethic Finance and Alternatives*.

The Ethical Bank fits in the context of financial innovation and launching of a new concept. In the last 15 years, the achievements in the field are considerable, several institutions may be cited.

BID Amerique is an ethical bank, created for the *Latin America and Caribbean* area having the mission of introducing *ecology* in the national development strategies and encouraging the dialogue with the authorities. Considering the environment’s condition in planning the financial efforts, BID must ensure resources, infrastructure

and services for a population of 600 million inhabitants. The priority of the bank is the promoting of vast programs of fighting poverty and offering of social protection. It also proposes programs in favor of education, emphasizing the formation of teachers, programs for the unemployed, elderly, development of rural collectivities.

Starting from the idea that information and communication are necessary, BID has proposed programs which would favor the connection to Internet and programs for sustaining *rural tele-centers*. In this way, the procurement of scholastic and sanitary services is intended, some programs being launched within the “Rio de Janeiro” program.

Another graphic example is the *GRAMEEN BANK* in Bangladesh, which in 2006 received the Nobel Prize for Peace, together with its mentor Muhammad Yunus. The prize was awarded for the efforts of promoting economical and social development through favoring the innovative programs such as microcredits (Lelart Michel, 2007, pp.14-16).

In a rural universe, traditionally the banking and financial offer must be adapted so that it is based on trust, participation and mutual credibility. In statistic figures, Grameen Bank (with an offer of services in 73,000 rural establishments in Bangladesh, annual credits of 800 million USD, average credit value of 100 USD, rate of reimbursement of 99%) is proof of a new concept in banking and of the will of the founders that in a world of poverty (over 58% of its customers being poor), micro-credits awarded to women being the solution. Grameen Bank – “The Rural Bank”, a micro-financing institution which reaches international dimensions is present in 60 countries in Asia, Africa, Latin America and Europe and responds to a demand of 7 million customers, of which 97% are women, and the volume of credits given raises to over 6 billion USD.

In our enumeration, an exemplification of the success of the new concept is offered by the *Cooperative Bank* in the United Kingdom. In a conservative industry, Cooperative Bank appears as an innovative bank through the offer of services (free credits or with zero rate of interest, the prolongation of work program, guaranteed level of services). The bank develops and has almost 1,5 million customer accounts. Founded in 1992, this institution operates and offers a range of products to its customers, established after consulting the banks’ customers and employees. It is remarkable that the bank sent questionnaires to 2 million customers, their answers contributing to the revision of bank’s ethical policy. The customers have requested that the bank should have a *proactive policy* based on selecting investments through a direct confrontation between the deponents and the investors. Following the consultations, the bank’s deposits rose to 8 billion EUR in 2002, 5 times more than in 1992, and have a gross result of £60,2 million.

Among the ethical banks we can mention the Swedish *EKOBANK*, as an ethical bank open to those with initiatives in areas of activity such as health, education and art. The bank has a policy of investing in social and durable economy. The ones which invest in the bank may influence the bank's crediting policy, determining the type of project they wish to finance. As a particularity is the fact that no shareholder can own more than 10% of the capital. It is the only bank in Sweden which allows its customers to know exactly what is the destination of the amounts deposited, being *transparent*.

ETHIKBANK of Germany, launched in 2002, represents a necessity in this country where charity and religious organizations play an important role, influencing social-responsible investments. The volume of *ethic-ecological* funds in Germany has exceeded 2,4 billion EUR (in 2002) which justifies the creation of this institution. In this ethic-ecological background, the bank has chosen to focus on the top 100 companies included in the DAX indicator, excluding any investment in enterprises which operate of own part of the atomic contracts, participate in the development of genetically altered organisms. Following a project initiated by Ethikbank, a small bank, Volksbank Eisenberg, has programmed 3 financial placements, while a part of the interest is used in financing environment projects. The interested customers offer 0.25% of their interest to finance one of the following objectives: building a school in Afghanistan, renovation of an orphanage in Bulgaria or a plan of cleaning and protecting the Selenga delta or the Baikal lake.

The current status of the Romanian economy highlights the formation, at the corporate level, of a true current in favor of *corporate social responsibility* (CSR) and including this concept in the marketing strategies. In line with the European Union's recommendations, social responsibility at the level of international companies is stimulated through a series of facilitations such as tax exemptions. Such corporations, preoccupied with the ethical and social dimensions report performances registered from a financial, social and ecological point of view, through specifics indicators. The CRS programs in Romania materialize through: promoting a cause, social marketing, charity actions, community volunteering, social responsible businesses, the latter highlighting the fact that companies improve their activity in order to respond both to own interests as well as public wellness.

The evaluation of the extent to which *social responsibility and business ethics concept* is found in the *Romanian banking system*, shows that this approach is well defined in *Bancpost*. In vision of this bank, corporate social responsibility has as purpose following the rules and principles of corporate governing, fulfilling engagements to all the parties that have an interest in the bank

(shareholders, employees, customers and suppliers) and the continuation of social contribution programs. The bank sustains important fields for the community life such as: education, professional formation, culture, environment protection, local communities.

Also at the level of BCRS – the concept of responsible and proactive bank begins to take form, as it results from BCR's core values.

The principles of credit cooperation in financing rural development

The idea of credit cooperation has been issued in the second half of the 19th century, as a reaction to the traditional commercial banks, which refused to credit certain areas of activity such as agriculture, foresting and craft works. Different cooperative systems were conceived, based on the democratic principles of access of all debtor categories to all the resources offered by the creditors.

The most well known cooperation structures which were noticeable and remained as models in the European cooperation movement are: Friederich Wilhelm Raiffeisen (1818-1888) in Germany, Herman Schulze-Delitzsch (1808-1887) in Germany, the Society of equitable pioneers in Rochdale (1844) in Britain, Wilhelm Hass (1839-1913) in Germany, Luigi Suzzate (1841-1927) in Italy.

In banking cooperation, the principle of the first two systems was applied on a large scale, their characteristics being the following:

- from the activity area point of view, the Raiffeisen system is limited to a smaller administrative-territorial area, and the Schulze-Delitzsch has no marked area;
- from the quality of adherents point of view, on signing, the first system considers this aspect important, a preliminary selection of the adherents being required, and, in the case of the second system, the social status or moral profile has no importance, but attracting important resources for the creating of the own capital;
- from the social obligations of the social parties, the Raiffeisen system is more relaxed, also proposing the state's or charity financial support; the Schulze-Delitzsch system imposes the creation of own capital, formed of social parts with highest values possible, without accepting other forms of support;
- the profit and its distribution also represents differences from one system to another: in the first, the profit is not distributed to the members, but it is transferred to the reserve fund, and in the case of the 2nd system, the associates participate in distributing the profit while the reserve fund is constituted only partially from profit and from taxes of joining the association;

- regarding the responsibility issue, in both systems, the principle applied is: “one for all and all for one”;
- the operations comprise a wider area in case of the first system, other activities being accepted, apart from those specific to the credit cooperation (such as supply and selling merchandise, in commission), and in the 2nd, only banking operations;
- from the loan characteristics point of view, a series of differences is also noticeable; thus, in case of the first system, the credits are issued on long periods, up to 10 years, for needs of exploitation or real estate, the paying back being done annually, depending on the production obtained and following the use of the credit; while in the case of the Schulze-Delitzsch system, the crediting period is 3 months, without stating of the purpose or following the use of the credit;
- through the Raiffeisen system the economic prosperity is sought after, as well as intellectual and moral prosperity of the members, while in the second system, only the economic progress of the associates is intended;
- the Raiffeisen system is more appropriate to the needs of rural population, the small agricultural producer and the Schulze-Delitzsch system has the function of supporting craftsmen, owners and administrative workers.

No matter what the model adopted, the credit cooperative has developed quickly, mostly in European countries, but also in Japan and the United States, thanks to the advantages offered to large masses of debtors represented by cooperating members, SME's, cult organizations, family associations which have their social residence in the area of operations of the credit cooperative.

For certain activity fields, especially manufacturing and agriculture, commercial banks of the specific period didn't give credits due to the lack of guarantees which generated the association of banks with the goal of unifying liquidities, savings and mutually awarding credits on the basis of trust. Different branches of the mutual and cooperation credit developed this way on a democratic and decentralized basis characterized in an “Administration Council” and “Local Houses”. At the present, the network of mutual banks and cooperatives in every country numbers millions of local houses. The majority of administration councils of the Local Houses felt the need of federal or national organs, centralizing the liquidity placements or realizing operations with foreign countries, which require a certain dimension and financial means. Thus, the respective banking institutions benefited from advantages awarded by the public power, materialized in the monopoly on crediting or fiscal advantages, which have now diminished.

Becoming ordinary banks, both through clientele and services offered and included in the globalization process, mutual banks and credit cooperatives must face current competition, by specializing in a punctual activity and by diminishing personnel.

In *Germany*, the basic principle of the *Raiffeisen* type mutual credit was founded on the idea of religious solidarity, with unlimited responsibility of the companies. In Germany, two mutual bank and cooperation networks have existed: the rural network “*Caisses Raiffeisen*” and the urban network with the name of popular banks “*Volksbanken*”. For these banks a representative syndicate organism functions “The Federal Association of Popular Banks and Raiffeisenbanken banks” as well as a central bank – “D.G. Bank”.

In other countries, the mutual network has the following particularities:

- In *Great Britain*, the cooperation network has developed in the field of production and consumption, without having the dimensions in the other European countries. A special kind of institution is represented by construction companies, whose customers own important parts of these institutions and accept in certain conditions the financing of houses. Such construction companies constitute a form of credit cooperatives. A bank having the status of commercial bank specialized in financing cooperation and with the headquarters in London is “*Cooperative bank*” which used to own at the beginning of the 90's more than 109 branches and 3280 ATM's.
- In *Italy*, the activity is grouped in two syndicates, coordinated by a central institution “*Credito Popolare Centrobanca*”.
- In *Japan*, the credit cooperatives are named shinkin banks and are different to the commercial banks in term of organizational structure and customers to whom they offer services. As regards structure, in the shinkin banks, the number of members cannot exceed 300 and the level of capital 900 million yens. The credit cooperatives accept deposits in the same way as commercial banks, but credits are restricted, being given only to contributor members, the maximum level given to a single debtor not exceeding 25% of the capital level. The use of the credit is only accepted for local development, this fact contributing to the rapid growth of local enterprises and improving the quality of life in the respective residential area. Thus, shinkin banks represent an important support for the SME's within the community. This was the belief which was the basis of the creation in 1996 of a Center of Information for Business Management at the SME

level, which set out to develop and promote exchanges between different industries. This center is based on a philosophy of basic principles in the Japanese credit cooperation (vitalizing local community, residents' prosperity, creating a pleasant working environment, developing cooperation with other credit cooperatives). The number of credit cooperatives in Japan reflects this philosophy which is the basis of rural local development and adequate risk management. Over 3,000 credit cooperatives of agricultural workers and fishermen, as well as credit unions emphasize the significance and importance of shinkin banks.

