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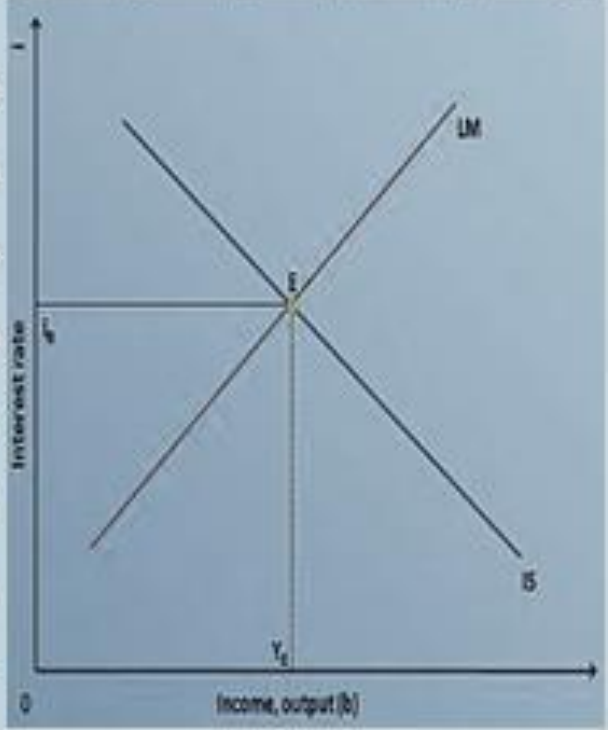

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A Panel Estimation of the Relationship Between Trade Liberalization, Economic Growth and CO_2 Emissions in BRICS Countries

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Abstract: *In the last few years, several studies have found an inverted-U relationship between per capita income and environmental degradation. This relationship, known as the environmental Kuznets curve (EKC), suggests that environmental degradation increases in the early stages of growth, but it eventually decreases as income exceeds a threshold level. However, this paper investigation relationship between per capita CO2 emission, growth economics and trade liberalization based on econometric techniques of unit root test, co-integration and a panel data set during the period 1960-1996 for BRICS countries. Data properties were analyzed to determine their stationarity using the LLC , IPS , ADF and PP unit root tests which indicated that the series are I(1). We find a cointegration relationship between per capita CO2 emission, growth economics and trade liberalization by applying Kao panel cointegration test. The evidence indi cates that in the long-run trade liberalization has a positive significant impact on CO2 emissions and impact of trade liberalization on emissions growth depends on the level of income Our findings suggest that there is a quadratic relationship between relationship between real GDP and CO2 emissions for the region as a whole. The estimated long-run coefficients of real GDP and its square satisfy the EKC hypothesis in all of studied countries. Our estimation shows that the inflection point or optimal point real GDP per capita is about 5269.4 dollars. The results show that on average, sample countries are on the positive side of the inverted U curve. The turning points are very low in some cases and very high in other cases, hence providing poor evidence in support of the EKC hypothesis. Thus, our findings suggest that all BRICS countries need to sacrifice economic growth to decrease their emission levels.*

Keywords: panel analysis, environmental Kuznets Curve, CO2 emissions, growth economic, trade liberalization

JEL Classification: C33, Q43, Q54, O44, O10

1. Introduction

The relationship between carbon emissions , GDP and trade liberalization is central to an understanding of the environmental future of the planet and has, as such, been extensively studied. In general, environmental goods and their quality are normally good, denoting that increased earnings from free trade would increase an individual's demand for higher environmental quality. In the early stage of economic development, a small portion of excess income is typically allocated for environmental problems, and thus, at this stage, the industrialization process is likely to be accompanied by environmental problems.

A branch of this literature known as the Environmental Kuznets Curve (or inverted-U shaped curve ,EKC) argues that carbon emissions and GDP are, initially, positive related but that, after a threshold level of income, this relation turns negative. Much of this literature has been cast in a multi-country panel data framework (Burke, 2010). However, most of the previous studies have not taken into account the different levels of income across countries. In this regard this study is an attempt to remedy this limitation by focusing on comparing the relationships between CO2, trade liberalization and economic growth by accounting for level of development.

In the past decade, great efforts have been put into testing the EKC hypothesis by applying different models (linear, parametric, semi-parametric, non-parametric and fuzzy), analyzing various pollutants (SO2, CO2, NH4, etc.) and using various types of data (time series, cross-section and panel). Yet, the exact form of the model remains inconclusive and the results are mixed. This study investigates the question of the existence of an EKC with using a panel data method. The main reason for studying CO2 emissions is that they play a focal role in the current debate on environment protection and sustainable development. CO2 has been recognized by most scientists as a major source of global warming through its greenhouse effects. Pollutants like sulphur oxides or oxides of nitrogen, have a more local impact on the environment. Another reason is that CO2 emissions are directly related to the use of energy, which is an essential factor in the world economy, both for production and consumption. Therefore, the relationship between CO2 emissions and economic growth has important implications for environmental and economic policies.

By applying EKC theory, previous studies have provided a better understanding of the environmental consequences of international trade and suggested that economic growth can improve the environment and that economic growth is necessary for maintaining or improving the quality of the environment. According to the EKC concept, CO2 emissions are expected to have a positive relationship with the level of income or trade liberalization before the EKC threshold and then a negative relationship beyond the threshold. For example, if there is a negative relationship between CO2 emissions and free trade, then CO2 emissions are likely to decrease as the country becomes more exposed to open markets. Similarly, if there is a positive relationship between CO2 emissions and free trade, then the country is not likely to have experienced its optimal level of trade liberalization. The EKC framework implies the existence of an inverted U-shaped relationship between GDP per capita and environmental degradation to be a local pollutant. However, the existence of the EKC for the global pollutant, for example carbon dioxide emissions resulting in problems of international scale, has not been agreed. This study is focused on the trend of CO2 emissions of each country and tries to analyze its relationships with openness and GDP per capita conditional on specific, growth, openness. Determining the existence of the EKC for CO2 as a global pollutant is important. If developing countries have an inverted U-shaped curve, it is likely that the global pollutant can be reduced through international cooperation and financial support. Therefore, this study focuses on the existence of the EKC for BRICS countries.

In this paper, I conduct a series of time series econometric analyses on real GDP, real GDP2 trade liberalization and carbon emissions of the BRICS group: Brazil, Russia, India, China and South Africa. Using recent time series results I inquire as to whether these series are stationary or not and then explore their cointegration properties. I further test for panel cointegration among these variables for the BRICS as a whole. The rest of this paper is organized as follows. Section 2 , 3, 4 and 5 provides a brief review of The Literature on the Environmental Kuznets Curve, relationship between trade and Environmental And the BRICS Importance in The World Economy. Data description and estimation results are covered in Sections 6 Section 7 and 8 discusses the Unit root models and the cointegration test results for the BRICS countries. Section 9 concludes the study.

2. The Literature on the Environmental Kuznets Curve

Carbon dioxide (CO2) is one of the gases in the atmosphere, being uniformly distributed over the earth's surface at a concentration of about 0.033% or 330 ppm. Carbon dioxide is released into the atmosphere when carbon-containing fossil fuels such as oil, natural gas and coal are burned. As a result of the increasing worldwide consumption of fossil fuels, the amount of CO2 in the atmosphere has increased over the past century, now rising at a rate of about 1 ppm per year. Major changes in global climate could result from a continued increase in CO2 concentrations. According to the International Panel on Climate Control (IPCC), CO2 accounts for more than half of global warming. Several econometric studies have estimated the relation between CO2 emissions per capita and per capita GDP growth using cross-country, and often unbalanced, panel data. At the beginning of 1990s, environmentalists voiced their concerns about a potential North American Free Trade Agreement (NAFTA). They argued that the expansion of markets and economic activities, the change of composition of the economy and the decrease of US regulatory standards on environment might lead to more pollution and faster depletion of scarce natural resources. In 1993, Grossman and Krueger presented an empirical paper on the conference of the U.S.–Mexico Free Trade Agreement, illustrating how a reduction in trade barriers generally affects the environment by expanding the scale, altering the composition and changing in the technology of the economy. Grossman and Kruger (1993) constitute the seminal work on the Environmental Kuznets Curve (EKC). They analyzed data for SO2, suspended particulate matter (SPM) and particulates (smoke) for 1977, 1982 and 1988. The data were from Global Environmental Monitoring System (GEMS), which monitors air quality in urban areas throughout the world. Grossman and Kruger did regressions on both random and fixed effects models using a cubic function form. A linear time trend, a variable of openness and dummy variables of location were also included. They found that concentrations of two of the three pollutants, SO2 and particulates, rise with per capita GDP at low levels of national income, and then fall as per capita GDP grows. The turning points for each of them are $4,119 (1985 U.S. dollars) and $5,000 (1985 U.S. dollars). The estimated curves imply an inverted U shaped relationship. Meanwhile, the SPM was found to fall in response to increases in per capita GDP at low levels of economic development. Then after GDP per capita reaches $9,000, economic growth has no further effect on the concentration of SPM. Grossman and Kruger argue that economic growth tends to alleviate pollution problems once a country's per capita income reaches certain level ($4,000 to $5,000 1985 U.S. dollars in this paper). They also predict that, because the free trade agreement with the U.S. and Canada would improve the economic growth of Mexico, whose per capita GDP was already $5,000 (1985 US dollars) at that time, this country would intensify its efforts to alleviate its environmental problems, so that it pollution level would decrease from that point on. In the following decades, many attempts have been made to evaluate the impact of economic growth on environmental quality. The literature is both theoretical and empirical. Theoretical explanations as to why environmental degradation should first increase and then decline with income have focused on three of factors: the effects of scale and structure of the economy; the link between the demand for environmental quality and income; and policies and regulations related to environmental degradation. As income grows, the scale of an economy tends to become larger. As Grossman (1995) suggested, a developing society requires increasing output, therefore more inputs and more natural resources. In addition, more output also implies increased wastes a demission as a by-product of the economic activity, which worsens the environmental quality. This is the so-called scale effect. The structure of the economy also tends to change with the development of the economy. As Panayotou (1993) points out, environmental degradation tends to increase as the structure of the economy changes from rural to urban, from agricultural to industrial. But it starts falling with the second structural

change from energy-intensive heavy industry to services and technology-intensive industry. Finally, technological progress leads to the substitution of obsolete and dirty technologies with cleaner ones, which also improves the quality of the environment. This is the technology effect. When the technology effect dominates the scale effect, the pollutant level would increase during the period of first structural change of economy and then decrease during the second stage of structural change. Therefore the inverted U curve comes into being. He (1993) estimated EKCs for SO2, NOx, SPM and deforestation. His study employs only cross sectional data and GDP is in nominal 1985 US dollars. The data on emission for developing countries were estimated from fuel use and fuel mix data. Deforestation was measured as the mean annual rate of deforestation in the mid 1980s. There are 68 counties in the deforestation sample and 54 in the pollution sample. The models for the three pollutants are in logarithmic forms with quadratics in income per capita. For deforestation Panayotou uses a translog function in population density, a dummy variable for tropical countries and income per capita. All the estimated curves are inverted Us. In his results, the turning point for deforestation is $823 per capita. Deforestation rates were significantly greater in tropical countries. Deforestation was also higher in countries with higher population densities. For SO2 emissions the turning point is around $3,000 per capita, for NOx around $5,500 per capita, and for SPM around $4,500 per capita. Some of the theoretical literature has focused on household preferences environmental quality with the pollutant level. If these preferences following the assumption that the damage from extra pollution grows as income grows, then such preferences can be illustrated as an important factor of bending back down of the pollution-growth curve. McConnell (1997) studies the combined effects of preferences; increasing costs of pollution control and the declining value of extra consumption as per capita incomes grow. Applying a method of non-market valuation, McConnell shows that a high-income elasticity of demand for environmental quality is neither necessary nor sufficient for the EKC. Besides preferences, the assimilative capacity of the environment and the cost of abatement are also important influences on the pollution-growth relationship. Others argue that the method of decomposing economic development into its components, and study the bilateral relationship between pollution and each component is only partially right. As Panayotou (1997) points out, "… they focus only on the scale and industrialization effects and ignore the abatement effect of higher incomes." (P.429). In the same paper, the author maintains that the findings from models only including economic growth variables could lead to the unintended and misleading interpretation that some countries can grow out of their environmental problems without the establishment of conscious environmental policies. By taking explicit policy determinants into consideration, Panayotou (1997) finds that better policies, such as more secure property rights and better enforcement of contracts and effective environmental regulations, can help flatten the EKC and reduce the environmental price of economic growth.

While some economists seek to explain the explanation of the inverted-U growth pollution relationship, others cast doubt on the shape of the curve itself. Dasgupta et al. (2002) examine different EKC scenarios in the recent literature and provide theoretical explanations for different views. Some research shows that the pollution-growth curve rises asymptotically to same maximum pollution level, never coming down again. The EKC curves of some countries or pollutants maintain a high level while others maintain a low level of per capita pollutants. The cumulative effect is inverted U shaped, because the EKC is just a snapshot of a dynamic process. This is the so-called "race-to-the-bottom" curve. Pessimists argue that, even if certain pollutants are reduced as income increases, industrial society continuously creates new, unregulated and potentially toxic pollutants. Then the overall environmental risks from these new pollutants may continue to grow even if some sources of pollution are reduced. Holtz-Eakin and Selden (1995) named it the "new toxics" phenomenon. Meanwhile,

some recent research has fostered an optimistic critique of the relationship. They suggest that the level of the curve is actually dropping and shifting to the left, as growth generates less pollution in the early stages of industrialization and pollution begins falling at lower income levels because of the technology overflow and economy globalization. In a comprehensive survey by Stern (1996), the author points out that only a subset of pollutants can apply the model of inverted-U curve, such as sulfur dioxide and suspended particulates. Perman and Stern (2003) is the first paper that raises the point that empirical work on EKC using time series or panel data should consider the issue of non-stationarity.2 They carry out both individual time-series unit root tests by Dickey-Fuller (1973) and panel data tests by Levin and Lin (1993) and by Im et al. (2003) for SO2 and GDP for 74 countries over a span of 31 years. They find that the null hypothesis of unit root could be rejected in only a fraction of all the countries no matter whether the data are transformed into logarithm or remained unchanged. Then applying Levin and Lin (1993) panel unit root tests, Perman and Stern find support for unit root in both variables. The further tests following Im et al. (2003) also confirm this conclusion. Following tests of cointegration provide support for the hypothesis that there is cointegration between emissions per capita and income per capita for each country in the panel. Though the error correction model (ECM) produces an inverted U curve, th heteroscedasticity among the countries shows that the EKC is a problematic concept, a least in the case of sulfur emissions. Perman and Stern (2003) make an important contribution to the empirical EKC research. Huang et al. (2008) considered economic development and greenhouse gas (GHG) emissions, which have been the focus of the Kyoto Protocol. The Protocol attempts to limit increases in GHG emissions among developed countries. They analyzed singlecountry time series and GDP data and found that most of countries do not provide evidence supporting the EKC hypothesis. Akbostanci et al. (2009) investigated the relationship between income and environmental degradation in Turkey. By using a time series model spanning from 1968 to 2003, they found that CO2 emissions and income tend to have a monotonically increasing relationship in the long run. This monotonically increasing relationship implies that the EKC hypothesis does not hold in this case. Galeotti et al. (2009) explained that EKC is not found at all the times relating to CO2. Furthermore this paper makes a significant contribution to the statistical robustness of the EKC by giving a direction. The authors emphasize that theoretical and empirical investigation is clearly organized before the existence and validity of the EKC is established. The review of previous research indicates that there are substantial differences among the countries, suggesting that the hypothesis of the Kuznets curve has a number of weaknesses that need to be addressed.

3. Trade and the Environment

While the importance of global warming issues is widely recognized among economists and policy makers, there has so far been little effort attempting to examine environmental performance with including the impact of trade openness (see for example: Ang, 2009; Halicioglu, 2009; Jalil and Mahmud, 2009; Jayanthakumaran et al., 2012; Tiwari et al. 2013). The trade theory literature generally posits that free trade is welfare-and efficiency-increasing. In a simple Heckscher-Ohlin framework, trade is determined by the relative endowment in factors of production, such as land, capital, and labor. As trade barriers vanish, the economic activity in a given country shifts to the production of goods requiring the factor that is relatively abundant (see, for instance, Burda and Wyplosz 2005). Hence, trade alleviates the pressure on the relatively scarce resource. If that resource is a natural resource, such as land, then trade weakens the demand on nature. In a similar approach, a further stream of argument argues that richer societies place a higher premium on a clean environment, and governments themselves tend to be more capable of acting to tackle pollution (Dasgupta et al., 2002). In this respect, an important role is played by human

improvement of markets and technology. Demand for clean energy in conjecture with high investment rates may lead to a virtuous feedback loop by which growth leads to better institutions and technology, which reinforce the demand side for a clean environment (Ayres, 1993; Simon, 1998; Lomborg, 2001). Unsurprisingly, these claims have been highly publicized in the debates on free trade agreements (Stern, 2004). Fears have emerged that trade liberalization might have a disruptive effect on these efforts. Two main sources of worries have emerged. First, the Heckscher-Ohlin framework of efficient trade brakes down if property rights are ill dened. Chichilnisky (1994) shows that when property rights over some natural resources in a given country are not clearly attributed, this country may specialize in the extraction of this resource although there is no technological comparative advantage in doing so. The key insight is that the marginal cost of extraction does not react the true value of these resources as assets. According to Chichilnisky, this explains why developing countries tend to overuse their natural resources, making themselves poorer in the process.