The credit cooperative registers a special expansion in emergent countries as well, such as China and India. Thus, the rural credit cooperatives as well as the urban ones began offering banking services for development of local communities in 1979. But, as a particularity, as opposed to the western countries where credit cooperatives are owned by cooperative members, in *China*, the major owner of the credit cooperatives is the state, which significantly influences the activity of these institutions. In the context of the reform of the banking systems in China, in 1992 the level of credit cooperative deposits was 13% and the credits 9% of the total banking market, as opposed to the values registered at the commercial banks' level (6% and 4%). The number of urban credit cooperatives in 1992 was 4,000, but following the process of banking restructuring, after 1995, 2,000 of these institutions were converted into 111 commercial banks with local ownership, which would service the small and medium enterprises. In 2003 the number of urban credit cooperatives was reduced to 758 as a result of an ample merger and acquisition process with commercial banks, which led to the creation of *Commercial Credit Cooperatives*. Also in 2002, in the rural environment the number of credit cooperatives was 35,544 (these offering credit services to enterprises in the rural environment).

In *India*, the structure of the banking system the credit cooperatives are particularized as well as the rural banks, which are nationalized and focus their activity towards financing and developing agriculture. Their number was of 29 in 2002, as opposed to the urban credit cooperatives numbering 1,950, specialized in financing auto and real estate acquisitions.

The credit cooperation is a component of the financial sector, having an intense activity in the developed countries. For example, in the *United States of America*, the *Center for Development of Rural Cooperatives* functions, with an important activity in offering rural support to little American entrepreneurs.

In conclusion, the access of all the social categories and economic agents to the credit offered in more advantageous conditions has constituted the determining

factor of cooperative development in the banking system, confirming the belief that the cooperation represents a specific form of organizing human activity which manifests in the sphere of industrial and agricultural productions.

The credit cooperation in *Romania* has integrated in the similar process of evolution in Europe, but was particularized due to historic and geographic characteristics. At the basis of the development of credit cooperatives was the first popular bank founded in 1851 in Transylvania by Ion Ionescu de la Brad, later on a series of popular banks and savings associations being created, functioning under different forms and names, on the basis of normative acts issued in time.

Credit cooperatives in Romania adopted the German systems of organizing – Raiffeisen and Schulze-Delitzsch, in the 1891-1900 period a number of credit and savings institutions being founded in almost every big city of the country.

The creation of the credit institutions was sustained by BNR, and in the year 1915 a special credit of 50 million ROL, with an interest of 4% was given to qualify the personnel in the credit institutions, including the ones in the credit cooperatives. Also, between 1916 and 1929, BNR has given to the credit cooperatives through the Central of Popular Banks credits totaling 1,617,100,000 ROL, for current operations of popular credit for population supply and banking operations. Between the two world wars, the popular banks represented the most powerful sector of the cooperation. These were disbanded in 1948 and founded in 1955 under the form of credit and consumption cooperatives. According to the current regulations, the credit cooperatives represent autonomous associations, apolitical and non-governmental having as main purpose banking activities in order to help the members.

The activity of the cooperation credit organizations affiliated to *CREDICOOP* network is regulated, authorized and supervised by BNR, being similar to that of any banking institution. The deposits constituted at the credit cooperatives are guaranteed, all the units in the network contributing to the creation of the resources of the Fund for Guaranteeing the Deposits in the Banking System. In addition, the network has an own fund – the mutual reserve of guarantee – created at the level of the Central Cooperation House.

The recognition at the European level of the credit cooperative in Romania – Creditcoop was realized by earning the quality of member of European Association of Cooperative Banks.

The subject of rural financing and micro-enterprises is mainly present in emerging countries in Africa, Asia, Latin America and Eastern Europe, where official financial institutions (public or private) have alliances with less official institutions, usually rural, in order to get close to the rural customer base. The financial alliances may have different forms, such as:

- some alliances are spontaneous and respond to a logic of the market (it is the case when a large urban commercial bank gives credit to a credit cooperative or to a non-governmental organization specialized in rural credits);
- other alliances are a form of helping. For example, when the creation of a gross-selling institution that is to give credits to small rural retail institutions;
- certain alliances are established according to the current legislation, respectively when an insurance company is approaching a rural micro-financing institution in order to achieve a market share, by selling life insurance to rural consumers;
- in other cases, smaller institutions wish to get close to the larger institutions in order to have access to funds and expertise. The larger institutions also want to create alliances with rural institutions (credit cooperatives) closer to the demand of services of the rural customer base.

Some of these relationships are permanent if they serve the commercial interests of the two partners, on a long-term, and other have a determined life cycle (for the accomplishment of an objective established in time, afterwards the alliance disappears, as a result of modifications of the regulations, market, institutions or customers).

Such partnerships allow each of the two partners to get over obstacles and achieve advantages they wouldn't be able to obtain individually. In the same time, these alliances have the risk of not bringing durable and reproducible effects.

In conclusion, the banking ethics and credit cooperation are accepted at an institutional, macroeconomic and personal level, as in a predominantly competitive economic universe, where profit is the sole objective; these two tendencies come to position the human individual and his needs.

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The Environment and the Relative Protection Programs

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Abstract. *The material is presenting, under an adequate structure, an analysis of the environment of Romania. The starting point of the study is given by the natural conditions, influenced by the geographic location of Romania on the globe, evidencing the main characteristics (relief, hydrographic basin, climate, flora and fauna etc.). Afterwards, the material is pointing out the concerns as well as certain outcomes achieved in our country in the field of the environment protection. Particularly, there is the concern regarding the durable development which is emphasized, along with the part that the environment protection should play under the circumstances. Then, the material is evidencing the essence of the policies concerning the environment protection as well as the transitory steps implied in this field by the adhesion of Romania to the European Union.*

Key words: environment; quality; protection; strategy; environment policy; improvement; wastes; pollution.

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1. General aspects

The natural environment of Romania is strongly influenced by the location of Romania on the globe and the continent as well, which generates: the belonging to the *transitory continental temperate climate*, of the central European kind; the complementary character as a feature arising from the diversity of the relief forms and, implicitly, of the natural resources which people exploited and put in circulation; the inhabitation, humanization degree is maximum, the permanent dwellings being spread from the Danube Delta up to altitudes of 1,000-1,200 m in the mountains, while the seasonal ones developed even up to 1800 m altitude.

The display of the Romania relief is almost concentric. In the very center there is a plateau unit of an average height of 500 m (the Hillock Depression of Transylvania), around which there are chains of medium mountains exceeding 2,000 m only locally.

Towards the outer side but, partially, also towards the Transylvania Plateau, there are the Sub Carpathian Hills while towards the western side there are the Western Hills followed by the great plateaus (Plateau of Moldavia, Getic Plateau and Plateau of Dobrogea).

The lowest step is formed by the Romanian Plain and the Western Plain of the country to which the river

meadows of the Danube and Siret, as well as the Danube Delta are to be added.

The relief of Romania has varied appearance but, meantime, symmetrical: mountains, hills, plateaus, plains and everglades, all of them displayed from the center towards the borders, as almost concentric steps, ever lower. All of them are easily communicating with one another through a radial hydrographic network, with springs located in the Carpathian Mountains and river mouths in the Danube or Tisa.

In Romania, the concerns as to the environment protection, the protection of the natural beauties as well as to preventing the abusive exploitation of the nature are not of recent date. Thus, the first decades of the 20th century have marked the attraction into this sphere of activities of a number of scientists, mainly biologists and geographers so that, by the opportunity given by the first Congress of the naturalists of Romania (held at Cluj in 1928), it has been recommended that a special law is adopted meant to secure the preservation of the natural treasures of Romania. As a consequence, by July 7th, 1930, the “The Law for the protection of the monuments of the nature” has been promulgated followed one year later by the setting up of “the Commission for safeguarding the monuments of the nature” which, as from the year 1954, functioned near the Romanian Academy.

Afterwards, there are other laws which have been adopted, mainly for specific fields (waters, soil, forests etc.), an overall regulation being added in the form of the “Law concerning the environment protection” adopted in 1973. Although quite exhaustive, stipulating basically the steps implied by the protection and preservation of the environment, in fact this law was enforced sporadically and to an insignificant extent only, the organism in charge with its enforcement playing a merely formal part.

During the years preceding the revolution of 1989, a number of laws being adopted for various fields (The waters law, The roads law, The landed fund law, The law concerning the protection of the national-cultural patrimony, etc.) included also provisions concerning the environment protection.

Within the general frame of the reform during the transition period, regulations concerning this subject are found again in the new law of the environment protection, adopted in 1995, as well as in the national strategy conceived for this field in 1996. These normative acts

have been updated and improved during the last past years when a number of other laws concerning the waters, the wastes and the bio-diversity protection have been adopted, so that presently a strategy of a durable development in Romania, aiming as horizon the year 2020, is about to be finalized.

The issues concerning the environment protection are focused by certain international institutions, which are watching the activity carried out in this field by the countries. It is to be noted the fact that, as a result of the steps which have been taken, mainly these 8-10 years, Romania is recording certain positive outcomes which are placing it in front of other countries both from Europe and other continents. In its position of country member of the European Union, for Romania it is of utmost importance the fact that the national legislation has transposed the most part of the community *acquis* which it kept on implementing.

2. The global quality of the environment in Romania

In Romania the quality is affected by the negative impact of certain economic activities, mainly industrial processes, production of thermo and electric energy, unproper exploitation of certain natural resources, vehicles traffic, a technical and urbanistic infrastructure not correlated with the development of human habitats, as well as the trans-frontier pollution.

A negative impact on the environment is given by certain industrial branches, mainly as far as the *air pollution* is concerned: the thermo-energetic industry, because the emission of effluents into the atmosphere, such as the sulphur dioxide, powders and carbon dioxide, nitrogen oxide; the siderurgical industry by the large number of eliminated gases and the big quantities of dust containing noxious substances; the building materials industry, where the key-polluting agents are the nitrogen oxides, sulphur dioxide and dust (the cement factories, generating 500 tons of cement dust per year); the mining industry, a branch which is affecting the environment through its extracting operations, the ores and minerals manufacture, the storage of the wastes as well as through the transportation infrastructure; the chemical and petrochemical industry, through the emissions into the atmosphere which have also a negative impact on the environment etc.

The concentration of polluting substances in the air exceeded frequently the maximum allowed concentration in locations such as: Zlatna, mining center and non-ferrous metallurgy center (both as for powders in suspension and subject of sedimentation as well as for sulphur dioxide), Rovinari and Motru, centers of the quarry and mine extraction of lignite (mainly as for powders subject of sedimentation), Turceni, Rogojelu, Doicesti, places where there are thermo-centrals coal based functioning (powders subject of sedimentation also), Baia Mare, the major center of the non-ferrous metallurgy of the country (mainly as for cadmium and lead), Copsa Mică (as for cadmium, lead and their compounds, Galati, the largest center of the siderurgical industry (mainly as for powders subject of sedimentation), Bicz, Tască-Bicz și Comarnic, places locating cement factories (as for powders in suspension and powders subject of sedimentation) etc.