Second, it is feared that trade competition leads to the weakening of existing environmental policies. Trade liberalization exposes and exacerbates institutional failures. Relatively poor countries might be tempted to weaken their environmental regulations to attract foreign investors. Weaker environmental obligations means that producers do not have to internalize the costs of the negative externalities of their business, raising protect margins. By a simple competition effect, arms may be expected to relocate to these areas. This effect is generally referred to as the pollution haven hypothesis which is nothing but a form of pollution outsourcing. Copeland and Taylor (1994) suggest that income may endogenously lead to stricter environmental laws, which in turn dene the structure of trade and domestic production.

Against these grim views, others have argued that trade may vehicle environmentally favourable legislation. For instance, Vogel (1995) suggests that exporters are dependent on the goodwill of the destination markets. Exporting states might thus import stringent regulations in order to ensure the best access for their goods to foreign markets. Sometimes dubbed the California effect, this argument underlines the bargaining struggle between states in the maximization of two parameters: economic welfare and environmental quality (see also Vogel 1997). The empirical evidence for the efficiency, the race to the bottom, or the California effects is mixed. Early studies of the determinant of pollution focused on domestic factors, in particular income. The EKC hypothesis suggests that pollution follows an inversed-U shape as income increases. The theoretical underpinning is that while increased economic activity raises negative by products (such as pollution), wealthier individuals place a higher premium on a clean environment. Furthermore, richer countries are more likely to develop technologies that would satisfy these demands.

The evidence for trade-related effects on pollution is also disputed. Early research by Leonard (1988) and Tobey (1990) fail to support for a weakening of environmental regulations in wealthy countries. Frankel and Rose (2005) no evidence that trade has a detrimental effect on the environment. Unfortunately, their claims are weakened by using mainly cross-sectional data and using trade openness as their only independent variable. Furthermore, using an instrumental variable (IV) approach with samples as small as 30 observations increases doubts about the strength of their, as the small sample properties of IV models are poor. Grether and De Melo (2004) consider a similar question, but some evidence for trade-related outsourcing of dirty production. Cole (2004)'s study is similar to the analysis performed in this paper; he showed that a trade-related effect for some pollutants but that this effect does not eliminate the EKC. His study however entirely focuses on industrialized countries over a relatively short time span, losing much of the dynamics of the data. Ang (2009), the results of the pollution function are estimated using the variables per capita CO2 emissions, per capita real output and trade openness for the China case during the annual

period 1953-2006. Adopting an analytical framework that combines the environmental literature with modern endogenous growth theories, the results indicate that CO2 emissions are negatively related to research intensity, technology transfer and the absorptive capacity of the economy to assimilate foreign technology. The findings also indicate that more energy use, GDP and trade openness tend to cause more CO2 emissions. In the same way, Halicioglu (2009) examines the dynamic causal relationships between CO2 emissions, energy consumption, GDP, and foreign trade in Turkey over the annual period 1960-2005. This research tests the interrelationship between the variables using the bounds testing to cointegration procedure. The finding results indicate that there exist two forms of long-run relationships between the variables. In the first form, CO2 emissions are determined by energy consumption, GDP and foreign trade. In the second form, GDP is determined by CO2 emissions, energy consumption and foreign trade. The Granger causality results suggest that GDP is the most significant variable in explaining the CO2 emissions and it is followed by energy consumption and foreign trade. Moreover, there exists a stable CO2 emissions function. Jalil and Mahmud (2009) extend the same methodology of Halicioglu (2009) for the case of China over the period 1975-2005. This study aims at testing whether EKC relationship between CO2 emissions and per capita real GDP holds in the long run or not using Auto regressive distributed lag (ARDL) methodology. A quadratic relationship between GDP and CO2 emission has been found for the sample period supporting EKC relationship. The results of Granger causality tests indicate one way causality runs through GDP to CO2 emissions. The empirical results also indicate that CO2 emissions are mainly determined by GDP and energy consumption in the long run. Trade has a positive but statistically insignificant impact on CO2 emissions. Recently, Jayanthakumaran et al. (2012) using the bounds testing approach to cointegration and the ARDL methodology to test the long and short-run relationships between growth, energy use, trade openness, and endogenously determined structural breaks for both China and India Using over the annual period 1971-2007. The finding results indicate that CO2 emissions in China were influenced by per capita real GDP, energy consumption and structural changes. A similar causal connection cannot be established for India with regard to structural changes and CO2 emissions, because India's informal economy is much larger than China's informal economy. Moreover, India possesses an extraordinarily large number of micro-enterprises that are low energy consumers and not competitive enough to reach international markets. Understanding these contrasting scenarios is prerequisite to reaching an international agreement on climate change affecting these two countries.

4. BRICS Importance in The World Economy

The BRIC acronym, which stands for Brazil, Russia, India and China, originated in a Goldman Sachs(2001) paper– Building Better Global Economic BRICs – as part of an economic modeling exercise to forecast global economic trends over the next half-century. The main finding was that the BRIC countries collectively would play an increasingly important role in the global economy. Another paper by Goldman Sachs (2003) – Dreaming with BRICs: The Path to 2050 – concretised the earlier findings. It predicted that over the next 50 years, the BRIC economies could become a major force in the world economy, and that by 2050 the only industrialised /developed economies among the six-largest global economies would be the US and Japan in US dollar terms. The emerging dynamics over the last decade tend to support the predictions. Starting with a share of a little over 10% in world gross domestic product (GDP) and less than 4% in world trade in 1990, BRICS (with the recent inclusion of South Africa to the forum) in 2010 year constitutes about 25% of world GDP and 15% of world trade. The increase in GDP implies that the economic size of BRICS in terms of its share in world GDP has expanded by 150% in the past two decades. A quick glance at the

statistics reveals that in 2011 the BRICS accounted for 25% of global GDP, 30% of global land area and 45% of the world's population. The basic point of commonality among the BRICS countries is that they are regional leaders in their own right and they have fast-growing economies.

In addition, all the BRICS countries are now members of major international and multilateral institutions, such as the World Trade Organisation , the UN, the Group of 20 (G-20) and the UN Framework Convention on Climate Change, and are very active participants therein. There are various other indicators, such as trade openness, current account balance that could make BRICS a formidable force to reckon with in future. The BRICS growing importance for the world economy is reflected by various economic and demographic indicators. These include, but are not limited to, their increasing share in world GDP; share in world trade; trade openness.

5. The BRICS Economies

5-1- Share in Global GDP

The BRICS economies, if viewed collectively over the last two decades, have emerged as a force to be reckoned with. This is duly reflected by the increasing share of BRICS in the world GDP. From a share of a little over 10% of the world GDP in 1990, share of BRICS in 2010 commands a share of more than 25%. This implies that the economic size of BRICS in terms of its share in world GDP expanded by 150% in the two decade periods.

Table 1: Overview of BRICS, 1990 and 2010

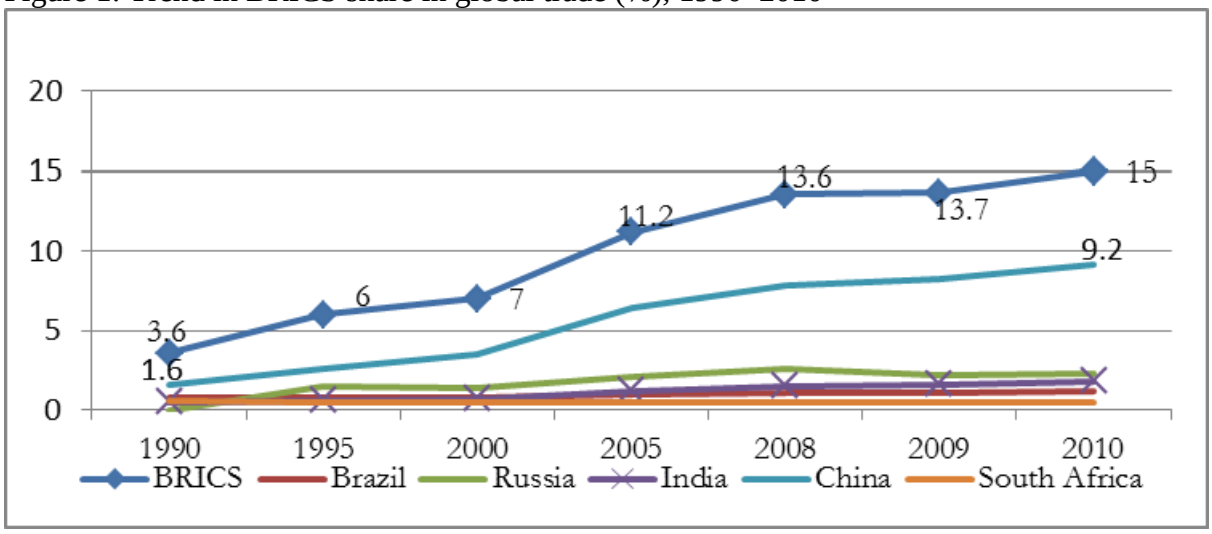
Country	GDP (PPP)	Rank in world	GDP ($)		Share in world GDP (%)		Per capita GDP ($)	
			1990	2010	1990	2010	1990	2010
Brazil	2,172	8	508	2,090	3.3	2.9	3,464	10,816
Russia	2,223	6	-	1,465	-	3	-	10,437
India	4,060	4	326	1,538	3.1	5.4	378	1,265
China	10,086	2	390	5,878	3.9	13.6	341	4,382
South Africa	524	26	112	357	0.9	0.7	5,456	7,158

Source: IMF (International Monetary Fund) database, adapted from The BRICS Report 2012. India: Oxford University Press, 2012.

5-2- Share in global trade

As in the case of their share in world GDP, the BRICS share in world trade has also improved significantly over the last two decades, from 3.6% to over 15%. The primary contribution to this in terms of value has come from China, whose share has increased from less than 2% to over 9%. This is, however, not to argue that other BRICS countries have not contributed. Their shares have also increased, with Brazil's share rising from 0.8% to 1.2%; Russia's from 1.5% to 2.3%; and India's from 0.5% to 1.8%. South Africa is the only country in the group whose share in world trade has remained constant over the last two decades.

Figure 1: Trend in BRICS share in global trade (%), 1990–2010



Source: UNCTAD, adapted from The BRICS Report 2012. India: Oxford University Press, 2012.

Trade appears to have played a significant role in boosting the economic growth prospects of these countries. There is evidence to suggest that trade liberalization has been seen and used as a tool for promoting economic growth and facilitating development in all the BRICS countries.

Table 2: Global integration and evolution of BRICS economies

Indicators	Year	BRICS economies				
		Brazil	Russia	India	China	South Africa
Trade openness	1990	6.9	-	6.9	17.4	24.3
	2010	11.2	30.3	21.7	29.5	27.9
Current account balance (% of GDP)	1990	0.8	-	-1.2	1.3	1.4
	2010	-2.3	4.9	-3.2	5.2	-2.8

Source: IMF, UNCTAD & World Bank, adapted from The BRICS Report 2012. India: Oxford University Press, 2012.

BRICS countries have become more open, reflected by indicators such as trends in trade openness, current account balance and forex reserves, among others. In most of these parameters, BRICS countries have performed reasonably well, as reflected by Table 2. The rising GDP and forex reserves, increasing share in global trade, and trade openness augurs well for the group as a whole. They have bolstered the BRICS economic and political status at the global level and have helped BRICS countries to play a bigger role, as evidenced in the aftermath of the global crisis periods.

5-3- Climate change

Climate change has emerged as one of the priority issues of the 21st century and has been highlighted as a human crisis. For the BRICS countries, climate change is also a development challenge and a key governance issue, especially given its social and economic impacts. Climate change is related closely to industrialization and urbanization. Adaptation and mitigation efforts at domestic country level include factors such as financing, technology transfer, promoting clean development mechanisms, R&D, and the sharing of knowledge. All of these require greater international co-operation. The BRICS countries have already shown leadership in the climate change sphere through the commitments they made at Copenhagen, even in the absence of a legally binding agreement. Brazil committed itself to reducing its carbon emissions by 39% by 2020; Russia committed itself to reducing its emissions by between 15% and 25% from 1990 levels; India pledged to reduce its emissions by up to 25% below 2005 levels per unit of GDP; China committed itself to a reduction by 45% per unit of GDP, also from 2005 levels; while South Africa committed itself to cutting its emissions growth by 34%. Considering that currently the BRICS countries are among the leading greenhouse gas emitters, and also considering their development challenges, their commitment shows leadership and a sense of international responsibility. However, the BRICS countries still expect the principle of common but differentiated responsibility to apply. In Copenhagen, the BRICS member played an important role in the achievement of the four key decisions reached during the conference:

• agreeing to begin the second commitment period of the Kyoto Protocol in 2013, although not in a legally binding form, as commitments had not yet been written or ratified but the specifics of the commitments were due to be discussed in 2012;

• launching the Durban Platform to ensure the establishment of a legal agreement by 2020;

• adopting guidelines for reporting implementation progress; and

• approving the governing instruments for the Green Climate Fund.

6. Methodology and Empirical Results

6-1- The model and data

To conduct our empirical analysis and investigate the relationship between CO2 emissions, Trade Liberalization and economic growth which is a synthesis of the EKC and Liberalization literatures, we need the following variables for all studied BRICS countries:

- CO2 emission (CO);
- Trade Liberalization (L);
- Per capita real GDP (GDP).

We collect data from World Bank Development Indicators (WDI). Our data are annual and cover the period 1960-2012 for the following BRICS countries: Brazil, Russia, India, China, and South Africa. We empirically investigate the following model based on variables in bottom model:

$$CO_{2it} = \alpha_1 + \alpha_2 GDP_{it} + \alpha_3 GDP_{it}^2 + \alpha_4 L_{it} + \varepsilon_t \quad (1)$$

Environmental quality is proxied by CO2 emission per capita (Marland et al, 2010). Economic activity is proxied by GDP per capita of these regions (Maddison, 2009). L, a measure of trade liberalization, was measured as the sum of imports and exports as a share of total GDP in a given year.

To test the presence of EKC, the equation (1) which is derived from the relationships between pollution levels and GDP and Openness will be used. Pollution levels are expected to increase with growing income up to a threshold level beyond which pollution levels are expected to decrease with higher income levels. The combination of these two effects, ($\alpha_2 > 0$) and ($\alpha_3 < 0$) in Model (1), creates the inverted U-shaped relationship between per capita CO2

emissions and GDP. In an attempt to broaden the concept of EKC, we investigate the relationship between environmental quality and trade liberalization. This is motivated by the fact that at early stages of economic development, free trade leads to an increase in real income, and at the same time, it increase the pollution level because environmental quality is regarded as a luxury good and not a normal good. However, as the country achieves a certain level of GDP, the increased income from free trade encourages consumers to increase their demand for a clean environment and then an attempt is made to reduce environmental damage through increasing clean production and eventually to improve environmental quality (Galeotti and Lanza, 1999). Therefore, the expected sign of α_4 is mixed depending on the level of economic development stage of a country. For the case of developed countries, this sign is expected to be negative as they cease to produce certain pollution intensive goods and begin to import these from other countries with less restrictive environmental protection laws. But for the case of developing countries, this sign expectation is reversed as they tend to have dirty industries with heavy share of pollutants (Grossman and Krueger, 1995). It means also that an increase in trade openness will increase pollution due to a comparative advantage in dirty production under weaker environmental regulations (Jayanthakumaran et al. 2012) In what follows, we start by testing for unit roots in our variables. If these variables are nonstationary in our country panel, we investigate the existence of long run co-integration relationships and investigate their magnitude. Finally, we estimate panel error correction models based above model.

The data set is a unbalanced panel of 5 BRICS countries over the annual period 1960-2012. The BRICS countries included in the sample are: Brazil, Russia, India, China and South Africa.

Table 3 shows some descriptive statistics. Our overall data-set contains 984 observations for all variables, and for each country we have 115 observations available. Russia GDP per capita is the highest, followed by Brazil and South Africa. A similar pattern is found concerning GDP per capita.

Table-3
Descriptive statistics

	GDP_BRAZIL	GDP_CHINA	GDP_INDIA	GDP_RUSSIA	GDP_AFRICA
Mean	4568.334	1364.965	630.8584	4862.352	3237.878
Media	4403.812	1122.285	576.9295	4634.314	3108.044
Maximum	5721.290	3120.930	1085.729	6649.402	3825.094
Minimum	3911.571	452.7224	389.8141	3300.036	2903.200
Std.Dev	519.7677	807.5910	213.1174	1154.133	318.4666
Skewness	0.89	0.77	0.73	0.14	0.78
Kurtosis	2.74	2.44	2.37	1.57	2.04
Sum	105071.7	31394.19	14509.74	111834.1	74471.19
Sum Sq.Dev	5943486	14348470	999218.6	29304524	2231261
Observation	23	23	23	23	23

Source: authors calculated

7. Empirical results

7-1- Unit root tests

We begin our empirical analysis by testing for unit roots in the Carbon Emissions (CO) measured in kilotonnes, Trade Liberalization (L) and GDP per-capita. The implementation of unit root tests for both each series and the panel data is mainly due to the proven fact that individual tests have low power when they are applied to short series, while panel tests increase the power of contrasts (Perman and Stern, 1999).

In this paper we apply the LLC, Breitung, IPS, ADF, PP test. The results of the LLC, Breitung, IPS, ADF, PP panel unit root tests are presented in Table 4. The LLC, Breitung, IPS, ADF, PP statistics for the levels of Carbon Emissions (CO) measured in kilotonnes, Trade Liberalization (L) and GDP per-capita do not reject the null hypothesis of a unit root. However, we take the first difference of each of the variables. Therefore, we conclude that CO, L and GDP per-capita are each integrated of order one or I(1) and the variables are no stationary in the level for 5 countries. In the next stage, we will test whether there is a long-run equilibrium relationship among these three variables.

Table 4- Results - Panel Unit Root Test (p-values), BRICS, 1960-2012

Variable / Method	CO		L		GDP	
	Without Trend	With Trend	Without Trend	With Trend	Without Trend	With Trend
H0: Unit root (common unit root process)						
LLC *t*	**3.568**	**2.544**	**2.587**	**-0.258**	**7.976**	**6.823**
Level	(0.999)	(0.994)	(0.99)	(0.398)	(1.000)	(1.000)
First difference	-5.143*	-4.376*	-2.617	-10.826*	-0.852	-4.606*
	(0.000)	(0.000)	(0.000) *	(0.000)	(0.197)	(0.000)
Breitung t-test	----------	**1.227**	---------	**1.115**	----------	**7.059**
Level		(0.89)		(0.867)		(1.000)
First difference	----------	-0.887	----------	-9.598*	----------	-2.365*
		(0.187)		(0.000)		(0.009)
H0: Unit root (individual unit root process)						
IPS t-stat	----------	**2.377**	----------	**-1.331**	----------	**6.114**
Level		(0.99)		(0.091)		(1.000)
First difference	----------	-4.79*	----------	-12.124*	----------	-4.572*
		(0.000)		(0.000)		(0.000)
ADF-MW χ2	**5.169**	**9.255**	**2.602**	**18.55**	**0.633**	**3.877**
Level	(0.879)	(0.508)	(0.989)	(0.046)**	(1.000)	(0.952)
First difference	67.72*	47.17*	220*	123.10*	45.19 *	44.67*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
PP - MW χ2	**3.845**	**12.36**	**2.653**	**22.57**	**0.688**	**3.594**
Level	(0.954)	(0.261)	(0.988)	(0.012) **	(1000)	(0.963)
First difference	70.005*	47.53*	308.11*	377.51*	52.04*	44.86*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

*,**: Null hypothesis rejected at 1% and 5% significant level

Source: authors calculated

7-2- Panel Cointegration Approach results

Taking into account these results, we conclude that the series are integrated of order one and proceed to test for cointegration. Thus the second stage involves testing for the existence of a long-run equilibrium relationship among Carbon Emissions (CO) measured in kilotonnes, Trade Liberalization (L) and GDP per-capita within a trivariate framework. Based on Kao's (1999) ADF test statistics reported in Table 5, According Table 5, we find that arbon Emissions (CO) measured in kilotonnes, Trade Liberalization (L) and GDP per-capita are cointegrated within the panel of these 5 countries.

Table 5- Results of Kao's Residual Cointegration Test

	t-Statistic	**Prob.**
ADF	-1.592	0.0557

Source: author's estimations

Next given that the Kao test indicates cointegration, we can now estimate the long-run coefficients of the panel model. A central assumption in random effects estimation is the assumption that the random effects are uncorrelated with the explanatory variables. One common method for testing this assumption is to employ a Hausman (1978) test to compare the fixed and random effects estimates of coefficients. The Hausman test is frequently used in order to choose between the fixed effects and the random effects specification. The results of Husman test are presented in Table 6. Based on the Hausman test, the null hypothesis is rejected at the 1% significance. However this outcome suggests that fixed effect models are more appropriate, for all the following extensions, we present fixed effect regressions.

Table 6- Description of the Hausman test

Hausman Test	X^2 **. Statistic**	**P-values**
Cross-section random	62.362	0.0000

Source: authors' estimations

The results on the long-run coefficients are reported in Table 7. The empirical results reveal that in the long run that all of the coefficients are significant affect at %10.

8. Results

The equation (2) is estimated by the Panel Data methods. The time period covered in the estimations is 1960-2012 across BRICS Countries. Data are obtained from the World Bank's 2012 World Development Indicators' (WDI's) CD-Rom and Penn World Table (http://pwt.econ.upenn.edu/php_site/pwt63/pwt63_form.php).

In this paper, we analysis and investigate the relationship between CO 2 emissions, Trade Liberalization and economic growth which is a synthesis of the EKC and Liberalization literatures for BRICS Countries. In equation (2) we report the estimated coefficients of model using unbalance Panel method with period fixed effects. The Panel consists of 208 observations with 5 countries over the period 1960-2012.

$$\underset{\substack{(3.734)\\ R^2}}{Co_{it} = 0.932} + \underset{(6.262)}{0.00176(GDP_{it})} - \underset{(-4.455)}{0.000000167(GDP_{it}^2)} + \underset{(1.667)}{0.0108L_{it}} = 0.96 \quad (2)$$

In parenthesis are presented the t-statistics. They show that all coefficients are statistically significant at 10 percent. Thus, the relationship between Trade Liberalization and CO2 emissions is positive except. However the positive coefficient of trade liberalization in the first area, indicate a positive effect of trade liberalization on pollution. The positive coefficient of liberalization effect that is represented by the sum of imports and exports as a share of total GDP has shown that BRICS countries has comparative advantage in dirty goods . This result indicates strong that a 1% increase in trade liberalization degree increases CO2 emissions per capita by 1.08% in BRICS Countries. Thus, free trade is bad for the environment. This can be explained by the fact that when the real per capita GDP is low, as in the case of the Developing countries, environmental concern is overshadowed by the

pursuit of growth, which is the main objective of the economic policy. To this succeeds a second stage characterized by a slower degradation of the environment even when income increases. This fact can be explained by the realization by middle income countries to bracket, the environmental problem. This awareness may take the form of financial efforts allocated to the cleaning of water or air, grants or the creation of institutions that handle these cases. It can also take the form of new tax provisions requiring polluters to pay a certain fee, according to the principle of "polluter payers" or a variant of such a principle. Whatever its form, an effort should make lower the rate of degradation of the environment as this could be perceived by the above estimated equation. On average, over the studied BRICS countries, there is a positive relationship between CO2 emissions and real GDP per capita and a negative relationship between CO2 emissions and real GDP per capita quadratic: a 1% increase in real GDP per capita increases CO2 emissions per capita by 0.176% in the BRICS region. Taken together, our results are supportive of the EKC hypothesis in the BRICS region: the level of CO2 emissions first increases with income, stabilizes, and then declines. Thus, there appears to be an inverted U-shaped relationship between CO2 emissions per capita and real GDP per capita in the BRICS region when taken as a whole. The inflection point characterizing the end of the first phase and the beginning of the second must verify the following condition:

$$\frac{\delta \mathrm{Co}_{\mathrm{it}}}{\delta \mathrm{GDP}_{\mathrm{it}}} = \alpha_2 + 2\alpha_3 = 0$$

which corresponds to a real GDP per capita equal to $\frac{\alpha_2}{-2\alpha_3}$. For this, α_2 and α_3 must be of opposite sign. Our estimation shows that the inflection point or optimal point real GDP per capita is amounts to 5269.4. The result shows that mean all countries from the sample are on the positive side of the inverted U curve (see table 6 in the appendix).

9. Conclusion

The question of sustainability of growth in BRICS Countries has become of crucial economic importance. It's obvious that a specific study for the relationship between growth, trade liberalization and environmental degradation in the BRICS Countries becomes central for policymakers. The pattern of sustainability for the region must be examined.

Our article had two aims. First, we investigate the existence of EKC in the BRICS region in the matter of Carbon dioxide. Second, we in this paper explore the relationship between economic growth, trade liberalization and emissions of CO2 by implementing unit root tests and panel cointegration techniques to investigate the relationship between carbon dioxide emissions, trade liberalization, and real GDP per capita for 5 BRICS countries over the period 1960–2012.

Several Studies have examined the relationship between Environmental quality and Growth. The basic idea behind the Environmental Kuznets Curve (EKC) is that economic growth degraded environment quality in a first stage. But the picture change until a turning point and environmental quality is growth improves the Environmental Quality. Since that environmental quality is a U shaped curve. Three theoretical explanations are provided in order to explain this dynamics. Firstly, Growth impacts tastes of economic agents to a more environmental friendly products and production process. Citizen and consumers' awareness about environment induce a big change in the Market dynamics. Secondly, Innovation and technological change lead to use more friendly technologies and process following the market opportunities. Thirdly, economic growth leads to the set up of organizations, institutions and capacities in order to manage environmental problems. This new setting improves the situation through their action in order to enhance democratic decision-making, secure property rights, enforce contracts and act as ramparts against corruption.

Our results show that in the long run, trade liberalization has a positive significant impact on CO2 emissions. However, if a country's income level is not high enough for it to care about the environment, then trade liberalization is likely to be an important factor influencing the deterioration of the quality of the environment. Thus, the level of a country's economic development had considerable influence on CO2 emissions. More interestingly, we show that real GDP exhibits a quadratic relationship with CO2 emissions. Taken together, our findings support an inverted U-shape pattern associated with the Environmental Kuznets Curve (EKC) hypothesis for the BRICS region: CO2 emissions increase with real GDP, stabilize, and then decrease. We find a turning point at $5269.4 in the estimated result, but the EKC turning points are highest of average real GDP per capita level in BRICS countries. Thus, our findings suggest that all BRICS countries need to sacrifice economic growth to decrease their emission levels as they may achieve CO2 emissions reduction via energy conservation without negative long run effects on economic growth.

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Table 1a: Panel unit root tests for the carbon dioxide emissions (1960-2012)

Group unit root test: Summary
Series: CO_BR, CO_CH, CO_IN, CO_RU, CO_SO
Date: 10/08/13 Time: 17:05
Sample: 1960 2012
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic selection of lags based on SIC: 0 to 1
Newey-West bandwidth selection using Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	2.54422	0.9945	5	210
Breitung t-stat	1.22750	0.8902	5	205
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	2.37734	0.9913	5	210
ADF - Fisher Chi-square	9.25553	0.5080	5	210
PP - Fisher Chi-square	12.3603	0.2617	5	213

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

Group unit root test: Summary
Series: CO_BR, CO_CH, CO_IN, CO_RU, CO_SO
Date: 10/08/13 Time: 17:05
Sample: 1960 2012
Exogenous variables: None
Automatic selection of maximum lags
Automatic selection of lags based on SIC: 0 to 1
Newey-West bandwidth selection using Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	3.56872	0.9998	5	210
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	5.16928	0.8796	5	210
PP - Fisher Chi-square	3.84501	0.9541	5	213

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

Table 1b: Panel unit root tests for 1st difference the carbon dioxide emissions (1960-2012)

Group unit root test: Summary
Series: CO_BR, CO_CH, CO_IN, CO_RU, CO_SO
Date: 10/08/13 Time: 17:06
Sample: 1960 2012
Exogenous variables: None
Automatic selection of maximum lags
Automatic selection of lags based on SIC: 0 to 1
Newey-West bandwidth selection using Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.14353	0.0000	5	207
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	67.7229	0.0000	5	207
PP - Fisher Chi-square	70.0050	0.0000	5	208

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

Group unit root test: Summary
Series: CO_BR, CO_CH, CO_IN, CO_RU, CO_SO
Date: 10/08/13 Time: 17:06
Sample: 1960 2012
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic selection of lags based on SIC: 0
Newey-West bandwidth selection using Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-4.37464	0.0000	5	208
Breitung t-stat	-0.88771	0.1873	5	203
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.79039	0.0000	5	208
ADF - Fisher Chi-square	47.1751	0.0000	5	208
PP - Fisher Chi-square	47.5394	0.0000	5	208

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

Table 2a: Panel unit root tests for real GDP per capita (1960-2012)

Group unit root test: Summary
Series: GDP_BR, GDP_CH, GDP_IN, GDP_RU, GDP_SO
Date: 10/08/13 Time: 17:07
Sample: 1960 2012
Exogenous variables: None
Automatic selection of maximum lags
Automatic selection of lags based on SIC: 0 to 5
Newey-West bandwidth selection using Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	7.97669	1.0000	5	223
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	0.63372	1.0000	5	223
PP - Fisher Chi-square	0.68876	1.0000	5	230

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

Group unit root test: Summary
Series: GDP_BR, GDP_CH, GDP_IN, GDP_RU, GDP_SO
Date: 10/08/13 Time: 17:07
Sample: 1960 2012
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic selection of lags based on SIC: 0 to 5
Newey-West bandwidth selection using Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	6.82338	1.0000	5	224
Breitung t-stat	7.05927	1.0000	5	219
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	6.11482	1.0000	5	224
ADF - Fisher Chi-square	3.87715	0.9527	5	224
PP - Fisher Chi-square	3.59482	0.9638	5	230

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

Table 2b: Panel unit root tests for 1st difference real GDP per capita (1960-2012)

Group unit root test: Summary
Series: GDP_BR, GDP_CH, GDP_IN, GDP_RU, GDP_SO
Date: 10/08/13 Time: 17:08
Sample: 1960 2012
Exogenous variables: None
Automatic selection of maximum lags
Automatic selection of lags based on SIC: 0 to 3
Newey-West bandwidth selection using Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.85210	0.1971	5	222
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	45.1932	0.0000	5	222
PP - Fisher Chi-square	52.0404	0.0000	5	225

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

Group unit root test: Summary
Series: GDP_BR, GDP_CH, GDP_IN, GDP_RU, GDP_SO
Date: 10/08/13 Time: 17:07
Sample: 1960 2012
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic selection of lags based on SIC: 0
Newey-West bandwidth selection using Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-4.60616	0.0000	5	225
Breitung t-stat	-2.36526	0.0090	5	220
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.57219	0.0000	5	225
ADF - Fisher Chi-square	44.6759	0.0000	5	225
PP - Fisher Chi-square	44.8625	0.0000	5	225

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

Table 3a: Panel unit root tests for Trade Liberalization index (1960-2012)

Group unit root test: Summary
Series: L_BR, L_CH, L_IN, L_RU, L_SO
Date: 10/08/13 Time: 13:50
Sample: 1960 2012
Exogenous variables: None
Automatic selection of maximum lags
Automatic selection of lags based on SIC: 0 to 2
Newey-West bandwidth selection using Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	2.58749	0.9952	5	216
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	2.60270	0.9893	5	216
PP - Fisher Chi-square	2.65307	0.9885	5	219

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

Group unit root test: Summary
Series: L_BR, L_CH, L_IN, L_RU, L_SO
Date: 10/08/13 Time: 13:50
Sample: 1960 2012
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic selection of lags based on SIC: 0 to 3
Newey-West bandwidth selection using Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.25834	0.3981	5	215
Breitung t-stat	1.11575	0.8677	5	210
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.33169	0.0915	5	215
ADF - Fisher Chi-square	18.5528	0.0463	5	215
PP - Fisher Chi-square	22.5769	0.0124	5	219

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

Table 3b: Panel unit root tests for 1st difference Trade Liberalization index (1960-2012)