Another major polluting factor for all the cities of the country as well as for the public roads consists of the vehicles circulation (thorough emissions of gases), which gets intensified as from 1990 on, as a result of the spectacular increase of the cars number and, mainly, due to the fact that many of the vehicles being brought into the circulation are, in fact, old and polluting vehicles leading meantime to a *phonic pollution* as well.

The hydrographic network and the water quality on the Romanian territory is radially disposed as against the mountains crown.

The total length of the rivers (excepting the flows of temporary leakage) counts for about 66,000 kms, the average density of the hydrographic network counting for about 0.25 kms/km². The density of the hydrographic network shows a vertical division into zones, varying from 0 km/km² at the plains zone, up to 1.4 kms/km² at the mountains zone.

On the area of 237,500 kms of the territory of Romania, there are more than 4,000 individualized rivers which have the receiving drainage basin of a surface bigger than 10 kms².

The concentric disposal of the main forms of relief as against the Carpathian Mountains, let them be the main watershed, divided, due to the tectonics, in three important corridors: Someș, Mureș și Olt, which are draining the internal van of the Transylvania basin towards the outer zones of the mountains.

The Danube is collecting almost the entire flowing waters network from our country.

The Black Sea is an non-typical sea, mainly due to a lower salinity (17‰) as comparatively with the ocean one (over 34‰), as well as due the big quantity of sulphurated hydrogen which is found below the level of 180-200 m. The main polluting agent of the marine environment within the zone of the western continental plateau of the Black Sea is given by the liquid and solid debit of the Danube which brings into the marine basin an abnormal quantity of microelements and nutrients as a result of draining large continental surfaces (about 817,000 kms²), intensely polluted.

As far as the surface *water quality* is concerned, it must be underlined that out of the total length of the river flows being under surveillance in 2006, about 92,5% observed the quality conditions as stipulated by the legislated standards, the balance being considered as polluted waters. The developments during the period 1990-2006 underlined the decrease of the river flows having sectors of polluted water, in parallel with the increase of the weight of the rivers of 1st category water. This dynamics is reflecting the diminishing of the punctiform emissions, mainly in industry and agriculture, as a direct result of cutting down the economic activity but also as a result of applying more extensive steps of protection as far as the water quality is concerned, as comparatively with the previous period, before 1989.

In 2006, the 1st category waters, fit to drink, counted with a weight of 64.1%, those of 2nd category, needed by piscicultural arrangements and urbanistic purposes counted for 21.8% while those of 3rd category, fit for irrigations and industrial purposes counted 7.5%. Nevertheless, there are certain sectors of water flows, among which Tisa, Someș, Crisuri, Mureș, Olt, Argeș, Ialomița, Siret, Prut, mainly downstream industrial centers, which are polluted, basically because the residual non-treated waters, overflowed by the respective enterprises.

As far as the phreatic waters are concerned, there are certain areas within the rural space, where relatively high concentrations of nitrogen and pesticides (DTT and HCH) still persist.

The soil quality is affected by different injurious processes and phenomena, both natural and atropic, which exercise their influence on about 11 million ha agricultural land (out of which, approximately 7 million ha arable land) and about 4 million ha forestry land.

The biggest part of the *agricultural soils* has been affected, at the level of the year 2007, by one or several

injurious phenomena, such as: excessive draught (which affected almost the entire agricultural surface); soil erosion through water (6,300 thousand ha are subject of this process); low and very low content of phosphorous and nitrogen (about 6,400 thousand ha), strong and moderate acidity (3,500 thousand ha), compact soils due to un-proper (6,300 thousand ha), chemical pollution of the soil with pesticides, crude and other industrial wastes (about 900 thousand ha) etc.

On the *forests quality*, “the green lung of the country” (which, with a weight of about 26,3% of the total surface, is classified in the category of countries with medium resources), besides certain causes of biological nature (one of them consisting of the difoliage degree, namely the degree of forests drying, indicator which, in 1991, counted below)⁽¹⁾, a negative impact has been involved by certain inadequate policies carried out within the pervious periods. We are talking here, firstly, about the rapacious exploitation of the forestry fund during the last half century (policy which keeps on being run presently as well), by cropping quantities of wooden mass bigger than the exploitation capacity of the forests, as set up by forest arrangements, implying negative effects of ecosystems degradation (erosions or land sliding which tend to get generalized, decrease of the water debits and phreatic water sheet, dramatic climatic alterations, with extended draught over several successive years).

Fighting the forbidden grubbing, initiating a national program of reforestation, these are representing the basic conditions for the protection of the only one ecosystem which secures the natural balance of the entire country.

Wastes management. One of most critical issues of the environment protection is given by the wastes management. As a result of the consumption increase but also as a result of the old technologies and machinery of the industry, in Romania there are millions of tons of wastes being produced each year.

Thus, in 2006, the total quantity of solid wastes being generated counted for 380.2 million tons of which, industrial and agricultural wastes represented 27.8 million tons, urban wastes 7.9 million tons and the mining sterile 344.5 million tons, arising mostly from the activities of lignite extraction.

However, there is a tendency of decreasing the amount of dangerous wastes to be noted for the last years, these representing in 2006, 2.5 million tons (1% of the total general wastes), the biggest quantities being generated

by the extractive industry (1,905 thousand tons), chemical industry (135 thousand tons), metallurgical industry (126 thousand tons), or originating in shabby oils (117 thousand tons), in the crude refining (78 thousand tons), etc.

As to the degree of revaluating the wastes, while it is exceeding 80% for the metallic, glass, wood, paper, textiles, plastics wastes, a low degree of revaluating is to be considered for petroleum wastes, the mining extractions wastes and residual mud.

The storage of the industrial wastes is generating particular problems to the environment, mainly in the case of the sterile storages, both by the risk as to the stability and the negative direct impact on the soil (occupying the lands and their degradation), the pollution of the surface and underground waters, the soil pollution. Meantime, there are frequent situations when the garbage is stored uncontrollable, in the neighborhood of human habitats and surface waters, without taking the adequate steps for the environment protection.

3. Environment protection

In the frame of the policy meant to secure a durable human development, after the year 1989, in Romania the selection of the priorities for action has been taken into consideration and the required legislative acts have been initiated aiming the environment protection and conservation. The targets aimed the achievement of the preservation of conditions for the people health, avoiding the pollution through preventing steps, the preservation of the biodiversity, the protection against the natural disasters and against the accidents, as well as the connection to the provisions of the international Conventions and Programs.

The strategy for the environment protection drawn up in Romania is based on the examination of the relationship between the economic development and the environment quality, a series of laws, steps and programs being adopted in this respect, aiming major aspects such as: the arrangement of the hydrographic basins in order to prevent the negative events associated to floods, land sliding, streaming etc., an adequate use of the lands even by giving back the natural vocation to those which got inadequate uses; the rational exploitation of the soil and underground resources, in accordance with the maintenance of the balance between the natural processes

and the human life requirements; preventing and fighting all the polluting phenomena by eliminating or reducing the generating causes, by introducing non/polluting technologies, by using equipments and installations for eliminating or reducing the noxious substances etc.

In fact, Romania is one of the first countries which adopted a *National Strategy for a Durable Development*, in 1999, this one being in accordance with the regulations in the filed in force at the European and world-wise level, which aims absolutely all the fields of the social and economic life.

In order to achieve the forecasted targets, annually there is a series of *expenses for the environment protection*, which are made in the form of investments and current spending, carried out by both un-specialized producers and specialized producers or the local public administration.

The total expenses at the national level, for activities of environment protection, amounted, as an average over the period 2002-2006, 2.85 billion of lei, representing about 1.8% of the GDP, out of which the investments amounted almost 956 million of lei (33.1%) while the internal current spending amounted 1.894 billion of lei (66.7%). By categories of producers, the total expenses went in a proportion of 59% to the un-specialized ones, 32% to the specialized ones and 9% to the local public administration.

On an overall basis, the total expenses for the environment protection, spread over protection activities, underline the fact that they were preponderantly directed towards activities of the wastes management (43.4%), activities concerning the water protection (17.3%), activities concerning the soil and the underground waters protection (17.2%), activities concerning the air protection (13.4%).

The outcome of these expenses is mainly materialized in supplying certain enterprises with equipments, machinery and installation for the environment protection: installations for capturing the dust (the cement industry), installations for capturing, neutralizing and revaluating the gases (thermo-energetic industry, petrochemical industry etc.); installations for water protection and treatment, installations for collecting and treating the wastes etc.

When executing certain works, as auxiliary or secondary activities to their main activity which they are carrying out, some of the un-specialized producers

manage to secure the increase of the quality parameters for their own activity and, meantime, contribute to the improvement of the environment factors. For instance, among these activities, there are the works meant to prevent the floods and remove the effects of high floods, the land protection, the fight against the erosions and banks sliding, the works meant to eliminate the floating material from the lakes surface as well as the wastes stored by the population within areas contiguous to the hydro-energetic arrangements (with benefic effects on the soil and water protection).

The storage of wastes on open ground is representing the most important way to eliminate the industrial wastes, about 70% of the generated wastes being stored annually in Romania likewise. Thus, in the year 2006, the records are showing that there were 935 warehouses of wastes, out of which municipal warehouses (covering a surface of 796 ha) and 683 industrial warehouses (covering a surface of de 11,142 ha), most of them consisting of waste dumps of mining sterile (203 warehouse), pits (121), ordinary industrial warehouses (107) waste dumps of slag/ashes (77), decantation dams (64).

Meantime, we have to underline the efforts undertaken in order to process the residuum generated by the crude extraction in order to let them become consistent with the ecological requirements, by means of imported equipments, which residuum are stored over a 70-80 years period, as slem warehouses, of which there is a crude being extracted and reused.

In the perspective of the forthcoming years, the efforts meant to improve the activities of the environment protection will constitute a top priority concern for all the factors being involved in this field. According to the estimates drawn up by the Department for the Environment Protection, along with European specialists, over the next 20 years Romania should invest more than 20 billion euro in order to maintain the ecological equilibriums as close as possible to the environment standards, which are considered as acceptable in the frame of the European Union.

4. Policies concerning the environment protection

Taking into account the fact that a healthy environment is essential for securing the prosperity and the life quality and considering also the real fact which shows that the damages and the costs generated by the

pollution and by the climatic changes are considerably huge, Romania is promoting the concept of decoupling the impact of the environment degradation from the economical growth, by promoting the efficiency and by interpreting the high standards of the environment protection as a challenge to innovation, to new markets creation and to new business opportunities.