Group unit root test: Summary
Series: L_BR, L_CH, L_IN, L_RU, L_SO
Date: 10/08/13 Time: 13:50
Sample: 1960 2012
Exogenous variables: None
Automatic selection of maximum lags
Automatic selection of lags based on SIC: 0 to 4
Newey-West bandwidth selection using Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-12.6177	0.0000	5	209
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	220.000	0.0000	5	209
PP - Fisher Chi-square	308.118	0.0000	5	214

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

Group unit root test: Summary
Series: L_BR, L_CH, L_IN, L_RU, L_SO
Date: 10/08/13 Time: 13:51
Sample: 1960 2012
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic selection of lags based on SIC: 0 to 4
Newey-West bandwidth selection using Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-10.8264	0.0000	5	210
Breitung t-stat	-9.59865	0.0000	5	205
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-12.1247	0.0000	5	210
ADF - Fisher Chi-square	123.107	0.0000	5	210
PP - Fisher Chi-square	377.518	0.0000	5	214

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

Table 4: Hausman Test results

Correlated Random Effects - Hausman Test
Pool: POOL01
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	62.362845	3	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
(GDP?)	0.001763	0.001642	0.000000	0.2357
(GDP?^2)	-0.000000	-0.000000	0.000000	0.0758
(L?)	0.010832	0.018427	0.000004	0.0001

Cross-section random effects test equation:
Dependent Variable: CO?
Method: Panel Least Squares
Date: 10/08/13 Time: 17:28
Sample (adjusted): 1960 2009
Included observations: 50 after adjustments
Cross-sections included: 5
Total pool (unbalanced) observations: 208

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.932189	0.249634	3.734226	0.0002
GDP?	0.001763	0.000282	6.262917	0.0000
GDP?^2	-1.67E-07	3.74E-08	-4.455666	0.0000
L?	0.010832	0.006495	1.667817	0.0969

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.967739	Mean dependent var	3.946206
Adjusted R-squared	0.966610	S.D. dependent var	3.845503
S.E. of regression	0.702684	Akaike info criterion	2.169883
Sum squared resid	98.75290	Schwarz criterion	2.298250
Log likelihood	-217.6678	Hannan-Quinn criter.	2.221788
F-statistic	857.0716	Durbin-Watson stat	0.121604
Prob(F-statistic)	0.000000		

Table 5: Panel cointegration between carbon dioxide emissions , real GDP per capita and trade liberalization (1960-2012)

Kao Residual Cointegration Test
Series: CO? GDP? L?
Date: 10/08/13 Time: 17:25
Sample: 1960 2012
Included observations: 53
Null Hypothesis: No cointegration
Trend assumption: No deterministic trend
Lag selection: fixed at 1
Newey-West bandwidth selection using Bartlett kernel

	t-Statistic	Prob.
ADF	-1.592244	0.0557
Residual variance	0.055827	
HAC variance	0.077805	

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RESID?)
Method: Panel Least Squares
Date: 10/08/13 Time: 17:25
Sample (adjusted): 1962 2009
Included observations: 48 after adjustments
Cross-sections included: 5
Total pool (unbalanced) observations: 198

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID?(-1)	-0.074699	0.024917	-2.997935	0.0031
D(RESID?(-1))	0.142380	0.077153	1.845427	0.0665

R-squared	0.054618	Mean dependent var	0.009878
Adjusted R-squared	0.049795	S.D. dependent var	0.248602
S.E. of regression	0.242333	Akaike info criterion	0.013042
Sum squared resid	11.51016	Schwarz criterion	0.046257
Log likelihood	0.708807	Hannan-Quinn criter.	0.026487
Durbin-Watson stat	1.718207		

Table 6: Panel estimation results

Dependent Variable: CO?
Method: Pooled Least Squares
Date: 10/13/13 Time: 18:23
Sample (adjusted): 1960 2009
Included observations: 50 after adjustments
Cross-sections included: 5
Total pool (unbalanced) observations: 208

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.932189	0.249634	3.734226	0.0002
GDP?	0.001763	0.000282	6.262917	0.0000
GDP?^2	-1.67E-07	3.74E-08	-4.455666	0.0000
L?	0.010832	0.006495	1.667817	0.0969
Fixed Effects (Cross)				
_BR--C	-3.773822			
_RU--C	5.435004			
_IN--C	-1.102123			
_CH--C	0.002672			
_SO--C	2.917207			

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.967739	Mean dependent var	3.946206
Adjusted R-squared	0.966610	S.D. dependent var	3.845503
S.E. of regression	0.702684	Akaike info criterion	2.169883
Sum squared resid	98.75290	Schwarz criterion	2.298250
Log likelihood	-217.6678	Hannan-Quinn criter.	2.221788
F-statistic	857.0716	Durbin-Watson stat	0.121604
Prob(F-statistic)	0.000000		

Natural and Social Conditions for Economic Development: Case Study Northeastern Montenegro

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Abstract: *This paper analyzes the natural and social conditions for the development economy in northeastern Montenegro, in the example municipalities Berane, Andrejevica and Plav in the geographical context of its utilization and use. Spatial distribution of the economy is determined by the natural and social conditions. The natural conditions in terms of the economy are of particular significance relief, climatic and hydrographic conditions, soil... According to degree benefits of natural conditions extracted are three relatively homogeneous regions. That is, which rational production of this part of north-eastern Montenegro, can be organized taking into account the natural conditions and the level of socio-economic development. For collocation and the structure of the economy have an important role in the social conditions which the economy is formed. Our research the records clearly pointed to the forefront some very obvious problems: first, is related to the population, especially in workforce, respectively, for the aging; second, that there is a strong migration of people whose intensive processes of differentiation and left behind an unfavorable structure of the population - age and education what the any negative impact on economic development; third, the characteristics of land area, its small size, inadequate and outdated processing, low technical capacity. The natural resources of this part of north-eastern Montenegro, as well as the population as a factor of economic development need to have met: economic, social, developmental organizational and management dimension to be on benefit the present, but also future generations.*

Keywords: Northeastern Montenegro, natural conditions, social conditions, economy, development

JEL Classification: O40, F21, F41

1. Introduction

Northeastern Montenegro is a geographical unit which comprises 10.8 % of the total area of Montenegro (13.812 km²), that is, living in the territory, 8.12% of the population compared to the total population of Montenegro in 2003(673.094). Territory includes three municipalities: Plav, Andrijevica and Berane, with an area of 1.486km², which is by the census of 2003 year, 54.658 people lived or 36.8in/km².

Starting with on the classification of natural potentials Dinića (1981), we tried to find answers too many economic issues related to this part of north-eastern Montenegro. So also base or the theoretical basis from whom we started in the definition aims of the study and the

perception of natural potentials the observed geospace in the context of his exploitation and use. The focus of in research is based on studies Auty (2000), Gylfason (2001), Auty (2002), Toman (2003), Mensah and Luciana (2004), who emphasizes the use of natural resources and their economic valorization, should be planned oriented and specifically controlled. Therefore, the natural wealth of this part of north-eastern Montenegro has an important place in the total material resources for economic development. That is, belongs to a group of material factors that determine the scope and structure of material production. From the point of importance for economic development, natural wealth of the observed geographic space we can define also as totality of all natural conditions, which may economic activate and used for the development of material production and the growth of GDP and national income. No matter what kind, structure, and individual quantities, natural wealth is the basis for an upcoming economic development of this part of north-eastern Montenegro. Sure, there's a part which has to stay outside the economic and commercial flows, and which should be preserved for present and future generations.

Social conditions of the population in the first place, have a major impact on economic development. The question is to what extent it available manufacturing funds satisfy needs of the population as a factor of production, on one hand and as a consumer of produced goods, on the other hand (Blom et al 2001; Sinding, 2009). Malttus (1973) in their study, "An Essay on the Principle of Population" examines the growth of population and compares it with the development of the economy. Concludes that the population is growing by geometrical ratio, while production of the means for maintaining the population growing by arithmetical progression. Since the population is growing far more rapidly than is the case with the means necessary for his subsistence, comes according to Malthus (1973) to the mismatch between population and available material resources. However, in the international literature has increasingly the opinion that population growth increases production capabilities and consumption capacities of society. Kunznets (1955) emphasizes that growing population opens opportunities for growth the accumulation. Problems related to the population growth and use of population as of one factor of economic development is different in underdeveloped and developed countries. Of course that for many number of underdeveloped countries or developing countries with of urban unemployment and spread of non-agricultural population, unemployment and semi-employment in agriculture, creates undeveloped or in developing countries, such as Montenegro, very serious problems in terms of their further and rapid economic development. If to all this we add the low qualification structure, or inability of the population, particularly rural to engage in the use modern technique and technology, then these problems are even more acute. The use of even such techniques and technology that is not the most modern, creates problems in terms of employment and in terms of the inability that is in this way provide enough accumulation for further accelerated economic development of the whole country, and regions within it (Bloom et al 2001; Hirschman, 2004; Sinding, 2009; Bajpai 82012) what kind of is And this part of Montenegro. If the all this in mind, then does not surprise us fact that population policy is increasingly becoming a part of the economic policies and a very significant part in developing countries, and developing countries. Viewed as a whole, the population we can consider as a factor which will positively impact on economic development of the north-eastern part of Montenegro, of course, if the available natural and social potentials to be use the better than hitherto.

2. Research Methodology

This research aims to introduce the professional and the public about the natural and social conditions for economic development in the north-eastern Montenegro, for example, the municipality Berane, Andrejevica and Plav in the geographical context of its exploitation and use. Results of research have been used. Results of the study were used to determine

which rational production considered geospace can be organized, taking into account the natural conditions and socioeconomic development. Objective of this study it was possible to realize combined use of different research methods. The core of methodological procedure in this research include: descriptive, a causal, comparative method and theoretical analysis. Descriptive and causal methods have been used to detect the cause consequential link between the natural and social resources and economic development. Based on the properties of relief, climatic and hydrological conditions, the prevalence of soil types in the observed geographic space, done is to collect data by which examined differences and similarities between the three separate regions for economic development. Methods of theoretical analysis encompassed theoretical basis of the research. Application in the text is found itself and the method of alternating splitter design in Systems 6/6, developed at the Institute of Geography, Polish Academy of Sciences (Kostrovicki, 1969, Kostrovicki 1970). The process at applying the method, "kolejnih ilorazow" (alternate splitter design) gives the Tyszkiewicz (1978). The combination of these methods it is possible to validly defined achieve the research goals, which relates to on natural and social conditions for economic development in the north-eastern Montenegro, based on examples from Berane, Andrejevica and Plav. In the scientific explanation of terms, have been applied the two methods are used: the method of analysis and synthesis methods. The method of analysis we were able to deconstructed the complex notions and courts in research and bring out conclusions as to their simpler components and elements. Synthesis methods included is way of systematization of knowledge according to the laws of formal logic, a process of theoretical knowledge in the direction of special to general.

3. Analysis and Discussion

Under the economic - geographical notion northeastern Montenegro, the example municipalities Berane, Andrejevica and Plav we mean on the part of Montenegro, which includes the upper basin of the river Lim from its source to gorge Tivran. It is a In fact, that part of the territory of Montenegro, which is filled with high mountain elements relief, whose is a business geographical position unfavorable, because it is located far of the main roads. Except for the continental branch of the Adriatic Highway, nor one road Yugoslav or European importance, does not intersect or touch the analyzed geographical space. Isolated traffic and geographical position unfavorably affects on economic and social development of the analyzed geographic space.

Spatial distribution of the economy is determined by the natural and social conditions. The natural conditions in terms of the economy are of particular significance relief, climatic and hydrographic conditions, soil...

Thanks to the geological structure of the analyzed geo space in Berane valley are located significant reserves of coal and lignite. Undoubtedly the most significant energy source represents brown coal. Widespread is in all parts of the valley (Budimlja Petnjik, Zagorje, Seoca, Beran village, Dolac). Total coal reserves amount to 176.231.197 tons and secondary calorific value is 16.700. In a series Miocene are located immense reserves of marl (Police, Jasikovac the hamlet Đuraci). According to the Lutovac (1957) only reserves Jasikovac able are that ensure the production for two hundred years, if would per year produced an about 80.000 tons. So far, albeit not a complete geological survey confirmed the existence of, a range of precious metals (lead, zinc, copper, iron and pyrite) and non-metals. Decorative stone is a kind of resource that is largely speaks about the beauty of this part of north-eastern Montenegro. Marble and marble breccias were found in several places, but the largest reserves established by on Žoljevica (5.283.300 m^3). However, they consider that is mining, respectively industry in this part of north-eastern Montenegro considering to the

presence of coal and minerals, it is reserves, as well as tradition, only partly used the possibility provided by the raw material base (Rajović and Bulatović, 2013).

Of the relief a whole of this part of north-eastern Montenegro for economic development special importance is belt basin (645 m altitude - 948 m altitude). From the point of the economy Berane, Andrijevica and Polimlje valley have the most favorable conditions for intensive agricultural production, summer tourism, construction and transport development. Favorable structure slope to 3 °, the dominant non-exposed exposure, fluvial land of high productive potential, allowing intensive agriculture. Belt valley is important for summer tourism, specified summer tourist season. Season bathing tourism takes 30 to 90 days. In relation to recreational use, value assessment can be carried out in terms of benefits of rowing sports, particularly kayak (total decrease Lima on the move Murino Andrijevica is 75 m, and Andrijevica Berane 85 m). Average annual flow of water meets the needs of kayaking. Rowing, sailing is, walking and excursions are possible in the rivers of the relief the whole. Morph metric conditions for construction are also favorable. Given that in this a whole dominant slope of 1 ° - 3 °, no exposed surfaces, good hypsometric structure, the construction season is about 260 days, which provides very good conditions for building settlements and roads. Compared to the corresponding climatic characteristics, mean annual temperature air about 8 - 10 ° C, relative air humidity 75% makes this area suitable for settlement and livelihood of the population. Valley Plav-Gusinje in southern part, characterized by mild forms of relief and side slope, which makes this unit a relatively favorable for are development of the economy. However, it still lags behind in terms of the value of Berane, Andrijevica and Polimlje. As an administrative unit belongs to a second class of so-called highly suitable land for agricultural production, and facilitates the development of summer tourism, that is to meet the needs kayaking, rowing, sailing is, walking, underwater and sports fishing. Regarding the development of construction and transport valley Plav-Gusinje belongs to the third class of suitable terrain for no exposure and altitude belt length period without frost (124 days) and class II from the perspective of the construction of transportation infrastructure (Rajović, 2013).

For evaluative assessment of agro-climatic conditions, the relevant parameters are: thermally conditions, duration of sunshine, cloudiness, relative humidity, moisture regime, precipitation, winds. Most of agro-climatic parameters positive effect the development of agricultural crops, especially in the lower altitude zone, volume of soil moisture regime during the growing season, characterized by deficits of moisture in July and August. In this part of north-eastern Montenegro I can are distinguish three Agroclimatic regions which provide the conditions for agricultural production:

Low agro-climatic region includes the area of mountainous and valley parts at an elevation of 645 meters above sea level 1100 m altitude, suitable for growing field crops and orchards. Sam plant, there are good conditions for the development of livestock production.

Moderate mountain agro-climatic region covers altitudes between 1100 meters above sea level 1700 m altitude these are generally steep mountain slopes, covered with dense forest. Straighter terrain is mostly covered by meadows, while the area under arable minor (grown mainly potatoes, barley, and oats).

High mountain agro-climatic region encompasses landscapes above 1700 m altitude. This region is not a single day with the average daily temperature than 15 ° C. The largest area in this region is mountain grasslands with blueberry and juniper (Rajović and Bulatović, 2012).

During the growing season in the north-eastern part of Montenegro because of the low summer water flow, inaccessibility coast, distance from the river beds, the possibility of the use of water for irrigation. By comparing the deficit humidity and monthly flow during the growing season, it can be noted that the temporal distribution of available water for

agriculture is insufficient. The striking discrepancy between available and required amount of water for irrigation of crops, there is during July and August. Great fortune analyzed geo space represent the hydrographic objects that are not adequately utilized. The most important are the Plav Lake and the River Lim, who are still waiting for ultimate protection and different possibilities of exploitation.

Automorphic and hydromorphic soil of this part of north-eastern Montenegro, have different production possibilities. With increasing altitude, and other natural conditions, deterioration, reduced productive capacity land. However, the depth and physic-chemical properties, soil analyzed geo-space varies and on very little spaces. Of the automorphic soil stand out are clay soil and cultivating soils. These types land widespread is on river terraces and slightly sloping relief surfaces of constructed of lake sediments and crystalline schist's. Despite the unfavorable water-air properties and texture composition they are potentially fertile soils for most crops. On more arid parts of the river terraces, cultivating soils are somewhat more favorable water-air properties, and are suitable for growing of various types of fruit. The most represented hydromorphic land in this part of the north-eastern Montenegro is fluvisol which comprise the bulk of the alluvial plains of rivers. The production potential is most important soil where are him different agricultural culture. For alluvial soils are bind almost intensive cultivation of vegetable crops (tomatoes, cucumbers, green beans ...). When we observe the development of land types in the analyzed geographic space in are vertical average, evident that the productive soil types associated with the parent substrates of Neogene to Quaternary sediments. Above the upper limit of development of Neogene sediments inputs the in belt of forest and meadow land. The fact is that are and those in the recent past in this part of north-eastern Montenegro determined using for fields land, expression is primarily agrarian overpopulation.

By their activities man is not only degraded the soil of the, but it is also destroyed the original forest vegetation, thus creating the agrarian vegetation cover physiognomic, functionally and structurally very different of natural. However, since the sixties of the last century in this part of north-eastern Montenegro, with the decline of agrarian overpopulation and difficulties the use of modern machinery gradually comes to the abandonment of agricultural land and spontaneous revitalization of the natural vegetation cover. In addition to the process of reducing the area under agricultural landscape in analyzed the geographic space affects the urban construction, the construction of infrastructure facilities... Climate, hydrographic and pedological conditions adapted to diverse flora and fauna. Floristic diversity represents significant aesthetic and decorative, recreational, hygienic and health value. Much numerous wild animals in this part of north-eastern Montenegro are one of the richest in Montenegro. Nature protection includes permanent storage of natural resources, geo Fund and the natural conditions of life, which are of vital importance for the survival of man in observed geographic space and meeting its economic, health, recreational, scientific, tourist and cultural needs. This concept protection of nature is based on the ecological principle of unity of living communities and populated areas, which are compiled in the ecosystem, and an integration of the highest order.

Based on the properties of relief, climate and hydrological conditions, representation of land types in this part of north-eastern Montenegro extracted are three relatively homogeneous regions for economic development:

- I area - tied to valley Berane, Andrijevica, Polimlje and Plav-Gusinje basin and the low landscapes middle mountainous terrain up to 1100 m altitude. Favorable structure slope, not exposed exposure, favorable thermally and other climatic conditions, the possibility of irrigation, land cover and other natural conditions, allow the intensive crop production in lower and fruit at higher altitude zones. The hypsometric analyzed a whole expressed are other natural

features of the development of economic activities (industry, transport, construction, and tourism).

- II area - is related to the mountain belt of 1100 meters above sea level - 1700 m altitude. This space area is characterized by worsening relief, thermal and land conditions. Therefore, in this area the dominant share of grassland and forest ecosystems. With the point of view of tourism, this area provides opportunities for the development of health, sports and recreational tourism. Considering, on presence of minerals (lead, zinc, iron, pyrite), provides the foundation for the development of mining. Building season lasts 230-250 days, but to specific works (on example work with concrete), this period coincides with the length of period without frost, which ranges from 67 to 117 days. The absolute height of snow in this area, may be bigger than 200 cm, which impedes undisturbed traffic flow.
- III area - includes high mountain belt above 1700 m altitude represents the most complex the whole in this part of north-eastern Montenegro. In this area are represented the most complex ecosystems and landscapes greatest biodiversity. With the tourist point of view of this area is suitable for observation, hiking, mountain climbing, excursion checkpoints. It is known to stay on this altitude favors athletes, healthy people, but in many patients normalize the situation by improving the defense capabilities of the organism (Rajović, 2011).

On the development structure and spatial distribution are of the economy in addition to natural

affecting and social conditions in which the economy are formed. In this regard especially are important quantitative and qualitative characteristics of the labor force, respectively the aging, and the characteristics of the Land Fund its small size, low technical equipment, the degree of intensification of agricultural production...

The population has increased in the period 1948 - 2003 years with 53.477 on 64.658 populations, or 2,16%, but with tendency of reduction from 1981. Namely, in the period of 1981-1991, the population of northeastern Montenegro was reduced from – 0,63% to – 6,31% (69.332-69.594), 1991-2003 years with – 6,31% to – 15,9% (69.954-64.658). Based on of expressed tendency of the total population trend is possible to identify with one side of depopulation zone and the zone of stable demographic development (areas of population concentration) on the other. In the depopulation of areas that include 85 out of 113 villages, or 72,81% (1.082 km^2), the total area of the north-eastern part of Montenegro (1.1486 km^2), according to the census of 1971, were living 37.851 people (59,94% of total population), and 2003, 9.578 people (17,52% of the total population). Areas of population concentration recorded population growth, according to the census of 1971 they were living in 31.042 people (45,06% of the total population) in 2003 and 45.080 people (82,47% of the total population). Can be noticed that the proportion of young people in this part of north-eastern Montenegro (up to 19 years), in the total population decreased from 49,18% (30.980) in 1961 on 31,00% in 2003 (16.941). Share of elderly population (60 and over) in the same period increased from 8,73% (5.498) on 18,41% (7.963). In the observed geographic space, we can conclude that it is more male than female population. The share of the male population in the period 1961 - 2003 has increased from 49,44% (31.141) on 50,02% (27.340), and the female was reduced from 50,56% (31.844) on 49,98% (827.318). On the disproportion of males and females affect the participation of men in migration in the early stages of industrialization, which resulted in the participation of men. The educational level of the population indicates the degree of educational and cultural level of the population. Besides the significant decline of illiteracy in the period 1961 - 2003 with 17,86% to 7,01 this problem is even more acute. A

significant part of the population has without educational attainment 5,31%, or incomplete primary education is 13,44%, 29.03% of the population aged 10 years and over has elementary school. Process of deagrarization is enhanced by the due to the transition of agricultural labor force in non-agricultural activities. As a result, in the period 1961 - 2003, active agricultural population was reduced by 12.596 or 66,69% on 1.568 or 14,08%. Migration of population is point to uneven population density and concentration of population. The existence of a large number of settlements to 500 people (81 settlements) is not convenient for to modern flows to vital economic development. The existence of a large number of settlements to 500 people (81 settlements) is not convenient for to modern flows to vital economic development. It can be seen lack of settlements with over 2000 populations (only 4 villages have more than 2000 population: 12.651 Berane, Luge Beranske 2.011, Gusinje 3.015, Plav 5.554) (Rajović and Bulatović, 2013).

Percentage share of households that regularly or occasionally engaged in agriculture in the total number of households (1981 - 13.801; 2003 - 16.956) declined from 2.118 in 1981 to 1.686 in 2003 or for 432 (78,12 Index). In the same period, the number of mixed households increased from 1.120 to 2.234 or for 1.114 (index 199,44). Therefore, number of households that are regularly or occasionally involved in agricultural activities increased by about 1.546 households. In the structure households, whose members regularly or occasionally engaged in agriculture production, mixed households in 1981 the percentage accounted for 34,6% and 2003 with 56,9%. Of the total agricultural area of the private sector owns approximately 89,87%. Dominant participation private sector, well as the law on inheritance, has negatively affected the size of the estate of agricultural holdings. In agriculture northeastern Montenegro are dominated by agricultural holdings. Agriculture in northeastern Montenegro, dominated by agricultural holdings which estate dispose of less than 5,00 ha and to 91,36%, and estates larger than 5,01 hectares, 8,64% had of agricultural holdings in relation to the total number. Furthermore, agricultural land private of agricultural holdings, depending on the size of the property, has fragmented into a number of pitches, different from the economic yard. The size, shape and length of the land in this part of north-eastern Montenegro are the result of agro-property relations and familial division. The average parcel size is 44 acres.

During the twentieth century has been formed of the land areas in which the allocated agricultural land, forests and forestry land and infertile land. Of the total area of the north-eastern part of Montenegro in 2005 (148.600 ha) of agricultural land covers 67.740 hectares, forests and woodland land 62.432 ha and 18.428 ha barren land. Directions (ways) use of agricultural land observed geographic space were determined natural suitability (relief, climate, land ...), on the one hand, and social factors (tradition, quality of the workforce ...), on the other hand. In fact, the directions of for use of agricultural land indicate the degree of development and intensity agriculture, or the extent to which agricultural production agrees with the available agro-potential, the market needs. In the period 1964 - 2005 there has been a change in the use of agricultural land in the direction reduction of area under fields and gardens and pastures. In contrast increased land under orchards and meadows. Arable land in the period was reduced from 8.440 ha in 1964 on 6.772 ha in 2005 or for the 1.668 ha. Lands under orchards increased during the same period from 1.826 ha on 2.334 ha, respectively for 508 ha. Areas under meadows, recorded a slight increase from 19.926 ha on 20.502 ha, respectively for 576 hectares. Land under her suburbs in the period 1964 -2005 was reduced from 40.286 ha on 37.821 ha, respectively for 2.465 ha. Relative to the optimal use of land resources and rational agricultural production, changes in the structure using a positive and negative impact. Applying the method of alternating splitter design in Systems 6/6

(Kostrovicki, 1969, Kostrovicki, 1970), we found in northeastern Montenegro in 2005, following the direction use of agricultural land: P3L2O1-type middle representation of meadow, with a higher share of pasture and of the arable land involvement[1]. Appreciating the fact that almost the entire territory of the north-eastern part of Montenegro under hilly or mountainous areas, it is quite understandable that the examined geographical space disposes with large areas under meadows and pastures. On the formation the use of plowed land, in addition to natural conditions, has influenced demographic trends, the ability to use modern mechanization and other cropping practices, traditions... We could get the proper picture of the structure of arable land in northeastern Montenegro, and here we are applied method of alternating splitter design 6/6 and found in 2005, following the direction of the use of arable land: Po2Sk2Ž1No1-type with equal participation of vegetables and livestock fodder and granary involvement plants and non-orders processed arable land[2]. Thus obtained plough able direction is a typical reflection of the underdeveloped agriculture, where all the products, and where all arable areas not used rationally. The intensity of agricultural production in this part of north-eastern of Montenegro is the insufficient use of scientific farming and agro-melioration measures. These measures are reflected in the an outdated processing, low-technical equipment, use of mineral fertilizers, plant protection products, a relative application of high-yielding varieties of agricultural crops, irrigation, crop rotation ... Judging by the number of tractors degree of mechanization is low because on one tractor coming 12 ha of arable land. Other agricultural instruments (Ploughs, plowshares ...) are much greater extent represented in the observed area, which indicates primitive soil tillage. If we take into account the chemical properties of the soil in this part of north-eastern Montenegro, is best reflected in the low sufficiency phosphorus and potassium and artificial fertilizers consumption (61 kg / ha - Montenegro.). Because of the lack of statistical data on the use chemical agents in agriculture considered geospace we can assume that the use of small or even negligible, despite the enormous importance of these products for the protection of vegetable, fruit and other crops. The process of introducing high-yielding plant cultures and purebred cattle agricultural in this part of north-eastern of Montenegro is as more or less similar in other parts of the former Yugoslavia. Most important changes in the composition of the varieties present in vegetable and fruit production, the domestic and foreign high-yielding varieties. In contrast, the in racial composition of cattle prevalent race was obtained by crossing domestic and foreign breeds. The values of hydrothermal coefficient indicate the need for irrigation of agricultural crops during the growing season. Agricultural crops greatest need for irrigation is in July and August. Because of the minimal flow river, high river banks and a considerable distance from the land of the river bed, of river water the rarely used for irrigation. The construction accumulations and water reservoirs equalize. Would the flow river which would provide far greater possibility of accumulating is significant quantities of water for irrigation. Results of the analysis of agriculture suggests on the following conclusions: (1) in the territory of the north-eastern part of Montenegro, insufficient attention has been paid to the problems of agriculture, and especially the choice of the optimal structure of production, (2) the previous way management (small parcels, old processing, uncoordinated production structure ..) is not in agricultural development. Greater respect of agriculture as a primary activity, which can be is comparative advantages of the analyzed geospace (3) the most important and most urgent of measures would be directing farmers that the catchall exceeds

[1] The variables and their symbols used in the formula: O-arable land, V - orchards, L - meadows, P-pastures.

[2] The variables and their symbols used in the formula: Ž - grain, I-Industrial Crops, Po - vegetable crop, Sk-cattle-forage crops, No-uncultivated arable land.

on a certain specialized type of production. Considering on geographical, traditional and other conditions, the population of this part of north-eastern Montenegro should first gently, and then more to direct on cattle breeding and as a main activity. Considering the results that we obtained in the study indicate that plant production is used to meet the needs of the household. A smaller part of the intended is market. Livestock production is oriented towards obtaining meat and milk, with the fact that sheep breeding have prevails over breeding of cattle. Growing other types of livestock gets almost negligible amount of product, and they do not have a more important role in livestock production observed geospace.

Ours records the research foundations on similar research Pedersen and Arneberg (1999), Rupasingha and Goetz (2003), Crandall and Weber (2004), Bourguignon (2005), Peracchi (2006), Union (2012), initially points out several important observations when it comes to narrower part of the economic activity in this part of north-eastern Montenegro:

1. That craft activity does not feature development that fit the needs the domestic population and economic development for a variety of quality products and services.
2. That the trade capacity are not were brought up to the required level shows to us data. In the municipality Andrijevica there were 37 trading stores, the municipality Berane 472 and the municipality Plav 76. An average is one the trade shop was employed in Andrijevica and Plav 1,3 workers and Berane 1,5. Number of population to one shop ranged from 82 in Berane, 180 in Andrijevica to 254 in the municipality of Plav. Accordingly, under new conditions of the market economy regional trade is not fit in forming business offer.
3. In the concept development must proceed from the values of traditional architecture. What is further being planned and built, should carry hallmark localities, because otherwise spaces by Montenegro without character resemble one on another. If the weather is such that is necessary to consider the rationality and a small investment and in order to provide more, better example of the construction of our ancestors has not. They are per the subtle sense have knew how to combine exceptional functionality, to achieve remarkable structural interventions, and at the same time achieve the design of which captivates and does not offend the environment.

Previous development of and the rising trend in traffic clearly to the forefront some obvious problems:

1. First, the total length of main is 111 km, and 67 km of regional and locally of categorized 250 km, indicating that the road network insufficiently developed,
2. Second, of total length of main and regional roads with asphalt driveway, which meet the technical standards of modern traffic infrastructure is now partially fulfills the travel direction Berane - Andrijevica,
3. Third, the density of modern traffic (main and regional) within this area, also barely perceptible because amounts 1,78 km per 10.000 populations.

In order to natural resources in tourism could be valorized above all, exist an adequate material basis as economic and organizational expression of its tourist potential. Therefore, the detailed analysis of the above mentioned basics has been result which, among other things, shows (Rajović, 2005):

1. Considered that have almost unnoticed share Hotel Rooms that is participation that is 0,5% of the total number beds of Montenegro,
2. That the coefficient the tourist functionalities is 1,25 beds per 1.000 population,
3. That in the development receptive basics on the territory of the observed geospace favoring objects that engage in the process of construction the largest investment means (such as hotels and classic pre preventative of catering units participating in the total number of beds with 85,64%, and the complementary units together 14,36%), and

4. The average length of stay of tourists in this part of north-eastern Montenegro in 2003 amounted to 3,10 days. Length of stay of tourists is relatively short and has the character of business permit or visitors in transit. Of the total number of overnight stays in 2003 was realized 10.034 nights.
5. Problem is reactivating any field of in any way including the studied in the tourism especially the problem of knowing, appreciation and revival of life and customs. Tourism cannot be based on the specific climate, on new or old accommodation facilities is or boring, boarding-houses package arrangements. To potential applicants and users can be present autochthonous and authenticity of the north-eastern part of Montenegro, which is something quite different from the usual schemes of life in urban areas. Sometimes is the truth itself and naturalness albeit poor, more efficient than imitating the rich foreign spectacular fashionable models, while again real and true value on the price in the area of tourism.

Objective constraints for the development of industry in this part of north-eastern Montenegro are situated in a traffic isolation, structural the imbalances and lack of qualified labor. The process of industrialization in the considered geographic space, led to structural deformation and territorial disproportions, which contributed to the polarization between:

1. insufficiently developed municipalities Berane and underdeveloped municipalities Andrijevice and Plav,
2. urban and rural areas,
3. lower and higher regions, basins and mountains

The economic-geographical analysis is not always easy to distinguish how much in a share of missed opportunities present objectively restrictive conditions (mountain character of the observed geographic space), and how much they must attributed to insufficient or inadequate economic organization and incomplete information. Previous programs of economic development in this part of north-eastern Montenegro have not respected the specific geographical conditions, because they could not give satisfactory results.