Targeting, as main objective, the consolidation of the administrative structures as basic element for building up a solid system of environment management and the contribution to the durable development, the activity carried out in this field will focus on the following priorities:

- *Integrating the environment policy in the process of drawing up and enforcing the sectorial and regional policies;*
- *Evaluating the actual situation of the environment factors and substantiating a long term strategy of development in the field of environment, regenerating and non-regenerating resources;*
- *Consolidating the institutional capacity in the environment field;*
- *Improving the quality of the environment factors within the urban and rural zones;*
- *Extending the national network of protected areas and natural reservations, the rehabilitation of the coastline infrastructure of the Romanian littoral, the ecological and economic resizing of the Danube;*
- *Consolidating the trans-frontier and international partnership with similar institutions from other countries in order to watch the stage of implementing the international agreements;*
- *Drawing up the strategies for the protection of the citizens against the natural disasters, the ecological accidents and exposures within areas of ecological risk;*
- *Consolidating the partnership with non-governmental organizations in the process of drawing up and enforcing the public policies in the field.*

5. Transitory steps implied by the adhesion of Romania to the European Union as to the environment field

As far as the *environment* is concerned, the European Union directives are very complex and oblige the Member States to sustained efforts in order to line up with the European standards.

The accent goes to the environment issue from the point of view of the air quality, the policy carried out in the field of wastes, the water quality, the industrial pollution and the risk management.

The aspects concerning the air quality are settled by the Directive no. 94/63/CE issued by the European Parliament and by the Council on December 20th, 1994, concerning the control on the emissions of volatile organic compounds arising from the storage and distribution of fuels and their distribution from terminals to the fuel distribution stations, amended by the Regulations no. 1882/2003 of the European Parliament and by the Council of 29.03.2003.

■ *Water quality*, generally speaking, and the one of the potable water, particularly, are treated with utmost attention by the European Union. When studying the environment situation, the air and water quality hold a determinant place.

Out of the examination of the directives which are regulating, at the European level, the water quality (Directive 83/13, regarding the limit values and quality targets for the cadmium evacuations, amended by Directive no. 91/692/1991, as well as Directive no. 84/156/1984, regarding the limit values and quality targets for the hexachlorocyclohexan evacuations, amended by Directive no. 91/692/1991), it is resulting that Romania must do huge steps in order to line-up and comply with these requirements.

That is why the European Union approved for Romania a number of derogations, namely: the limit values for cadmium and mercury evacuations into waters are not applying on the territory of Romania until December 31st, 2009 for a number of 23 industrial installations.

By derogation from Directive no. 84/491/CEE of the Council of October 9th, 1984 concerning the limit values and quality targets for the linden evacuations into waters, as stipulated by Directive no. 76/464/CEE and Council of May 4th, 1976, regarding the pollution caused by certain dangerous substances being evacuated into the aquatic environment of the Community, these requirements are not applied on the territory of Romania until December 31st, 2009 for a number of three industrial installations.

Also by derogation, the provisions of Directive no. 86/280/CEE of the Council of June 12th, 1986 concerning the limit values and quality targets for the evacuations of certain dangerous substances, amended by Directive no. 91/692/CEE of the Council of 23.12, are not applied on the territory of Romania until December 31st, 2009, for a number of 21 industrial installations.

Another derogation from the provisions of Directive no. 91/271/CEE of the Council of May 21st, 1991, concerning the treatment of the urban residual waters amended by the Regulations (CE) no. 1882/2003 of the European Parliament and Council of 29.09.2003, the requirements regarding the systems of collecting and treating the urban residual waters are not applying entirely on the territory of Romania until December 31st, 2018, two distinct stages being stipulated in this respect: according to the provisions of the article 3 of the directive, the conformity must be achieved by the urban agglomerations having an inhabitant-equivalent lower than 10,000, by December 31st, 2013; the conformity with the provisions of article 5 (al. 2) of the directive must be achieved by December 31st, 2015 by the urban agglomerations having an inhabitant-equivalent higher than 10,000.

Romania is bound to achieve a gradual extension of the systems of collecting the residual waters in conformity with the following minimum general levels of inhabitants-equivalent: 61% by December 31st, 2010; 69% by December 31st, 2013; 80% by December 31st, 2015.

Romania is bound to achieve a gradual extension of the treatment for the residual waters in conformity with the following minimum general levels of inhabitants-equivalent: 51% by December 31st, 2010; 61% by December 31st, 2013; 77% by December 31st, 2015.

The Directive no. 98/83/CE of the Council from November 3rd, 1998, concerning the quality of water meant to the human consumption, amended by the Regulations (CE) of the European Parliament and Council no. 1882/2003, stipulates concrete steps to which a number of derogations applied taking into consideration the difficulties faced by Romania in the process of lining up rapidly to the directive requirements.

- Romania will have to pay a particular attention as regards the lining up to the provisions of the Regulations (CEE) no. 259/93 of the Council of February 1st, 1993 concerning the *supervision and control of the transports of wastes within, to and from the European Community*, subsequently modified by the Regulations (CE) no. 2557/2001 of the Commission of 28.12.2001.

In this respect, it is stated that until December 31st, 2015, all the transports to Romania, containing wastes meant to recovery, as enumerated by the Regulations (CEE) no. 259/93, must be notified the competent authorities while the relative documents must by

processed in accordance with the European standards.

There is a period of another ten years which is granted to Romania for conforming to the European standards, which means respite large enough, but the steps to be taken and adopted are of a great complexity.

By derogation for the regulations, until December 31st, 2011, the Romanian authorities in charge may draw up objections regarding the transports towards Romania containing certain wastes meant to recovery.

Till December 31st, 2001, Romania may draw up objections regarding the transports towards Romania containing certain wastes meant to recovery, as enumerated by the Annex IV to the Regulations as well as in respect of those transports mean to recovery, which are not stipulated by the annexes to the regulations. This dead line may be prorogated up to latest December 31st, 20015, in accordance with the procedure established by the 91/156/CEE of the Council.

Romania is bound to hit the global target of recovery or incineration in installations of wastes incineration with energy recovery, by December 31st, 2011.

- The steps which have to be undertaken in the field of the *liquid wastes management* of high level of environment pollution are those stipulated by Directives no. 75/442/CEE, no. 1999/31/CE and no. 75/442/CEE.

By derogation from the provisions of Directive no. 1999/31/CE and without causing prejudice to the Directive no. 75/442/CEE of the Council of July 15th, 1975, concerning the wastes as well as to the Directive no. 91/689/CEE of the Council of December 12th, 1991, concerning the dangerous wastes, the requirements regarding the water control and the infiltrations management, the soil and water protection, the control and security of the gases stability are not to apply in Romania for a number of 101 municipal warehouses for wastes which will exist until July 16th, 2017.

Starting with June 30th, 2007, Romania provides the Commission, by June 30th, of each year, a report concerning the gradual enforcement of the directive, as well as its compliance with these intermediary targets.

Romania will put in practice the provisions of the Directive no. 2002/96/CE of the European Parliament and Council of January 27th, 2003, concerning the wastes of electric and electronic equipments, amended by the 2003/108/CE of the European Parliament and Council of 08.12.2003, with one accepted derogation only, namely, the extension until December 31st, 2008, of the dead line set up for an average level of separate collecting of minimum four kilograms per capita for wastes

generated by the population households.

■ The Directive 96/61/CE of the Council of September 24th, 1996 concerning *the prevention and the integrated control of the pollution*, amended by the Regulations (CE) of the European Parliament and Council no. 1882/2003, is regulating the steps which the member states of the European Union should enforce in order to limit, control and eliminate the industrial pollution.

Romania is considered as being a country of “high level of risk in the field of the industrial pollution as it has been marked, still keeping the negative effects of an intense industrialization (forced), un-accompanied by necessary steps meant to reduce the pollution and to control it”.

In this respect, in order to give it the possibility to line up to the European standards, Romania takes the advantage of a series of derogations from the provisions of the European Union directive. These derogative steps are stipulated by timetable, taking into account the level of pollution which the industrial companies from Romania are showing, as well as the costs implied by the reduction of the pollution and the implementation of the risk management.

To this purpose, our country *has negotiated and accepted* a calendar, under the circumstances of the derogation from the provisions of the article 5, alin. (1) of the Directive no. 96/61/CE, according to which the conditions to comply with for authorizing the existing installations are not to apply on the Romanian territory to a number of installations, provided that these installations are operated in conformity with the limit values of emissions, the equivalent parameters or the available technical actions, in accordance with the provisions of the article 9, alin. (3) and (4) of this document.

The fully coordinated authorizations should be released for these installations before October 30th, 2007 and should comprise individual compulsory calendars, in order to achieve the full compliance with the general principles which govern the basic obligations of the

operators, as stipulated by the Directive.

■ The European Union is paying a great attention to *the conditions of incinerating the wastes as well as to the way the emissions into the atmosphere of the polluting agents are controlled*.

It is evaluated that Romania faces difficulties as to the observance of the program included by the Directives no. 2000/76/CE and no. 2001/80/CE of The European Parliament and Council.

Under the circumstances, a series of derogative steps have been accepted, in order to allow Romania to line up, within a reasonable period, to the European Union requirements in this respect.

Starting with March 31st, 2007, Romania is bound to report to the Commission, until the end of each quarter of every calendar year, about the situation of shutting down the non-complying installations for the thermic treatment of the dangerous wastes and the quantities of medical wastes being treated during the previous year.

In case that the Commission, taking into consideration mainly the effects on the environment and the need to reduce the misrepresentation of the competition on the domestic market, involved by the transitory steps, considers that these plans are not enough for reaching the forecasted targets, it notify Romania accordingly. Within the following three months after getting such a notification, Romania must communicate the steps which were taken in order to hit the respective targets.

Subsequently, in case that this time also, by consultations with the Member States the Commission considers that these steps are not enough for reaching the targets, it releases the procedure of sanctioning the non-observance of the obligations resulting from the quality of member state, in accordance with the article III-360 of the European Constitution.

Note

⁽¹⁾ According to a number of surveys performed in 1991 within the European countries, the defoliation process of the forest in Romania represented below 19% drying degree, which place Romania on a better position as comparatively other countries such as Belgium, Finland, Norway, Sweden, Hungary,

Greece, Holland (10-25% drying degree) or United Kingdom, Poland, Czech Republic, Portugal, Russia, Germany, Lithuania (over 25%) – See Mircea Bulgaru: „Mileniul III, Disperare și Speranță”, Editura Revista Română de Statistică, p. 337.

The Closing of the Insolvency Procedure

■

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Abstract. *The achievement of the balance between the offer and the demand in a market economy makes that some merchants win and others lose. Losing in business is a normal risk, usually assumed by any merchant. But when the merchant record losses, the issue is of engaging his responsibility before all those that may be damaged due to his negative results. Faced to this reality, the commercial legislation, by way of the collective procedure, has tried to find the most adequate means to reduce up to the maximum the negative influences that the losses beared by a merchant may have on his creditors. According to this, from the new law of the collective procedure (Law no. 85/2006) there have been analyzed those cases of closing the procedure and their effects which raised already problems in practice and aroused interesting doctrinal controversies.*

Key words: insufficiency assets; judicial reorganization; bankruptcy; procedural costs; liquidation fund; retraction of the debtor.