Finally, on economic problems of this part of north-eastern Montenegro should look realistic, without much optimism and even less pessimism. The process of general and qualitative transformation of the observed geographic space will be relatively quite slow and long-term. Therefore, you should work on it patiently, but persistently and continuously. Therefore, you should work on it patiently, but persistently and continuously. In one rational, compared to natural conditions, market-oriented economy, the northeastern part of Montenegro could become an important area for the development of agriculture and tourism, not only north of Montenegro, but also more remote areas of on the domestic and foreign markets.

4. Conclusion

Our research record based on similar researches Ciriacy-Wantrup (1969), Stijns (2005), Gylfason and Zoega (2006), Tošović(2006), Ryumina and Anikina (2007), pointed out is in first, several important conclusions. Natural resources are certainly one of the key factors in the present and future development of this part of north-eastern Montenegro and its economic and geographic shaping and it by:

1. Land as a resource for the observed geographic space plays an important role, especially with two vital and important aspects of the business. The first is agricultural land, the second building land. There is a third, the overlap with forest resources, which is forest land. Agricultural land as a potential strategic resource is very relevant in this part of north-eastern Montenegro and it is the primary place among the natural resources of its development. Its representation in relation to non-agricultural land and structural utilization is very different. These differences are the result of some

agricultural land belonging to different morphologic units. Rational use of strategically important resources with modern agricultural practices and internal restructuring of production, conditions not only settle their own needs, but also the production significant surplus for the market.

2. Hydro-climatic conditions have an important and complex role in the evaluation of economic development in this part of north-eastern Montenegro. Climatic features are the result of various geographical factors which led to the existence of temperate continental and alpine climate. Such a diversity of climatic conditions in basically offers a variety of benefits to diverse agricultural production (cereals, fruits, vegetables, industrial crops ...). In general, climatic conditions are very favorable, and certain unfavorable climatic phenomena it is possible to compensate for human intervention.
3. Water resources in this part of north-eastern Montenegro require special attention in view of the vital importance of water as a substance. Water resources include of surface and ground water. For many settlements in the coming period, it is necessary to provide sufficient quantities of drinking water, but also organize a constant control of their quality in sources. River Lim with tributaries and lakes (Plavsko, Ridsko, Pešića lake, Great and Small Šiško, Small and Great Ursulovačko) representing highlighted tourist destinations with its attractiveness opens space for related service activities.
4. Forest resources of the considered geo space provided biological preconditions healthier environmental conditions, and in economic component of the basis for the wood industry. Forests are essential and for environmental, protective, tourism and recreation, health, cultural and other services. In line with the trends of European and global forest policy, forest policy in this part of north-eastern Montenegro must find a balance between economic, environmental, social and cultural functions.
5. Mineral resources, due to the geological structure of the observed geographic space are very diverse in terms of type, quantity, quality, and economic importance. The wide range of metal-present, non-metallic mineral and energy resources. Among metallic, in economic terms, are particularly important deposits of lead, zinc, copper, iron and pyrite. Non-metallic mineral resources of this part of north-eastern Montenegro the economic value beyond the metallic mineral resources, especially as represented crushed stone, architectural and building stone, sand, gravel and clay. The most important energy source is coal. Total coal reserves amount to 176.231.197 tons.
6. Plant resources show great diversity of flora and vegetation. The most important plant resources are forests, among which dominated by oak, beech and coniferous, then meadows and pastures. Besides the importance of plant species have for agriculture, wood industry, food production, there are number of medicinal and aromatic plants which are used for the production of medicines and medical products.
7. Fauna of this part of north-eastern Montenegro is characterized by a diversity of fauna, especially wild animals, birds, rare and protected species. Part of a diverse fauna there is habitats in protected areas and national parks. Their preservation and increase of certain types of animalist is important for both existing ecosystems, and the diversity of general tourism deals, particularly for organized in, attractive hunting grounds. The attention is also attracts and fish stocks, specialized in commercial, and recreational fishing in area, providing recreational opportunities, and other economically important activities.
8. Livestock resources over the long term were reduced, the intensity dealing livestock go line is falling. Precisely in the domain of these resources and, depending on the state and level of provision of other natural resources, there is a possibility to improve,

among others, directly resulting from increased demand in urban centers for appropriate amounts of quality and healthy meat.

9. Fruit growing in the earlier periods were known for quality fruit and fruit products. Former reputation is necessary to restore and re-establish the organized production, market presence, branding the organized market placement.

Population and human labor from the standpoint of economic development has a dual role. On one side represents a natural framework for ensuring the workforce as an irreplaceable element of the process is realized and propels economic development. On the second side of his numerical state and amount of income that is realized determines the volume and structure of production. Many authors Rojewski (2004), Jothen (2009), Lusk and Fazarro (2010), Schlecht et al (2012), they find that knowledge is the most important element of economic growth. All other components of production can be purchased or borrow: of capital goods, raw materials, technology. Capital Goods can utilize and maintain a qualified and experienced workforce. These are the reasons for investing in the education and health of the population, which contributes to the quality of the work. For economic development are important structures of the human factors related to the work force as a precondition for the appropriate production processes, such as: the relationship between active and dependent population, educational qualifications and economic structure of the population. Whereby the necessary to emphasize are importance of education and professional qualifications of the labor force with respect that the quality of itself is a prerequisite for modern economic development is characterized by rapid technical and technological changes, but also the preconditions for more efficient use of other factors of economic development, with standpoint of our social conditions for economic development and the role of population as factor of economic development. When it is comes to this part of north-eastern Montenegro.

1. Process of deagrarization amplified due to population has increased in the period 1948 to 2003, with 53.477 to 54.658 populations. Looking at in general compared to 1948, the population of the region has increased by 2,16% in 2003, but with a tendency to decrease of 1971.
2. Based on the demonstrated tendencies in movement the total population in the region can be identified: zone of depopulation and population concentration areas. The depopulation of areas that are include 85 out of 113 villages, or 72,81% (1.082 km2), the total area of the studied area (1.1486 km2), according to the census of 1971, lived 37.851 population (59,94% of the total), and 2003, 9.578 population (17,52% of the total population). The zone concentrations recorded population growth; according to the census of 1971 they were living in 31.042 populations (45,06% of the total population) in 2003 and 45.080 population (82,47% of the total population).
3. In this region, the paper finds that the share of young people (up to 19 years) in the total population declined from 49,18% in 1961 to 31,00% in the 2003. Share of elderly population (60 and over) in the same period increased from 8,73% on 18,41%.
4. In the region, we can conclude that there was a slight equalization of male and female population. The share of the male population in the period 1961 - 2003, slightly has increased from 49,44% to 50,02% and the female was reduced from 50,56% on 49,98%. On the disproportion male and female populations affected the participation of women in the migration which resulted in participation of men enhances.
5. The educational level of the population indicates the degree of educational and cultural level of the population. Despite the decrease in illiteracy in the period 1961-2003 from 17,86% on 2,74%, this problem is even more acute. A significant part of the population has no education 5,31%, or incomplete primary education is 13,44%, and 29,03% population older 15 years and over has finished primary school.

6. Crossing the agricultural labor force in non-agricultural activities. As a result, in the period 1961 - 2003 actively agricultural population has decreased from 66,69% on 14,08%. In contrast to the secondary sector - active population working, increased from 14,42% on 27,80%, with 3,54% tertiary on 19,83%, the social services sector with 7,67% on 24,88% . These data suggest, what are the socio-economic changes have played in the region.
7. The ethnic composition of the region, the highest share of Serbs (41,99%) and Montenegrins (20,43%), followed by Muslims (28,48%), Albanians (5,04%) and "other" (4,06%). It is interesting point out the fact that in the census - 2003, the majority of Muslims has pleaded as Bosnians.
8. Migration of population indicates an uneven population density and concentration of population. The existence of a large number of settlements up to 500 populations (81 villages) is not suitable for modern flow to vital economic development of the region. Can be seen lack of settlements with over 2.000 populations (only 4 villages with more than 2.000 populations: 12.651 Berane, Luge Beranske 2.011, Gusinje 3.015, and Plav 5.554). It was only in these settlements, we can talk about the real potential for the development of central functions, and the size of emerges as the second important divider in terms of numbers.

The development and deployment of modern economies is determined by a number of natural characteristics of the terrain. They showed that the economy of this part of north-eastern Montenegro is not in compliance with all the existing natural conditions. Incompatibility between the existing natural conditions and modern economy is determined by the unfavorable socio-economic development factors. Development of the total population in the studied geographic space is characterized by increasingly unfavorable demographic processes. In this paper established the negative demographic trends and economic development. Total depopulation, demographic aging, the educational structure of the population are imposed as a leading contemporary demographic processes in this part of north-eastern Montenegro.

Developments of demographic structure have significantly marked the contemporary socio-economic processes such as industrialization, urbanization and deagrarization. In other words, the demographic structure is a kind of indicator of the trend and intensity of the socio-economic processes. Demographic and economic renewal and stop the negative demographic and economic processes are imposed as a key development and strategic factor and the overall goal of social renewal and future economic development of this part of north-eastern Montenegro.

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Economic Recovery after the Crisis and the Cohesion Policy

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Abstract: *Even European Union was considered a strong institution, US crisis covered the european area. All 27 countries UE members are involved in a hard work related to euro aria future and meanwhile in stability strategy. Concerning economic dimension of crisis gouvernments found out how vulnerable they are becouse of an unequal sates involvment in solving recesion problems, becouse some countries have to addopt efficient finacial and economic austerity decisions and other ones not. Starting 1930 until today, European Union developed economic relations among members, using Structural Funds too. This financial instrument could bean efficient support for reducing crisiss. What could be benefic for Romania, as a noneuro country, in order to diminuate the dimension of crissis and to develop a solid market economy?*

Keywords: European Union, structural funds, economic crisis, restructuring, economic recovery

The structural funds have contributed, since the establishment of the Community Coal and Steel to implementation of European policies in the economic and social field. Since the signing of the Treaty of Maastricht on European Union, in November 1993, strengthening economic and social cohesion became the official point of view, one of the objectives of the European Union. Along the history of post-war European integration was given to all choesion goals. But, as the economic Union extends social cohesion, has become more difficult to be established. Cohesion policy has a strong instrumental character and solidarity funds shall contribute to achieving the objectives of other sectorial UE policies such as the common agricultural policy, social policy, environment policy. In addition, regional development policy point to the EU development through pre-accession funds PHARE, ISPA and SAPARD which were available in the accession countries and which is supported tranzitiaacestora to EU standards.

To determine the historical and political context in which the European economy has developed, it should be stressed that the major world war have made Europe to remain deeply divided and affected by the two world wars, which broke out on the continent. After the first world war, ideas and concerns for a United Europe were frequently evoked. It should be noted that the company of Nations Assembly adopted, for example, on September 17, 1930, a resolution creating the Commission may decide to study for the European Union. It is known that this proposal to the Foreign Minister of France, Aristide Briant, who was also appointed President of the Commission. The objective of this initiative was the creation of a European organization with political and economic character. Due to the international crisis and the evolution of the events on the continent, the idea of creating the European Union went into deadlock and then quit it.[3]

[3] Constantin, D.L., *Economia regională*, Ed.OSCAR PRINT, Bucureşti, 1998

After the second World War when a large part of the European economy was destroyed, the ideas about European unity were resumed. In 1946, Winston Churchill, in a speech held in Zurich, Switzerland, has developed the idea of creating the United States of Europe. The span of nearly a year, in 1947, the Marshall Plan was launched for the purpose of reconstruction. United States of America have offered their help for the reconstruction of all the countries of the continent, but that aid was accepted only by the countries which were to constitute the Western Europe.[4] Subsequently, Robert Schuman, the French Foreign Minister, proposed a plan that bore its name later, Schumann Plan for the creation of the European Community of coal and Steel Community (ECSC). Italy and the Benelux countries have supported this plan and in 1951 was signed the Treaty of Paris between Belgium, France, the Federal Republic of Germany, Italy, Luxembourg and the Netherlands. The ECSC was founded on 10 august 1952, Jean Monnet became the first President of the High Authority of the coal and steel.[5]

After the formation of the Group of 15, the European Union decides to consider and some countries with associate status, signed the association agreements for six countries in Central and Eastern Europe (CEECS): Poland, Hungary, the Czech Republic, Slovakia, Romania and Bulgaria. For creating the European Union today focused on issues related to the economic development of the community space and ensuring a balanced exchange markets and peripheral Member States have negotiated several steps to the so-called economic and social cohesion.[6] As a result, the Treaty on European Union includes a special commitment in this respect, namely in Article 130a, which States: the community will have as their objective the reduction of development disparities of different regions of the lack of progress of the disadvantaged regions, including regional areas. At the same time, under Article 130 d, was set up a cohesion fund to provide funds (Structural funds[7]) for economic development through projects of improvement of transport and environment, allowing all Member States to reach the final phase of economic and Monetary Union. [8] The structural funds ' programmes have made the subject matter of the two horizontal priorities, which should be incorporated into the definition and implementation of measures financed by the structural funds and the Cohesion Fund:

1. sustainable development, which includes compliance with the Community legislation for the protection of the environment and nature;

2. equality between men and women and their incorporation into all policies (so-called mainstreaming), proritate is not an option but an obligation[9].

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[4] Fuerea, Augustin *Instituţiile Uniunii Europene*, Ed. Universul Juridic, Bucureşti, 2002;

[5] Fuerea, Augustin *Instituţiile Uniunii Europene*, Ed. Universul Juridic, Bucureşti, 2002;

[6] Fuerea, Augustin, *op.cit.*

[7] Pentru verificarea adiţionalităţii în zonele Obectiv 1, Comisia Europeană a emis un document metodologic de lucru. Toate cele 27 de state membre poartă principala responsabilitate pentru dezvoltarea zonelor aflate în dificultate. Uniunea ajută aceste ţări să obţină mai mult şi să atingă rezultate mai bune decât ar putea dacă ar acţiona pe cont propriu.

[8] In the early 1990s, Sweden, Finland, Norway and Austria have begun preparations for EU membership. Even if, in the end, Norway has decided not to join the Union, and has influenced the process of negotiation. Unlike previous expansions, this round of enlargement is not going to increase regional differences within the EU.

[9] Technical document No. 3 published by the Commission, explains official demands related to the integration of equal opportunities for women and men in Structural Fund plans

Regulations for the Choesion Policy and structural funds were revised once again, for the programming period 1994-1999, as well as lists of eligible regions[10], and the basis for the programming period of the structural funds 2000-2006 were fixed from the beginning of 1996, at the European Council in Berlin, where the heads of Governments of the Member States having concluded a political agreement known as Agenda 2000 (an action programme whose main objectives are the strengthening of Community policies and the creation of a new financial framework for the Union Europe for the period 2000-2006) who confront at the time with three challenges of the EU:

1. how to strengthen and reform the EU policies taking into account enlargement

2. how to negotiate the extent and in the same time to prepare the candidate countries for accession all;

3. how to finance enlargement, preparations for the advancement and development of internal EU policies.

Compared to these three challenges the views of the European Commission was that structural funds should remain a vital tool for strengthening the economies of the regions of under-developed and promoting economic and social cohesion in the EU, once strengthening economic and social cohesion in the current conditions of the European regional policy is made more efficient and transparent[11], as well as subliniid after EU enlargementthe process of removing the disparities between regions will probably last for decades, which is why the EU policy on economic and social cohesion is so important.[12]

Under the structural funds, a special chapter was thus allocated to the Cohesion Fund. As you?, the Cohesion Fund was created by the Treaty of Maastricht in 1992 in order to ensure the required financial contribution to projects in the fields of environment and trans-European networks of transport infrastructure. This Fund has been reserved to the Member States which have introduced the convergence programme and whose GDP per capita is below 90% of the Community average[13], being redirected to Spain, Greece, Ireland and Portugal. In accordance with the principle of aditionalitatii, EU funding is added to întotdeaua national financing, so that the country can overcome the limitations imposed by its own financial capacity. However, Community financing may not represent to any country a means of making savings on their own national budgets and the application of the principle of cohesion must comply with a complex process comprising several stages: [14]

a. At the beginning of each programming period, the European Union (the Council, on a proposal from the European Commission and after negotiations with the European Parliament) decides on the budget for the structural funds and defines basic rules for their use.

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and programmes and give îndrumari to the way in which these requirements can be implemented in practice.

[10] *Enciclopedia Uniunii Europene*, Ediţia a II – a, Editura Meronia, Bucureşti, 2006

[11] Frentz G. N., N. Un instrument al politicii de coeziune economică şi socială, Mesagerul economic nr. 47/28.11.1999

[12] Ghidul Fondurilor Structurale;Ghidul actorilor dezvoltării regionale, Bucureşti 2006; proiect PHARE

[13]The Cohesion Fund provides direct funding for individual projects, which are clearly identified from the outset. The decision to fund a project is taken by the Commission, in agreement with the beneficiary Member State, while projects are managed by the national authorities and supervised by a Monitoring Committee.

[14] Dimitrescu, M., *Beneficii şi costuri ale integrării României în Uniunea Europeană* (coautor), Anuarul Institutului Gheorghe Zane din Iaşi, 2006

b. Structural funds are divided on several divisions of countries and on targets. Then the Commission proposes common thematic guidelines.
c. Decisions and following these guidelines, each Member State or region with the active involvement of the economic and social actors identify areas at risk or vulnerable social groups and drafting its proposals and strategies for development, summarized in the National Development Plan (NDP) Plans submitted for objectives 1, 2 and 3 must contain appropriate prioritiesnational and regional authorities, and must include, in accordance with Council Regulation 1260/1999[15]
d. After the National Development Plan is completed, it is sent to the Commission. The Commission and Member States to discuss the content of the NDP and most suitable Community funding for their implementation.
e. When both sides agreed fell to all topics, the Commission shall adopt the programmes and results, such as the community support framework (CSF) and operational programmes (OP). Once completed, the CSF and programs operations are included in a single document submitted to the approval of the Commission. This document approved is called single programming Document and contains the same information that can be found in the CSF[16] and OP – Strustural operatoinal programme.

Operational program is a document approved by the Commission which allows implementation of the CSF, by including a consistent set of priorities comprising multiannual measures involving one or more funding and you must must contain:

- the programme in accordance with the CSF Priorities, their specific targets, quantified, and possible an evaluation of the impact expected.
- a brief description of the measures planned to implement the priorities and procedures of monitoring and evaluation
- an indicative financial plan specifying for each priority and each year the financial allocation for the completed portion in for the contribution of each Fund, as well as the total amount of eligible public and private financing estimate for each fund;
- implementation of operational requirements, such as nominating authority of management, a description of the arrangements for managing the programme, the description

[15] A description, possibly quantify it, the current situation, with details of the disparities, gaps and potential for development of areas or tintî groups, as well as a description of the main results obtained during the previous programming periods, based on concrete evaluations; a description of an appropriate strategy to achieve the objectives and priorities, and for selected activities funded by the ESF, National Plan for Employment; The plan has to make the distinction between the funds allocated in areas covered by Obectivul 1 or 2 and areas receiving transitional asistenttade; a record of agreements made during the process of consultation of partners.

[16] Each CSF must include: statement of the strategy and priorities for Community intervention and for the national, where specific objectives are quantified (if possible) and the expected impact is assessed; indication of the nature and duration of the Operational Programmes; an indicative financing plan specifying the annual allocation for each Fund;

of the sistemuluide monitoring and evaluation, define procedures for ensuring the transparency of financial flows, the description of the control measures[17]

I made a general presentation of the main European Union which has been initiated over more than 30 years for the economic development of member States, in order to create effective development regions. It should be noted that this process was absolutely necessary because, after 1 January 2007, when the European Union has become an administrative complex consisting of 27 national entities with a population that exceeds 500 million inhabitants, it was natural to approach the idea of harmonizing the need for savings to întitutiilor Central and local legislation. This has become imperative because one of the desiderata of all Member countries refers to the desire to develop stable institutions able to guarantee democracy, compliance with national and Community law, the fundamental rights and freedoms of man, including equitable commercial markets. Economic development and specific legislation, not only should be brought in, but you have to give some flexibility to ensure harmonious regional development, thereby reducing the economic discrepantele.[18]

The european dream has been shattered pretty quickly, generating many economic and social disturbances due to the economic crisis. With all the efforts undertaken through a period now in which global economies try to pick up the markets that are facing serious problems caused by the economic crisis. Regardless of the forms of savings and their specific features, the economic crisis that is worldwide, has affected all structures and functionality of their States[19], the causes and effects of triggering the current crisis and on the other hand, changing the role of the State in this context. Financial crises can be predictable while others are difficult to anticipate. They can have various sourced as factors. What is obvious, however, is the fact that the problem was with the current financial crisis was, *if you will, but when you start*[20]. According to some authors, since the end of the 20th century? s were able to distinguish three types of financial crises: foreign exchange, banking and foreign debt. A unique concept in economic theory in this sense it represents the twin crises (twin crises) and the currency crises of the banking sector. In this sense we can mention the Asian crisis (1997), Russia (1998) or Turkey (2000) that are cogent examples. [21] It is known that the apparent origin of the current crisis is the result of actions as legal taken amid generalized disorder of the U.S. financial market, to which was added the excess in high-risk credits (subprimes). It has thus been reached anover indebtedness, a phenomenon that drives economic dependence. After decades of growth in prices was thus entered in an infernal cycle of inefficient recovery methods that have been completed in many cases with the insolvency of debtors.[22]

American insurance companies together with the most important old did the indebted States model translation the family economy had massive prortie of modest income, naturally,

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[17] Details of the program, called Complement, Programs are decided by national or regional authorities, while the Commission must be informed. Once these documents have been approved, the programs become operational.

[18]Anglo-Saxon type (USA, UK, Canada), West german guy (France, Italy, Spain), the type of market (Germany, Netherlands, Austria partial), northern-european type (Sweden, Norway, Denmark, Finland), paternalist Japan market type.

[19] Aftalion, F. În Uniunea Europeană relansarea economică va fi lentă, Evenimentul Zilei, 23.032009.

[20] Iovv, Tatiana, Criza Financiară - O Pistă Pentru O Nouă Creştere Economică,Revistă de teorie şi practică economico-financiară, Nr. 1 (44), Sibiu, 2009, p. 17.

[21] Bordo, Michael D., Christopher M. Meissner, *The Role of Foreign Currency Debt in Financial Crises*: 1880-1913 vs. 1972-1997, NBER Working Paper No. 11897, Issued in December 2005.

[22] idem

with the agreement of the political forces which have agreed to the interested economic growth which was not false, sustained by an increase equivalent to the actual demand (especially housing). Thus there has been an unprecedented jump in the price of real estate, inversely with minimum quality standards. The philosophy of this type of development consist of loans that were guaranteed by the mortgaging of housing whose price swell by the day, a fact that has allowed banks to offer consumer loans to some new people already îndatorati over the limit, but that possessed them, saith, coatings, represented by their real estate assets the value of which fictional saeed with every day……[23] The phenomenon encompassed pretty quickly almost the entire planet including our country. Economic crisis in Romania shows the same symptoms taken after the american pattern.

Although there were many alarm signals the decision-makers have not wanted to admit the occurrence of a phenomenon that began to manifest itself since the end of 2007 and has become in the last quarter of 2008. The large number of investments in residential areas, have led to an overproduction of plunging real estate population. As construction firms were closed its gates affecting horizontal industries, and there was a high level of unemployment in the rows of a debt-laden with populations (*let us remember only the fury of the identity cards credits),* which does not and could not pay the rates on bank loans, thus generating a great crisis of liquidity on the market and a level of inflation that began to grow alarmingly. [24]

Everyone agrees that it is now increasingly evident need of collaboration and co-ordination at international level, but institutional mechanisms that make possible effective this coordination is insufficient and imperfect, though it requires coherent, viable approaches and strategic partnerships to redress the situation. Today, companies must make a global management[25] (at the level of a single, global markets), but also a local management (a huge number of separate markets, with weak ties between them) from the definitions of crisis or recession data by the National Bureau of Economic Research (NBER), as being a significant decrease in economic activity for a few months, reflected in the decrease decrease in individual income, reducing employment, industrial production and reduction of consumption, i.e. the whole economic and social life of the nation. Developing economies in the world today is accomplished in an environment of social, political and economic complex, defined on two essential coordinates: national-international report, on the one hand, and the cultural dimension, on the other hand[26]. By accepting these coordinates and on the evidence, which shows that, after many years, we are dealing with a localized crisis at the level of the developed country (not just at the level of developing countries), as happened with the great inter-war crisis which began in 1929 and continued on for several years, or the fall of the Bretton Woods System in 1971, firm measures are necessary. We know that the essential decisions which are discussed in informal structures (G8, G20) should be put into practice by the national Governments, which may or may not accept this situation.

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[23] Stiglitz, J., *How to fail to recover the economy*, The Guardian, 02.03.09

[24] Losses were huge especially in the USA, United Kingdom, Germany, Belgium, Netherlands, Luxembourg and Iceland that is fixed in the heart of the world economic empire and colonies in the most reliable non-interventionism policy drastically, neoliberal preached without ceasing. It is, in these circumstances, a detached from any contact with economic reality, the production of material goods and services. Replierea banking landscape was exposed in: «Le des banques big bang», in «La Tribune», nr. 4 018/October 15, 2008, and in the Financial Times, October 16, 2008; See also «Les banques américaines achèvent leur recomposition»,Le Figaro», 3 ianuarie 2009

[25] Postelnicu, Gh., Postelnicu, C., *Globalizarea economiei*, Editura Economică, Bucureşti, 2000

[26] I.Popa, R. Filip, *Management internaţional,* Bucureşti, Editura Economică, 1999, pag. 13

Alan Greenspan[27], former Chairman of the Federal Reserve, has defined this crisis immediately after her outburst, as a tsunami of credit that appears once in a century, and the term tsunami must alarmed policymakers. Decisions for getting out of the crisis has to keep in mind what was great lesson Geenspan of this crisis: *We learn that free markets, but mismanagement of capitalism leads, finally, to a deep crisis. But we will not learn immediately, but after the real economy will sink. I think in the next two decades will accumulate under the lesson to be învatata. So we will take it as we learn we cannot drink and eat for free. But it seems that collectively we can remember for a long time, but maybe for two decades yet. It is said that those who don't learn from history are doomed to repeat it while returning from this crisis proves to be difficult*[28].

To avoid being just a subject of decisions taken by others, Romania should be ready to participate actively in the construction of the new institutional framework valorificîndu-and supranational primarily as a member of the European Union. In this context the decisions you have to take a two-dimensional aspect because, as said academicianMircea Malița, *currently there are two parallel crises crises, two sisters. Began, one in financial and economic system and the second, in the field of international policy, which concerns the system of States, what we call the international system.*[29].

Economic policy for the coming years has to keep in mind the definition of the date of such phrases. In the dictionary of macroeconomics, economic policy of any Government, represents the whole State measures taken in order to ensure economic growth, labor employment, balancing the balance of foreign payments, price stability, and ensure the independence of the inegalitatilor reduction. [30] This definition should be carefully taken into account by the Governors at the time of the economic relaunch programme because, in terms of direct impact, the banking system has been less affected because it wasn't exposed to toxic assets, as well as due to the prudential and administrative measures adopted over the years by the National Bank of Romania. This advantage must be seriously considered, as the economic recovery depends on the lending.

We can take into account Romania's attempts to prepare for accession to the Eu which enabled a positive economic evolution by applying the necessary reforms of the General objectives of the Lisbon strategy: more economic growth and more employment, reforms that have kept account of the influence of the moment. These elements must generate a viable strategy for economic recovery. We should not repeat the mistakes of 2008 when, although Romania had a record economic growth of 8.8 percent in the first half, at the end of semester II we have witnessed the collapse of the auto market, and the decrease in the real estate market because of economic crises are unpredictable trajectories. Even the duration, we cannot conceive, *but measures must be designed for a certain duration*[31].

For Romania's economy is reviving paramount priority, being a viable policy to attract foreign investment since the economic environment in Romania to meet its conditions for

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[27] Mr. Greenspan, the former Chairman of the Federal Reserve, is President of Greenspan Associates LLC and author of "The storm: Adventures in a new world" Dl Greenspan. (Penguin, 2007)

[28] Gaftoniuc, Simona, *Reinventarea băncilor*, The Romanian Economic Journal, Nr. 31, Bucureşti, 2009

[29] Maliţa, Mircea, *Ce putem învăţa despre criza economică.* Dezbatere, organizată de Secţia de Ştiinţe Economice, Juridice şi Sociologie împreună cu Institutul Naţional de Cercetări Economice „Costin C. Kiriţescu" şi Comitetul Naţional Român „Grupul de reflecţie E.S.E.N.", Bucureşti, aprilie 2009.

[30] Băcescu-Cărbunaru, Angelica, Băcescu, Marius, *Dicţionar de macroeconomie*, Editura C.H.Beck, Bucureşti, 2008, p. 153.

[31] Postolache, T., *Ce putem învăţa despre criza economică.* Dezbatere, organizată de Secţia de Ştiinţe Economice, Juridice şi Sociologie împreună cu Institutul Naţional de Cercetări Economice „Costin C. Kiriţescu" şi Comitetul Naţional Român „Grupul de reflecţie E.S.E.N.", Bucureşti, aprilie 2009.

returning to a sustainable growth. Foreign investors would find very attractive if Romania Bucharest Government would develop a strategy to target prudent fiscal and monetary policies (and the changes to be announced ahead of time) and special attention to the phenomenon of corruption[32]. It is enough to walk a bit through Bucharest that you realize how corrupted is the business environment in Romania, "says Steven van Groningen, President of the Council of foreign investors in Romania (FIC).[33].

Speeding up absorption of EU funds (measures that we propose all the economists in this period, and the Government continues to ignore them) of Romania was allocated the sum of 19.7 billion euros in cohesion policy for the period 2007-2013, EUR 9 billion from european regional development Fund (ERDF), 6.6 billion from the Cohesion Fund, 3.7 billion euros from the european social fund (ESF) and 455 million for territorial cooperation. In addition, Romania will benefit from 8 billion euros in european agricultural fund for rural development (EAFRD) [34]. It should be noted that in order to maximize the role and contribution of the structural funds[35] for the promotion of economic and social cohesion and local development, strengthening the principle of partnership must be in structural funds interventions and the entire process of planning, implementing, monitoring and evaluating the actions and programs that receive support from the funds. For a good absorption of the funds made available to Romania, it takes many eligible projects and their impact, based on open and transparent. The capacity of absorption of funds is higher, with as many beneficiaries are well trained for their administration.

In order to support economic recovery, to encourage projects and investment in the field of energy, ecology and agriculture it is necessary to adopt a new vision which will help the local economy to overcome heavy moments of crisis. Energy is a key area for the Romanian economy, and the wind sector has the potential to attract investment of more than 5 billion euros until 2013, for a total of 3,000 MW install, which will involve the creation of more than 6,000 new jobs.[36] A higher energy efficiency along the entire production chain, transmission, distribution and end use will improve air quality and economic competitiveness and will create preconditions for a sustainable development. Efforts will concentrate on a more effective management of the natural environment and on the sustainable use of natural

[32] www.adevarul.ro/financiar/: The Council's recommendations to foreign investors: on the other hand, corruption still remains one of the most important issues affecting the social economic development of Romania. International organizations still criticize Romania to record progress in judicial reform and initiatives to combat corruption. Thus, in the view of foreign investors, to create good governance practices, Romania should focus more on promoting the rule of law and fight against corruption. Romania is seen as having a more corrupt than in other countries, which has a negative impact on investors ' perception.

[33] It is an organization that brings together 130 foreign companies, the Government has recommended a set of measures for improving the business environment.

[34] Jakes Pelkmans, *Integrare Europeană*, IER, 2007

[35] The partnership is a relatively recent innovation, was first introduced in 1988 and întarita reforms in regulations the current programming period. Without doubt, the principle of partnership is already deep imprint at all stages of the structural funds, and in many programs is more than just a formal mechanism for consultation and cooperation, representing an important organizational mode, extended far beyond the activities of the structural funds.

[36] Dimitrescu, M., Stadiul actual si perspective ale României ca membra UE, ghid de bune practici pentru administraţia publică, Editura Expert, Bucureşti, 2008,

resources. It is required for jobs in Romania because there was a big fracture between the workforce and the number of retirees. ' Employees with the work there are about four million and something. They must pay pensions for almost six million elderly people. *It's a drama with which we go very much in the future. To follow will have to solve this problem. We see that starts hard yet this car you have to deal with their jobs "*said Adrian Vasilescu, Senior Adviser to the Governor of National Bank of Romania. This situation requires a strategy that will track the educational system support and training in order to improve the quality of education and qualifications of individuals, as well as to provide greater educational system allows. At the same time, support will be given to increasing participation and access to education and to increase the adaptability of the system of education and vocational training with a view to providing the necessary knowledge and skills of a modern economy and in full development. Increasing adaptability, entrepreneurship development and learning throughout life will find themselves at the Centre of policy in this area, and employers will be encouraged to invest in human capital.