■

The achievement of the balance between offer and demand in a market economy makes some merchants win and others lose. Losing in business is a normal, common risk, usually assumed by any merchant, even though he hopes that it will not happen to him. But when losses are not avoidable, the issue is engaging his responsibility before all those (business partners or mere creditors) who may be damaged due to his negative results. Thus, from its very beginning, by way of collective procedures (initially called bankruptcy), commercial law has concerned itself with finding the most adequate means of reducing the negative consequences that can be incurred by creditors through the losses suffered by the merchant.

During the past few years, there has been a trend in legislation change in many European states regarding collective procedures; this trend materialised in adopting

new legal regulations in some cases⁽¹⁾. Consequently, the legislative instability that characterises collective procedures is not solely found in Romanian law⁽²⁾; it is most certainly determined by the fact that it requires a permanent adaptation of legal rules to economic reality.

In this respect, the French doctrine showed “*the law of collective procedures has become more and more complex over the years, without reaching satisfying results*”, because in the case of bankruptcy everybody loses. As such, in this field, “*there are no good laws, only some that are worse than others*”⁽³⁾.

In this regard, first and foremost, we recall the fact that in 2006 new legal rules were adopted in Romania with respect to commercial insolvency and bankruptcy, specifically Law no. 85/2006 regarding the insolvency procedure⁽⁴⁾.

This new law explicitly repealed the former law concerning judicial reorganisation and bankruptcy, Law no. 64/1995 as modified, and subsequently completed and republished. We assess that this new law represents a core change of the Romanian law regarding collective procedures, even though it still preserves some of the former legal rules (from Law no. 64/1995). We also have to mention that, shortly after it was adopted, some of the articles of Law no. 85/2006 were slightly⁽⁵⁾ changed by OUG no. 86/2006 regarding the organisation of practitioners' activities in insolvency⁽⁶⁾.

The essential innovation brought on by Law no. 85/2006 is, as it can also be understood from its title, the gathering of all previous procedures regarding judicial reorganisation and bankruptcy into a single procedure so-called "insolvency procedure". Thus, by deciding to open the insolvency procedure, the syndic judge will decide either the beginning of the judicial reorganisation procedure under the hypothesis that a reorganisation plan is confirmed, or, on the contrary, to follow directly the bankruptcy procedure⁽⁷⁾.

Starting from this reality, in the present article we have set as goal, on one hand, to analyse some of the legal hypotheses in force that concern the closing of the insolvency procedure and, on the other hand, the effects of this decision.

1. The cases of closing the insolvency procedure

Insofar as the closing of the insolvency procedure is concerned, we have to mention from the very beginning that the new rules largely took over the previous legal provisions contained within Law no. 64/1995, with some modifications that do not necessarily represent a betterment of the normative frame, as we will show next.

As a fact, as in the previous regulation, Law no. 85/2006 stipulates in an unitary manner the cases of closing the insolvency procedure within the 8th Section of Chapter III.

Thus, according to the provisions of articles 131-134 of Law no. 85/2006, the insolvency procedure is closed in the following situations:

a) as a consequence of fulfilling all the payment obligations assumed in the reorganisation plan (art. 132 par.1);

b) if there are no assets in the debtor's patrimony, or if they are not sufficient to cover the procedural administrative costs, and no other creditor is willing to make available the necessary sums;

c) even before all assets in the debtor's patrimony are liquidated, if the claims were fully paid for, and all the associates of the legal person, or natural person respectively, ask for this within 30 days from the notification communicated by the liquidator. In this

situation assets which have not been liquidated will become common property of the associates or shareholders (art. 133);

d) if no claim was recorded against the debtor (art. 134, par. 1) and the procedure was opened at the debtor's request;

e) In case of bankruptcy, after closing all procedures regarding the liquidation and distribution of assets or funds out of the debtor's patrimony (art. 132, par. 2).

From our perspective, some of the hypotheses of closing the insolvency procedure which are stipulated by the new law require several remarks that we will refer to in the next paragraphs, while others do not lead to interpretation practical application problems.

First, we will mention the situation regulated by art. 131 of Law no. 85/2006, which refers to the closing of the insolvency procedure during any of its phases: "*if there are no assets in the debtor's patrimony or if they are sufficient to cover the procedural administrative costs, and no other creditor is willing to make available the necessary sums*". Through this provision, the Romanian legislator⁽⁸⁾ took into consideration the hypotheses under which the procedure cannot continue due to the lack of funds necessary to cover administrative costs, costs incurred through procedure deployment respectively, including the remuneration of the administrator or of the judicial liquidator. In other words, it concerns the cases in which either there are no assets in the debtor's patrimony, or the existing assets are not sufficient to fund the procedural costs, and no other creditor is willing to make available the necessary funds.

We consider this case of closing the procedure has to be judged with respect to the provisions of art. 4 par. 4 of Law no. 85/2006 according to which, in the situation when there are no available funds in the debtor's patrimony, the procedural costs will be supported by the liquidation fund, managed by the National Union of Insolvency Practitioners in Romania.

Moreover, based on the opinion belonging to the judicial doctrine⁽⁹⁾, we can conclude that there is a discrepancy between the two texts mentioned above, so that the hypothesis of closing the procedure stipulated by art. 131 cannot ever be applied in reality because, as there are no funds in the debtor's patrimony, the procedural costs are supported by the liquidation fund.

We agree that such an opinion cannot be received since the text of art. 4 par. 4 of Law no. 85/2006 stipulates, by any means, that the liquidation fund will be resorted to "*in case there are no available funds in the debtor's account*", which is the case when there is no money to cover the procedural costs, even though there may be assets in the debtor's patrimony which can be liquidated⁽¹⁰⁾. In other words, art. 4 par. 4 becomes applicable only in situations

in which there are sufficient assets in the debtor's patrimony to be liquidated but, temporarily, there are no funds to cover the procedural costs.

As a consequence, if we corroborate the provisions of art. 4 with those of art. 131 of Law no. 85/2006 it results that the hypothesis of closing the insolvency procedure as regulated by this text concerns those situations in which, after having liquidated the existing assets in the debtor's patrimony, the conclusion is that procedural costs cannot be covered, and thus it is inappropriate to resort to the liquidation fund, and the procedure has to be closed. It is obvious that in this case the main goal of the insolvency procedure – the payment of creditors – cannot be achieved due to debtor's insufficient assets and, as a result, no procedural cost is justified.

A similar case is the hypothesis of closing the bankruptcy procedure stipulated by art. 133 letter a) of Law no. 85/2006 – where claims have been fully paid without being necessary to liquidate all assets in the debtor's patrimony. Of course, this situation is exceptional, even very rare, because if all the debts can be paid, it means the debtor is always capable of recovery. In this case, it is the judicial reorganisation procedure that will be opened, and not the bankruptcy procedure.

This case of closing the bankruptcy procedure was similarly stipulated by the previous regulation, by art. 132 of Law no. 64/1995, respectively. Under the former regulation, the following question was raised: what is the debtor's future in the situation in which the procedure is closed because the claims have been fully paid? The question was raised as a result of the fact that the law did not stipulate in this case the necessity to erase the debtor as a legal person. In consequence, he can continue his existence.

Thus, it was decided within judicial practice that “*in the situation regulated by art. 132 of Law no. 64/1995, if the syndic judge does not decide to erase the debtor and he still has assets, he can continue his activity because the objective of the law has been achieved*”.⁽¹¹⁾

Instead of that, the doctrine of that time⁽¹²⁾ underlined that it is not compulsory that under this hypothesis the debtor continues his existence and activity. In this way, if the assets left after all debts' payment is not enough to continue the activity, the debtor - legal person can “*opt to apply the provisions of Law no. 31/1990 for the dissolution and liquidation of the company*”. We consider, however, that the solution of continuation of the existence and activity of the debtor, although economically fair, was not fully correct as long as, according to art. 106 par. 2 of Law no. 64/1995 as republished with the subsequent changes and addenda, the syndic judge pronounced the dissolution of the debtor-legal person through the decision of opening the bankruptcy procedure. Thus, in accordance with the

stipulations of Decree no. 31/1954 regarding natural and legal persons and of Law no. 31/1990 regarding commercial companies, the dissolution leads to the opening of the liquidation procedure, during which the legal personality subsists only with the purpose to accomplish the liquidation procedures, and the debtor cannot initiate new activities⁽¹³⁾. Thus, even though the law did not expressly provide the withdrawal (retraction) of the debtor-legal person, his existence and activity could not continue because the dissolution had been pronounced in this respect.

Currently, this situation is no longer an issue because art. 133 of Law no. 85/2006 expressly provides that, with the closing of the bankruptcy procedure based on all claims being fully paid, the syndic judge also pronounces the retraction of the debtor-legal person from the register of trade where he was recorded. Needless to say, through this legal provision the legislator wanted to eliminate controversial and at least debatable solutions expressed by the judicial doctrine and practice based on the former provisions of Law no. 64/1995.

Nonetheless, we consider that this solution adopted by the legislator is not economically fair either in all the cases or in compliance with the spirit of the law that regulates the insolvency procedure. In this respect, no doubt that the retraction and, as a consequence, the cessation of the debtor-legal person's existence, are imposed under all hypotheses in which, after all the claims have been fully paid, the remaining assets are not sufficient to continue economic activity. Of course, given the insolvency state of the debtor, which triggered the opening of the bankruptcy procedure, this situation will be incidental in most cases. However, for the hypotheses under which the assets left after the full payment of claims would allow the debtor to continue his activity, we appreciate that the solution of his withdrawal and cessation of existence is not legally required, as it is not economically justified. Moreover, such a solution, under the stated hypothesis, is no longer in accordance with Law no. 85/2006, which, through its contents, attempts to harmonise the main purpose of the insolvency procedure – the creditors' payment – with a preventive scope of safeguarding and maintaining viable debtors. Or, as long as all debts have been fully paid, and the main objective of the procedure was achieved, there is no reason why the existence of the debtor cannot continue if the maintenance of its activities is possible and economically efficient.

In other words, we agree that the case of closing the insolvency procedure stipulated by art. 133 by Law no. 85/2006 has to be circumstantiated in the sense that the syndic judge should pronounce the closing of the procedure and the retraction of the debtor-legal person only in the situation when the remaining assets after all claims payment do not allow the continuation of its economic activities. In all the other cases however, the possibility of maintaining

the existence of the debtor should be expressly provided by the legislator through the cancellation of the decision of opening the bankruptcy procedure whenever, after full payment of all debts, the debtor has the necessary resources to continue the activity.

The solution of cancellation given by the syndic judge to his own resolution is specific to the insolvency procedure, although it is new in our law. This solution has already been explicitly consecrated in this field (through art. 134 of Law 85/2006) as well as concerning the solving of the creditors' objection to the opening procedure formulated by the debtor (through art. 32 par. 2 of the law).

The cancellation of the decision to open the procedure is imposed in order to discard of the consequences that can arise from the debtor-legal person's dissolution stipulated by art. 107 of Law no. 85/2006. The above mentioned solution is already used by the current judicial practice⁽¹⁴⁾.

Another case of closing the insolvency procedure is the one regulated by art. 134 paragraph 1 of Law no. 85/2006, which regards the hypothesis in which, subsequently to the opening of the procedure at the debtor's request, there have not been recorded any claim statements. In such a situation, the syndic judge rules the closing of the insolvency procedure both in its general and in its simplified form, as well as the dismissal of the decision to open it.

As far as the application of art. 134 of Law no. 85/2006 is concerned, we are wondering what will the syndic judge's solution be under the hypothesis that a single creditor registers his claim statement. The collective character of the insolvency procedure expressly consecrated by art. 2 of Law no. 85/2006 justifies our question. This collective and egalitarian character of the insolvency procedure has as consequence the traditional opening of the procedure (consecrated by art. 36 of the law), the stopping of all judicial and extrajudicial actions already started against the debtor and his assets in order to achieve the claims. In this way, the collective character of the insolvency procedure hinders the creditors from individually exerting the rights they have over the debtor. We consider this condition cannot be fulfilled in the situation in which there is only one creditor participating in the procedure. Thus, under such a hypothesis, the collective procedure would be transformed into a mere individual pursuit of the debtor, initiated by a single creditor, which cannot be achieved within the regulated framework of Law no. 85/2006; it can only be achieved by means of common law (civil law), respectively by forced execution procedure.

Given these arguments, under the hypothesis that only one creditor registers his claim statement within the time limit provided for this purpose, we also consider, alongside with other authors⁽¹⁵⁾, that the insolvency procedure should be closed based on art. 134 of Law no. 85/2006, and thus the application field of this legal provision should be extended.

2. The effects of closing the insolvency procedure

The cases of closing the insolvency procedure regulated by Law no. 85/2006 produce various effects with respect to the continuation of the activity of the debtor-legal person.

Thus, in the situation stipulated by art. 132 par. 1st of the law (the fulfilment of all payment obligations assumed in the reorganisation plan) it is obvious that the closing of the judicial reorganising procedure does not produce any consequence regarding the debtor's future so that he can continue his activity.

Insofar as the situations stipulated by art. 131 of the law (when there are no assets or they are not sufficient to cover all procedural costs) and by art. 132 paragraph 2 of the law (when the entire patrimony has to be liquidated to cover the claims) are concerned, the syndic judge is obliged to pronounce, together with the closing of the insolvency procedure, the retraction of the debtor-legal person from the register of trade where he is recorded. As such, the existence of the debtor as a distinct subject of law ceases.

A similar effect is produced in the case the insolvency procedure is closed according to art. 133 of the law (as a consequence of managing the bankruptcy) because, as we previously indicated, the syndic judge rules the retraction of the debtor-legal person through his decision to close the procedure. It means that the debtor ceases his existence.

By difference, in the case stipulated by art. 134 of the law (when as a consequence of opening the procedure at the debtor's request no claim statement was recorded) the closing of the procedure will not produce any effect on the existence of the debtor-legal person. Moreover, through the dismissal of the opening decision, the consequences stipulated by law that occurred once the debtor opened the procedure are eliminated.

Nevertheless, the dismissal of the decision to close the procedure does not eliminate the effects of the debtor's patrimony administration operations carried within the procedure and, according to art. 134, par. 2 of Law no. 85/2006, the acquired rights are won.

Under all hypotheses stipulated by law, the closing of the insolvency procedure also produces effects on the individuals who took part in its deployment. It means that the syndic-judge, the administrator or the liquidator, as well as the other persons who assisted them are free of any obligations or responsibilities regarding the procedure, the debtor or his patrimony, the creditors, shareholders or associates of the debtor (art.136 of Law no. 85/2006).

However, we consider that the most important effect of closing the insolvency procedure is the release of the debtor from all his obligations he would normally have towards his creditors.

Thus, it is possible that within the procedure some creditors are not fully paid after the distributions have been made from the debtor's patrimony. As a consequence, it has to be determined whether they will still keep a claim towards the debtor (whose value represents the difference between the debt recorded and the amount already distributed within the procedure) or if he is going to be entirely freed of any payment obligation.

In this respect, art. 137 par.1 of Law no. 85/2006 stipulates that the debtor-natural person will be freed of all obligations arising before the opening of the procedure through the closing of the procedure under the reserve that he had not acted fraudulently. This means that by closing the insolvency procedure the creditors that have not been fully paid lose their right to directly and individually pursue the debtor-natural person's patrimony. In other words, by regulating this effect of closing the insolvency procedure, the Romanian legislator favours debtors having a fair attitude of reducing the damages incurred by creditors.

The issue of freeing the debtor-legal person from the obligations he normally has does not apply in the case of bankruptcy because he ceases his existence once the closing procedure decision is irrefutable.

By contrary, the issue is of interest in the case of reorganisation of the debtor-legal person. With respect to

this situation, art. 136 par. 2 of the law stipulates that "*at the date of confirming a reorganisation plan, the debtor is freed from the difference between the value of obligations he had before the confirmation of the plan, and the one provided in the plan*". In other words, within the judicial reorganisation procedure, the debtor will be subject to pay only those obligations that result from the confirmed reorganisation plan; and for the rest, he is freed.

Moreover, unlike common law (civil law) where, by the virtue of the principle *accessorium sequitur principale*, the freeing of the debtor has as effect the freeing of the personal guarantor or of the co-debtor. Indeed, according to art. 137 par. 3 of the law, the freeing of the debtor from his obligation does not lead to freeing the fideiussor or of the main co-debtor, so that unpaid creditors can force them to pay the guaranteed claim after closing the procedure. In other words, debtors who can be safeguarded by the procedure of judicial reorganisation are absolved of what they still owe over the amount written in the reorganisation plan, while the guarantors or co-debtors are "sanctioned" and forced executed for covering the differences. It is about a little peculiar and certainly unfair legislative solution that punishes creditors, guarantors or co-debtors of a bad-debtor because they trusted him, some of them doing business or offering credit, and the others guaranteeing for his payment.

Notes

- (1) For example, in 2005, France adopted Law no. 2005-845/26 July 2005 regarding enterprise solvency. This law substantially changed The 6th Charta of the French Commercial Code which contained stipulations of Law no. 85-98/25 January 1985 regarding reorganisation and judicial liquidation of companies, by adopting solutions from the American legislation.
- (2) After 1990, once Romania returned to market economy, the bankruptcy institution was meant to receive a new regulation, more adequate to the new economic context and in accordance with the contemporary concept regarding the treatment of enterprises in distress. Thus, the result was the adoption of Law no. 64/1995 regarding reorganisation and judicial liquidation procedures (published in the Official Monitor of Romania, Part I, no. 130/29.06.1995). After its adoption, Law no. 64/1995 was repeatedly modified and completed, including being republished in 2004 (in the Official Monitor of Romania, Part I, no. 1066/17.11.2004); when the texts were given a new numbering.

- (3) See Y. Guyon, Droit des affaires. Entreprises en difficulté – Redressement judiciaire – Faillite, vol. 2, 4th edition, Economica Publishing House, Paris, 1993, p. 1
- (4) Published in the Official Monitor of Romania, Part I, no. 359/21.04.2006
- (5) Law no. 85/2006 repealed paragraph 6 and 7 of article 19.
- (6) Published in the Official Monitor of Romania, Part I, no. 944/22.11.2006.
- (7) For more details, see A.M. Lupulescu. Reforme et presentation du nouveau cadre juridique du redressement judiciaire conformément à la Loi no. 85/2006, in the volume of the AMIS Conference 2006, supplement of the Revista de Contabilitate si Informatica de Gestiune, ASE Publishing House, 2006, pp. 314-318.
- (8) In the French doctrine this case of closing the insolvency procedure is referred to as "closing the procedure due to insufficiency assets" in Y. Guyon, op.cit., p. 355.

- ⁽⁹⁾ See S. Carpenaru, V. Nemes, M.A. Hotca, *Noua lege a insolventei – Legea nr. 85/2006. Comentarii pe articole*, Hamagiu publishing House, Bucharest, 2006, p. 40-41
- ⁽¹⁰⁾ In this respect, the similar provision existed in art. 4 of the former Law no. 64/1995 as modified and republished. Art. 9 of Methodological Norms for applying art. 4 of Law no. 64/1995 (published in the Official Monitor of Romania, Part I, no. 4/7.01.2000) explicitly stipulated that “available sums are created in the debtor’s account after liquidation...the financing will be made from the debtor’s patrimony account”.
- ⁽¹¹⁾ According to Court of Appeal Cluj, Commercial, contentious, administrative and fiscal Section, Decision no. 5/111, January 2005, in *Revista de Drept Comercial*, no. 4/2005, p. 151
- ⁽¹²⁾ See I. Turcu, note for Decision no. 5/11 January 2005 of Court of Appeal Cluj, Commercial, contentious, administrative and fiscal Section, quoted.
- ⁽¹³⁾ More than that, the dissolution is qualified by art. 40 of Decree no. 31/1954 as a way of ceasing the existence of legal person.
- ⁽¹⁴⁾ See Bucharest Tribunal, S. VII com. Sentence no. 2843/24 July 2007, not published. The insolvency procedure in its simplified form was opened against the debtor-commercial company at the request of a creditor, justified by the fact that the debtor did not bring the documents stipulated by art. 28 paragraph 1 of Law no. 85/2006, including the statement through which the reorganization intent is made known. Actually, however, even before the first deadline, the debtor paid in full the claims of the creditor who requested the opening of the procedure, and consequently he did not fill the application to the open of the procedure and did not bring the documents required by law either. The creditor, however, persisted in their claim, even

though his claim had been satisfied. After the opening of the simplified procedure, all the creditors who formulated claim statements were paid even before starting any operation of liquidation of goods from the debtor’s patrimony. In this situation, taken into account the fact that the purpose of the insolvency procedure – the creditors’ payment – had been achieved, the syndic judge decided that the continuation of the procedure was no longer justified. Also, because the debtor had sufficient assets to continue its economic activity, and had fully paid all the claims before the beginning of any liquidation procedure, the closing of the insolvency procedure based on art. 133 letter a) of Law no. 85/2006 and consequently the withdrawal of the debtor would have been unjust and not economically justified. Moreover, making the assets the common property of the associates/shareholders is subject to VAT, and represents a taxable operation, as stipulated by art. 126 corroborated with art. 128 paragraph 5 of the Fiscal Code. Thus, according to art. 128 paragraph 5 of this latter normative act, it represents a delivery of goods which is paid, and thus a taxable operation “any distribution of goods from the assets of a taxable person by its associates or shareholders, including a distribution of goods concerning the liquidation or dissolution without liquidation of the taxable person...if the tax on the goods or part of them was totally or partially deducted.” In conclusion, with respect to the presented arguments, the syndic judge ruled the closing of the procedure and the dismissal of the decision to open it, applying by analogy stipulations of art. 134 of Law no. 85/2006.

- ⁽¹⁵⁾ See I. Adam, C.N.Savu, *Legea procedurii insolventei. Comentarii si explicatii*. C.H.Beck Publishing House, Bucharest, 2006, pp. 749-750.

Models of Macroeconomic Systems using Genetic Algorithms

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Abstract. AG represents only one, it's true that it is very fashionable today, of the new instruments which began to be used lately in the macroeconomic modelling. Here, it may also be mentioned the classification systems, the genetic programming, the models based on agents, the evolutionist games etc. The characteristics of all these methods consist in the effort to detect the internal dynamic processes of the modelled macroeconomic systems and not only the answer of these to external shocks and perturbations. Among these internal dynamic processes maybe the most interesting is that one of continuous adapting of the modelled macroeconomic system to the environment.

In the macroeconomic environment are included different systems made of subsystems and heterogeneous agents and the decisions adopted by these affect both the systems as such and other subsystems and processes from the environment. This general independency, neglected several times in the macroeconomic modelling due to the lack of instruments and methods able to detect it, may be however approached with enough rigour resorting to new modelling methods as the one described in this chapter.

In order to illustrate such a tendency, we shall present further on some of the most recent macroeconomic models which have been reformulated and studied using AG.

Key words: genetic algorithm; fitness function; decision rule; string; multiple equilibrium points.

1. Cobweb model (Arifovic, 1994)

One of the first models elaborated in this sense was the *cobweb model*, very famous and studied in the economic dynamics. Arifovic uses this model in order to study the adapting process of the decisions of production of the firms to the demand and offer on the market.

Due to the fact that the model, in its classical form, was studied for a long time, it appears the immediate advantage of comparing the results obtained, by applying AG, with the ones resulted previously.

Within the model, there are considered n active firms on a competitive market, dealing with a single perishable

good (non-stackable). Due to the delay in production, the quantities from the respective good offered by firms on the market depend on the expected level of the price.

The cost of the production intended for sale within the firm i at the moment t is given by the relation:

$$C_{i,t} = x \times q_{i,t} + \frac{1}{2} y \times q_{i,t}^2, \quad x > 0, y > 0, \quad (1)$$

where:

$q_{i,t}$ is the quantity produced for sale at the moment t , whereas x and y are parameters.

The profit of the firm i at the moment t is then:

$$\Pi_{i,t} = p_t \times q_{i,t} - C_{i,t} \quad (2)$$

where:

p_t represents the price of the respective good at the moment t .

The optimum quantity which may be produced by the firm I at the moment t is obtained of the condition of first order:

$$\frac{\partial \Pi_{i,t}}{\partial q_{i,t}} = 0$$

of which we have:

$$q_{i,t} = \frac{1}{y} (p_{i,t}^e - x)$$

where:

$p_{i,t}^e$ represents the price expected by the firm I at the moment t .

The product demand on the respective market is given by an inverse function of the demand:

$$p_t = A - B \sum_{i=1}^n q_{i,t} \quad (5)$$

where:

A and B are given positive parameters.

When the market arrives in balance, therefore $p_{i,t}^e = p_t^e = p_t$, the demanded and offered quantity on the market, $q_{i,t} = q^*$ and the price $p_t = p^*$ are in this case constant.

If the firms have perfect (naïve) expectations concerning the price (therefore the price of the next period is expected to be equal with the one of the current period), the model has a solution that converges towards a stable and unique price and quantity, then $B/y < 1$ and diverges when $B/y > 1$.

For the AG application to this model, it was considered that the decisions rules of the firms are represented through binary strings. A firm i , $i = 1, n$ takes a decision concerning its production at the moment t using a binary string of finished length l , written in the alphabet $\{0,1\}$. A binary string is first of all decoded and transformed in a whole positive number and then nominalised to obtain a quantity $q_{i,t} \in [0, q_{\max}]$, where $q_{\max}$ is the maximum quantity that a firm may produce. The quantity $q_{i,t}$ represents the production decision of the firm i at the moment t .

When the quantities $q_{i,t}$ that the firms shall produce are determined, it may also be determined the clearing price of the market p_t using the relation (5). This price is used then to determine the profit of the firms at the moment t , using the relation (2). A certain value of the i firm's profit represents the fitness $\mu_{i,t}$ of the firm i following the application of the respective decision.

The population of decision rules is then updated in order to create a new population that shall be used at the moment $t+1$. There are two varieties of this model. The first one uses only the selection, crossing and mutation operations. The second variety uses only a new genetic operation, besides those three mentioned previously and namely the selection operation.

This operation is testing new individuals (chromosomes) before they become members of the new population. It is being calculated a potential fitness beginning with the price of the last period for each individual. Then two parents and two individuals newly appeared are ordered according to the calculated value of the fitness function, from the highest value to the lowest one, the first two individuals being accepted as members of the new population of decisional rules.

In case of an equality of the fitness value between a parent and a successor, it is selected a successor to become member of the new population.

By applying the genetic operations on the members of a population of decisional rules at the moment t , it results a new population of rules that shall be used at the moment $t+1$. The population from the initial moment, $t = 0$ is generated randomly and the genetic operations are applied iteratively until the moment T .

The above iterative process may be interpreted economically as it follows. The reproduction works as an imitation of the successful individuals. The binary strings of these individuals (firms) have high fitness values and they are copied by other firms. The strings with lower fitness values, which represent decisions to produce less and with a low profit, find few imitators (or none) in the following generation.

The crossing and the mutation are used to generate new ideas concerning the manner to produce more and to offer for sale on the market the product, recombining the existing decisional experiences and generating others new. If it is included the selection operation as well, the above interpretation is being modified in the sense that, during each period, the firms generate new production decisions using genetic operators. The fitness values of these new potential members of the population of decisional rules are compared with the ancient population, within the market conditions observed in the previous period. If the new ideas occurred are better than the previous ones, then they are implemented within the firms. The AG usage under these conditions determines the individual firms to learn in time to adopt decisions that lead to the increase of the profits. These are eventually maximised within all the firms, but they adopt production decisions that direct then gradually towards a higher profit.

The simulations performed showed that for different values of the parameters (different number of firms, different

values of the coefficients a , b , A and B etc.) both stable and instable solutions are obtained.

Arifovic developed an AG with a multiple population, where each firm is endowed with an entire population of strings. We may consider that this population represents admissible rules of decision within which each firm selects, at a certain moment, a decision concerning the best conduit in a given environment. In each moment of time, only a string is being selected, this determining further on the conduit of the agent (firm).

The probability to select a certain type of string is proportional with its performances in predefined conditions. Although a firm selects only a string from an entire amount, all the alternative decisions are evaluated ex post. Therefore, in the context of the model presented previously, at each moment of time t , a firm selects a binary string out of an amount and then uses this string in order to update its decision of production. Once the price of clearing the market is calculated, the firm uses that price in order to determine the profits that each string from its amount of decisional rules shall bring for the level of the respective price. These profits determine the fitness values of the respective binary string. Once the fitness values are calculated, the genetic operators are applied within each population of binary strings, associated to the individual firms.

It is noticed that, through this modification of the model, it is obtained a more varied general frame which leads to more diversified ideas concerning the decisions that refer to the quality of product that shall be offered on the market. Although this frame becomes more complex, the calculation effort is identical with the previous one, where AG is applied to a single population of decision rules.

The application of the selection operation ensures the convergence towards balance of the model solution. When the convergence appears, all the binary strings, of all the populations of decision rules associated to the firms, are decoded in quantities. Without this operation of selection, the simulation shall lead to high fluctuations which are not reduced in time. Therefore, it was shown that, in the model of individual learning of the firms, these must use more sophisticated operations (for instance the operation of selection), in order to realise the convergence towards a balance. But this balance may be stable or instable, depending on the values that the given constants of the model have.

2. Economies with superposed generations and the selection of the economic balance

Another interesting application of AG is the one of determining the balance in different types of economies which has multiple points of balance: for instance, the economies with superposed generations, the economies with increases and the monetary economies.

Further on, we shall present a model of an economy with superposed generations which, under certain conditions, possesses multiple stationary balances. These stationary points of balance have different properties of stability, depending on the nature of the expectations incorporated in the model: the rational or the adaptive expectations.

First of all, we shall consider an economy which consists of two superposed generations of agents, therefore in which are living two generations: the young generation and the old generation. Each generation has an equal number of agents, N . We shall note the two generations with t and $t+1$. Each agent from the t generation lives only two consecutive periods, t and $t+1$, whereas the agents from the generation $t+1$ live only a single period, $t+1$.

An agent from the generation t consumes $c_t(t)$ during the first period (during youth) and c_{t+1} in the second period (when old). The agents have identical preferences and endowments with different goods. The young agent is endowed with w^1 units from a perishable consumable good, and the old agent w^2 units from the same consumable good ($w^1 > w^2$).

The money quantity offered in economy at the moment t is $M(t)$.

Each agent from the young generation has to solve the following problem of optimum:

$$\max c_t(t) \times c_{t+1}(t)$$

under the conditions:

$$c_t(t) \leq w^1 - \frac{m(t)}{p(t)}$$

$$c_{t+1}(t) \leq w^2 + \frac{m(t)}{p(t+1)}$$

where:

$m(t)$ represents the nominal monetary balances that an agent saves in the first period and spends in the second period of his life, and $p(t)$ is the nominal level of the consumable good price in the period t .

The nominal monetary balances are obtained by dividing the money offer at the number of agents from economy at the moment t .

The dynamic of the nominal price $p(t)$ under the conditions of the hypothesis concerning the perfect (naïve) anticipations is described by a relation of the type:

$$p(t) = \frac{S(t)}{S(t-1)} \times p(t-1)$$

where:

$S(t)$ represents the total saving of the agents of t generation. $p(0)$ and $S(0)$ are considered given. It is noticed that the prices increase with a rate equal with the one of increase of the saving from a period to another.

If in economy is applied a monetary policy with a constant offer of money, therefore:

$$M(t) = M, \forall t$$

Then the equation of prices dynamics has an unique stationary *paretian* equilibrium point, given by

$$p(t) = p^*$$

where:

$$p^* = \frac{2M}{(w^1 - w^2)N}.$$

This equilibrium point is instable under the conditions of perfect anticipations and is reached every time the price $p(t)$ becomes equal with p^* .

There is also a continuum of *indexed* monetary balances after the initial level of the prices $p(0) = p_0$ in the interval (p^*, ∞) . In this continuum, all the monetary balances with an initial price $p_0 > p^*$ converge towards a stationary equilibrium point where the money loose their value.

Another possible monetary policy is the one with a constant monetary deficit of G dimension, financed through money print. The value of G is given by

$$G = \frac{M(t) - M(t-1)}{p(t)}$$

supposing that the existing quantity of money in economy in the initial period, $M(0)$. Under the conditions of such a policy, the solution of the model contains two points of stationary equilibrium: a point π_1^* corresponding to a reduced inflation and a point π_2^* corresponding to a high inflation.

The point π_1^* is of the type superior Pareto. The point π_2^* is stable equilibrium, being a drawer for the equilibrium trajectory under the conditions of the hypothesis of the rational expectations, trajectory which leaves from an initial point $\pi_0 \in \left(\pi_1^*, \frac{w^1}{w^2} \right) \times \pi_0$ is equal even with π_1^* , the economy arrives at a stationary equilibrium with reduced inflation. The stability condition involves, also, that an increase of the budgetary deficit G determines a decrease of the inflation rate in a stable stationary equilibrium.

In order to apply AG to the above model, there are considered two populations of binary strings at each moment of time t . One represents the set of rules for the young members of the generation t and the other the set of rules for the old members of the generation $t+1$. Each population is updated in alternative periods of time after its members passed through a cycle of life of two periods.

The binary strings refer to the values of consume of the agents during the first period. A member i , $i \in \{1, \dots, N\}$ of the generation t takes a decision concerning the consume in the first period (young) at the moment t , noted $c_{i,t}^1$, using a binary string. The economies of the agent i from the generation t are given by

$$s_{i,t} = w^1 - c_{i,t}^1$$

The sequence of events which takes place at the moment t is the following:

The values of the consume from the first period (young) are obtained through decodification and normalisation of the binary strings associated to the individuals from the population and then determine, for each agent i , the individual economies $s_{i,t}$.

Then, it is determined the value of the aggregated economy $S(t)$ amounting the individual economies of the agents from the young generations:

$$S(t) = \sum_{i=1}^N s_i(t)$$

The price of the consumable good at the moment t , $p(t)$ is obtained then from the relation:

$$p(t) = \frac{M}{S(t)}$$

in case of the monetary policy with constant offer of money, or

$$p(t) = \frac{S(t-1) \times p(t-1)}{S(t) - G}$$

for $S(t-1) > G$, in case of the monetary policies with constant budgetary deficit, G .

It is then determined the consume in the second period (old) of the agent i , $i \in \{1, \dots, N\}$, of the generation $t-1$:

$$c_{i,t}(t-1) = \frac{s_i(t-1) \times p(t-1)}{p(t)} + w^2$$

Eventually, there are calculated the values of the fitness function of the members of the generation $t-1$. The fitness function for a string i from the generation $t-1$ is given by the value of the utility consume of the agent i at the moment $t+1$ (the second period of life):

$$\mu_{i,t-1} = U[c_{i,t-1}(t-1), c_{i,t-1}(t)] = c_{i,t-1}(t-1) \times c_{i,t-1}(t).$$

The population of rules of the generation $t+1$ is then obtained from the population of rules of generation t using genetic operators of reproduction, crossing, mutation and selection. Once the new generation $t+1$ of population is created, the entire cycle repeats. The population of rules of the generation $t+1$ represents the younger agents, whereas the members of the generation t become now old agents.

The populations of generations 0 and 1 year are generated aleatory. The system has at the beginning $N \times h$ monetary units distributed initially to the generation 1 (old).

The simulations in case of the economy with constant monetary offer converge towards a stationary equilibrium where the money has value. This equilibrium is also a convergence point in case of the economies with adaptive expectations which use an average of the levels of the passed prices for the price prognosis.

In the economies with constant positive value of the budgetary deficit, AG converges towards the stationary equilibrium point corresponding to a low inflation rate.

3. The economies with superposed generations and economic increase

Another application of AG is in the models of economic increase obtained leaving from the models with superposed generations.

Therefore, we consider an economy with a constant number N of agents, born in each period t . The agents are living two periods, a young and an old one, and each of them are endowed with a time unit at each moment t . All the agents from economy have the same function of utility:

$$U = \ln c_{i,t}(t) + \ln c_{i,t}(t+1)$$

There is only one perishable good which is being used both for consume and as an input for production. The output for labour unit is given by a function of neoclassic production:

$$f(k(t)) = k(t)^\alpha, \alpha \in (0,1)$$

$k(t)$ being the technical endowment of work.

The rate of the physical capital productivity and the rate of the salary are given by:

$$r(t) = \alpha k t^{\alpha-1}$$

and respectively

$$w(t) = (1-\alpha) \times k(t)^\alpha$$

A young agent i from the generation t takes a decision to spend a fraction of time $\tau_{i,t} \in [0,1]$ for instruction. Each young agent inherits a efficiency level $x(t)$ available in economy at the moment t . The level $x(t)$ is obtained as an average of the efficiency units (human capital accumulated) of the agents of generation $t-1$:

$$x(t) = \frac{1}{N} \sum_{j=1}^N x_{j,t-1}(t),$$

where $x_{j,t-1}(t)$ represents the number of efficiency units of the agent j of generation $t-1$ at the moment t .

The young agents may combine this inherited endowment $x(t)$ with the instruction decision $\tau_{i,t}(t)$ in order to obtain $x_{i,t}(t+1)$ effective units of work when they become old, using for this a method of instruction, noted $h(\tau_{i,t}(t), x(t))$.

An essential trait of the model is that the income obtained through training depends positively of the level $x(t)$. Therefore $x_{i,t}(t+1)$ is given by the relation:

$$x_{i,t}(t+1) = h(\tau_{i,t}(t), x(t)) \times k(t) = 1 + \gamma(x(t)) \tau_{i,t}(t),$$

where $\gamma(\cdot)$ represents the productivity of the human capital and is given by a sigmoid function of the type:

$$\gamma(x(t)) = \frac{\lambda}{1 + e^{-x(t)}} - \frac{\lambda}{2}$$

The function $\gamma(x(t))$ strictly increasing in relation with $x(t)$, $\gamma(0) = 0$ and

$$\lim_{x(t) \rightarrow \infty} \gamma(x(t)) = \frac{\lambda}{2} = \hat{\gamma}$$

The parameter λ controls therefore the income obtained by training the agents.

The accumulation equation of the efficiency $x(t)$ following the training process may be written:

$$x(t+1) = x(t) [1 + \gamma(x(t)) \bar{\tau}(t)]$$

Where $\bar{\tau}(t) = \frac{1}{N} \sum_{i=1}^N \tau_{i,t}(t)$ represents the average of the training time of the agents of t generation.

Besides the decision concerning the allocation of the training time, the agents also take a decision concerning the fraction $\Phi_{i,t}$ from the available time that they save (leisure). This saving of time is then equal with:

$$s_{i,t}(t) = \Phi_{i,t}(t) \times w(t) [1 - \tau_{i,t}(t)] \times x(t)$$

The decision concerning the leisure influences the accumulation of physical capital in economy in time.

The model has two state variables, one corresponding to the low income (the poverty course) and the second one corresponding to the high income (maximum increase). The first variable is equivalent with the state of stationary increase from the model of neoclassic increase without accumulation of human capital and with no technical progress. In the stationary state, $\tau = 0$ for all the agents i , $i \in \{1, \dots, N\}$ and all t , which makes that the human capital as well to stay at its initial level, therefore the efficiency $x(t)$ stays constant for all t .

The other variable corresponds to the state of stationary increase where $\tau > 0$ for all i and all t . Therefore, $x(t)$ shall increase with a constant rate such as for t enough high, $\gamma(t) \rightarrow \hat{\gamma}$.

The stationary state corresponding to the reduced income (the poverty course) is locally stable under the conditions of dynamics with rational expectations, whereas the stationary state corresponding to the high income (maximum increase) is a stable saddle point.

For the AG application, the decision of the agent i , $i \in \{1, \dots, N\}$ concerning the fraction of time that he spends for training, $\tau_{i,t} \in [0,1]$ in the decision concerning the fraction of time that he is saving, $\Phi_{i,t} \in [0,1]$, are represented by the same binary string of length l , where $l/2$ bits are used to encode the first decision, and the other bits to encode the second decision.

The fitness values of the decision rules are equal with the values of the function of utility registered at the end of the second period of life. The population of decision rules is updated using genetic operators of reproduction, crossing and mutation.

At each moment of time t there are two populations of such rules, one associated to the young agents and the other associated to the old agents.

No matter the initial conditions given, such an economy shall develop, following the simulation, towards a stationary state corresponding to the maximum increase which represents the global equilibrium of such an economy. Once such a state is reached (which happens in the case of the probability equal with 1), the economy stays in this state forever.

The initial level selected for $x(t)$ represents the essential variable with respect to the time necessary to attain such a state. The more the initial level of $x(t)$ is reduced, the more time is necessary for the economy to come out of the poverty course.

Initially, AG attains enough fast the stationary state corresponding to a low income. In this point, many of the decisional rules prescribe not to invest time in training because the investment in the human capital brings a low income and determines a reduced value depending on the fitness.

However, due to the effect of mutation, there is always a small fraction of rules which lead to positive values of the time dedicated to training, $\tau_{i,t}$. These rules may disappear from the population due to the pressure of selection. However, gradually, they contribute to the increase of $x(t)$. In time, more $x(t)$ increases, it reaches a sill beginning with which the income from the human capital becomes high and the fitness values of the decisional rules which invest in instruction begin to increase. Once this thing happens, the pressure of selection diminishes because the rules of decision which determine the positive decisions during the time dedicated to training bring now fitness values higher than those that determine the agents to invest zero time in training.

In this point, AG leads the economy fast towards a stationary state corresponding to a higher income, where $\tau_{i,t}$ take positive values for all the agents i and all the moments of time t . The transition phase is relatively short

and, once the economy arrived in this stationary state, as we have shown, it stays here forever.

Since the accurate date of commutation depends on the specific sequence of mutations which leads to the accumulation of capital, the economies that have identical initial conditions may have different periods of development. In general, higher rates of the rules of decision of the economies which have invested in training determine average periods of realisation of the lower commutation.

Such models, although they show that there are different stationary states, which explains the different developments between the economies, do not show how it may pass from the economy in course of poverty to the economy with maximum increase or how much of the economy remains in the first state. However, these models capture two important aspects of the development process. The first one is for the low initial levels of the human capital per capita, which characterises the underdeveloped economies, the population of agents crosses several generations in the neighbourhood of the stationary state corresponding to the poverty course before that, eventually, to begin to develop on a trajectory that leads towards a stationary state corresponding to a high income. This thing explains why countries which at present are developed used to have a stationary level of initial development for hundreds of years.

The second aspect is that the economies with identical initial conditions may register transition periods between the two states of different duration. This thing is important because different dates of commutation involve different levels of income per capita, in the stationary state corresponding to the high income. This thing would explain as well the great differences that appear between the levels of the income per capita in the developed countries.

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