Tax reform in recent years, which has reduced the number of taxes and efficient payment system, is not enough to have competitive tax system that would attract foreign investment and would create jobs. Reducing tax evasion must be on the agenda of the executive measures, because this phenomenon affects both direct taxes and indirect ones, making it grow and unfair competition, disadvantaging those who abide by the law. Fiscal control should aim at collecting revenue from the State budget of fiscal Authorities, and we need to step up efforts for a more strict supervision of underground economy, more efficient method to increase revenue to the State budget than raising taxes. Meanwhile the fiscal stability ought to manifest print rules drawn up clearly, without the use of ambiguous terms, interpretable. The foreign investors in Romania has proposed the elimination of the term "rule" of Article.4 in the Fiscal code. In current form, this article provides that amendments may be made to the tax code only by law, those changes will be applied only with effect from 1 January of the following year.

Voting on a law of holding companies, could solve the problem of double taxation. The adoption of a law to allow the creation of holding companies of corporate structures and would eliminate the double taxation of dividends as well as profit and loss compensation within a group.[37]

The return of VAT to 19% as VAT to 24% of the damaged commercial activities by increasing the financial burden on a market in which financial resources were already quite low. A VAT cut would stimulate trade and activities would contribute to the recovery, generating an increase in budgetary revenues. At the same time, it should decrease the rate of VAT on basic foods.

Reduction of contributions to social insurances, which are quite high compared to the benefits that they bring. These are a considerable expense that you incur the employer and is a major cause of decreasing foreign investment.

Bogdan Murgescu, in his book History in Romania and Europe. The accumulation of economic gaps (2010), explores these issues and provides a possible solution for the recovery of gaps: in time, various strategies have been developed to accelerate economic growth, the idea that this is a synonym with the development and ensure the attainment of the following «» to the developed country. The results were positive, but sometimes most of the time away

[37] By the adoption of a Holding Low, companies would bring Romania law of other countries (Czech Republic, Poland and Bulgaria) and would foster the establishment of holding companies in Romania

from the hopes and efforts invested. As a result, some analysts have begun to distinguish between quantitative growth of the economy and economic development, seen as a combination of economic growth and the qualitative transformation of the economic and social structures. [38] At the moment the main problem of providing rapid solutions to economic and financial recovery is the situation in Greece. Member States of the European Union cannot take to permanently increase their deficits given the costs of financing rididicate. Interest paid for the consolidation of european banking siststemului. The priority of European decision-making forums should be linked to the search for a viable and sustainable solutions for the Greek State. Europe is failing cannot afford, as it does for more than 40 years, to support an economic policy of Greece as poor. Recapitalisation of banks would be a big error at a time when confusion hovers over banks because of the very high interest rates, which basically are going to consolidate european banking system.[39]

Recent years have not been too good for the European Union, which had to cope with the recession, problems related to budgetary deficits and debts and was topped by more dynamic emerging countries. The EU is looking for a magic potions to save the economy, but you have to be happy with "Europe 2020", the new strategy presented by the European Commission, aimed to enhance competitiveness and economic growth in the next decade. However, sceptics believe it is just a placebo for a patient so weak as well as the European Union. Europe's recovery is slow and frail, with estimates for a small increase of 0.7% this year. Jose Manuel Barroso, President of the European Commission warns that Europe might have to do with a "lost decade" of stagnation and decline, if not replenished quickly model of capitalism in the region.

Unfortunately in the process and the states which not in the euro area and the delayed approval of the austerity measures on farms for the eurozone may endanger the fragile economic increases registered by some States, even if they have already applied the harsh austerity measures. For the structural funds must be used quickly and effectively through specialized institutions, in this regard, primarily through the Elimination of excessive bureaucracy.

The Europe 2020 strategy is based on the development of technology, especially in green industries, and improving the educational system. It also aims to increase the employees ' rate from 69% to 75% of the investments in research and development from 1.9% of EU GDP to 3%, but also the increasing number of persons aged 30-34 years with higher education from 31% to 40%. But there are doubts about the fact that a bureaucratic plan can truly help the European economy. "These strategies are full of Nice words," says Jacques Pelkmans, senior researcher at the European Centre for European political Studies in Brussels, cited by Time. "We should not create expectations that we cannot fulfill," he adds. Indeed, the Europe 2020 has a predecessor, who did what he promised: the Lisbon Pact, adopted ten years ago and called for European leaders, at that time, "the most competitive and dynamic model of knowledge based economy" using structural fons. The Union not only failed to surpass the u.s. and Japan in economic terms, but has not reached even proposed domestic targets. For example, the plan included increased investment in research to 3% of GDP, but, at present, only Sweden and Finland have reached that threshold.

[38] Bogdan Murgescu[38], România şi Europa. Acumularea decalajelor economice (1500-2010), Editura Polirom, 2010

[39] Banks need to get rid of toxic assets. Over 2.5 billion euros to banks are buried in Romania land, apartments, villas, warehouses or Woods, according to some estimates of the market. Take money with loans backed by citizens or businesses, people who have never been able to pay the rates.

Nobel Prize Laureate Joseph E. Stiglitz said: "as we reflect on this crisis in the context of the next generations, we should think about how we can create a global economic structure, that work better for more people, in a sustainable way", suggesting you to ponder on the etymology of the word crisis, which derives from the Greek word krisis, sieve that separates and sift out what remains of what disappears ...

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Information and Telecommunications Technology – Factor of Sustainable Rail Development

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Abstract: *Among today's modes of transportation, rail remains of great interest because of its explicit advantages arising from the fact that it is the least polluting and most environmentally friendly. These are just some of the reasons why, in recent years, the European Union strategies seek to develop and implement programs to revive Community's rail transport. The paper makes a brief analysis of the economic impact of the implementation of information and telecommunication technologies in railway transport, technologies that can contribute significantly to the achievement of sustainable, competitive and reliable transport.*

Keywords: railway, ICT, sustainable development, sustainable transport, transport strategy

JEL Classification: L91, L96, Q55, R40

1. Introduction

Transport is one of the keys to success for building European Union's Single Market because it contributes to the implementation of two of its fundamental aims: the free movement of persons and the free movement of goods.

European Union calls for more efficient use of existing infrastructure and more environmentally friendly transport. Ensuring environmental sustainability of European transport and energy is a goal that can not be achieved without combining several policies that support and complement each other and by involving increasingly more actors (representatives of the transport sector, government administration and citizens).

Because transport is a complex system that depends on multiple factors, including the pattern of human settlements and consumption, the organization of production and the availability of infrastructure, intervention in this sector must be based on a long-term vision of mobility sustainable people and goods.

The European Economic and Social Committee considers competitive, reliable, and cost-effective fluidity as a prerequisite for economic prosperity in Europe and that free movement of people and goods is one of the fundamental freedoms of the EU. In this context, transport should greatly contribute to achieving the objectives of Europe 2020 strategy.

This paper presents a brief analysis of the actions taken at EU level in the first decade of this century to revitalize rail transport.

Applying information and communication technologies (ICT) to European rail transport meant the implementation of the European Rail Traffic Management System ERTMS (European Rail Traffic Management System). This paper makes a brief presentation of the European Rail Transport Management System ERTMS, of the economic benefits resulting from its implementation at the European level and as well as in Romania.

2. European Transport Policy in the First Decade of the XXI Century

Transport is an essential component of the European economy. The Transport branch as a whole accounts for about 7% of GDP and more than 5% of total employment in the EU[40]. European transport policy (PET) has contributed to a mobility system that, efficiently and effectively, is comparable with the most economically advanced regions of the world. The ETP has stimulated economic and social cohesion and promoted the competitiveness of European industry [2], thus contributing significantly to the implementation of the Lisbon agenda for growth and jobs. [7]

Regarding the objectives of the sustainable development strategy, however, the results of the first years of the XXI century were more limited: thus, in the 2007 report on progress, shows that the European transport continues to be on a sustainable trajectory for several reasons [6], such as:

• The Trans-European Networks Policy (TEN-T) significantly improved coordination between Member States in planning infrastructure projects;

• Extending TEN to the new Member States based on investments that preceded expansion, highlighted the points where structural and cohesion funds should intervene to complete their infrastructure deficits;

• In the rail sector, the regulation adopted in December 2007 provides ample passenger rights;

• The separation of transport growth from GDP growth, one of the objectives of the 2001 White Paper and of the renewed (in 2006) EU Sustainable Development Strategy[41], was carried out for passengers transport.

The goal of European transport policy is to establish a sustainable transport system that meets society's economic, social and environmental needs and encourages the achievement of an inclusive society and a fully integrated and competitive Europe. Current trends and future challenges point to the need to satisfy a growing demand for 'accessibility' in the context of growing concerns towards sustainability. In this context, we highlight a number of priorities, including: better integration of different transport modes as a way to improve the overall efficiency of the system and accelerate the development and application of innovative technologies.

3. Rail Transport in the European Union and in Romania

The European Community strives to create the conditions for an efficient rail sector and to adapt it to the requirements of the single market. In this respect, it was suggested the introduction of an operating license to provide uniform access to infrastructure and it was established a system to allow infrastructure capacity to be allocated on a non-discriminatory basis and for users to pay the actual cost of the facilities they use.

In recent decades, in Europe, rail declined especially for freight transport. Following the financial crisis, the share of rail freight fell by 19% in 2009 compared to 2007. In 2010,

[40] Of GDP contribution, 4.4% came from transport services, which provides 8.9 million jobs, and the rest from production of transport equipment, which employs 3 million persons.

[41] *National Railway Company*, International, www. sncfr.ro

the overall performance in the EU-27 was estimated at 389 billion tons-kilometers, an increase of 7.9% compared to 2009. This increase reflects the recovery of rail freight after the economic crisis (which ended a sustained period of growth in recent years).

After a period of sustained growth, in early 2009, railway performance (in passenger-kilometers) began to be affected by the economic crisis. However, the rail passenger transport remained less affected than rail freight, and had a slight recovery in 2010 and 2011. Thus, the EU-27 results of passenger transport continued to increase, by about 3 billion passenger-kilometers, between 2010 and 2011 (+0.7%).

The main cause of this situation is that the rail sector is not as competitive as road transport. Rail transport is less secure than road transport regarding the delivery terms, which are less predictable for railways. In recent years, on some international routes, delivery terms (which are very important to many sectors) have doubled or even tripled. This is mainly due to very long stops along the way, because other trains (especially passenger services) have priority, and to complicated border procedures (locomotives and train crews must be changed due to differences in signaling systems and traction from one country to another, and so on).

Railroads have unique advantages: it is a safe and clean transport and a train can carry the load of 50-60 trucks. Railway infrastructure covers a lot of territory and it is generally in good condition but it no longer fits customer requirements.

Romania currently has a national transport system (infrastructure, transport, transport operators, etc.) in terms of both functional structure and services provided, at the average level of the standard conventional transport systems in Europe, able to deal with the current needs of domestic and international users.

Overall, the public transport infrastructure networks (roads, railways, waterways, navigable channels, sea and river ports, airports) connect all localities of the country to the national transport and international transport systems.

After a "disordered" evolution, with each mode of transport developing autonomously and independently, in recent years there has been some "settlement" in the development of the various modes of transport in Romania. In spite of the major changes made so far, the transportation system in Romania still owes to the "old ways" of the system in which it was designed and built.

Romania's position at the intersection of numerous roads connecting Western and Eastern Europe as well as Northern Europe and the South, and its position on the transit axis between Europe and Asia is a reference to consider when designing transport policy.

Romanian Railways have the duty to bring the national railway infrastructure to the European level of technical and operational parameters, to be a compatible and interoperable part of the future trans-European rail network.

While European Union’s 2007-2013 main objective for rail is to ensure a more balanced distribution of transport and environmental protection and to increase accordingly the share of the total transport market from 6% to 10% for passenger transport, and from 8% to 15% for freight transport, for the same period, Romania’s major railway objective, is to keep a balanced transport market share maintaining the values of 25% of all goods and 35% of all passengers.

Railway infrastructure is currently in a difficult technical condition due to significant debts for cyclic maintenance and repair of lines, installations and buildings and for modernization works, shortcomings caused by the lack of necessary funds. In recent years the traffic capacity was reduced due to insufficient funds for railway infrastructure current repair works.

The interoperability of the conventional rail network (TEN-T and outside TEN-T) with the European rail network will be achieved when introducing monitoring system elements necessary to the ETCS (European Train Control System) in the track and rolling

stock onboard engine, electronic interlocking to upgrade the centralizing system for railway stations, developed informatic systems for all railway stations located on the interoperable railway network in Romania, a developed telecommunications network to provide support, the implementation of data transmission railway systems in all railway stations located on the interoperable railway infrastructure in Romania, the implementation of the National Center for centralized control of the railway traffic on the Romanian territory, and last but not least, retrofitting energy-supply facilities of the contact line.

These actions will lead to a better market coverage and to better transport accessibility for passengers to the main transport routes through the interconnection of regional services and to increased passenger wagon loading on main and regional routes.

4. Intelligent Transport Systems in the Railway

Technological innovation will be an important contributor to the solution of the transport. Rail Traffic Management systems can optimize network utilization and improve safety [3].

"Intelligent Transport Systems" mean applying information and communication technologies (ICT) to transport. These applications are developed for different transport modes and for interaction (including intermodal platforms).

For air transport, SESAR[42] will provide the framework for the implementation of a new generation of air traffic management, on inland waterways are available River Information Services (RIS)[43] to manage waterway utilization and freight and passenger transport, the railway network is gradually introducing the European Rail Traffic Management System (ERTMS) and Telematic Applications for Freight (TAF).

European Management System ERTMS for rail transport is a major industrial project developed by six members of the UNIFE Association (the Association of the European Rail Industry): Alstom Transport, Ansaldo STS, Bombardier Transportation, Invensys Railway Group, Siemens Mobility and Thales in close cooperation with the European Union stakeholders interested in railway GSM-R industry.

The purpose for implementing ERTMS is to replace national command and control systems for trains, and to create a single European railway system with increased competitiveness.

Currently, in the European Union, there are more than 20 train control systems. Each train used by the national railway company shall be equipped with at least one system, but sometimes more, for traffic to be carried safely in that country.

As a unique European Train Control System, ERTMS is designed to gradually replace the existing systems not compatible throughout Europe. This will bring considerable benefits to the railway, which will lead to the strengthening of international freight and passenger transport.

Also, ERTMS is the most advanced train control system in the world and brings significant advantages in terms of maintenance cost, safety, reliability, punctuality and traffic capacity. This explains why ERTMS is increasingly used outside Europe, and it became the train control system in countries such as China, India, Taiwan, South Korea and Saudi Arabia.

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[42] SESAR: *Single European Sky Air Traffic Management Research* (Program Management Research Single European Sky ATM).

[43] River Information Services (RIS)

ERTMS contributes to increased competitiveness of the rail, allowing the system to compete with other modes of transport such as road. ERTMS will allow interoperability throughout the European rail network.

5. The Economic Implications of Implementing ERTMS

➢ at European level

Through the Trans-European Transport Network (TEN-T), the development and implementation of the European Rail Traffic Management System (ERTMS) and technical specification related to telematics applications for freight contributes to the development of interoperability and to a better integrated management railway infrastructure in Europe. While implementing ERTMS, for example, were defined corridors oriented to international freight. Creating these corridors allows the development of an active collaboration between infrastructure managers. In this context, they took the initiative to group within an organism called RailNetEurope, which provides services to international freight operators and fosters the collaboration, in terms of capacity management, between infrastructure managers.

Economic considerations for the implementation of ERTMS are derived from three main reasons:

- *increasing* rail *capacity and performance* by taking a volume of passenger and freight off road transport, thereby eliminating bottlenecks, while reducing the complexity of track systems and the costs and delays due to road traffic accidents;
- *interoperability*, which will allow trains to operate safely and effectively under control systems provided in part or whole, by different companies. This will lead to greater mobility for trains across Europe and not in only, and to competitive public procurement;
- *safety* - ERTMS is a system that provides automatic train protection, further reduces the incidence and consequences of the signals at danger (SPADs). Even if installing System Protection and Prevention for trains (Train Protection and Warning System (TPWS)) significantly mitigates the risks, when implementing the ERTMS also, it provides an additional signal in the train cabin, which represents a major step forward for train leaders, especially at high speeds in inclement weather. ERTMS is actually a requirement for trains to travel at over 200 km/h This is a safety requirement, but it also allows ERTMS to generate commercial benefits in this area. Higher levels of ERTMS will facilitate better management of "possessions" for their track and will require less infrastructure, which will lead to reduced risks to workers in this sector.

Assessing the investment required to implement ERTMS, should consider the following objectives:

- *economic* - identify the optimal solution for ERTMS implementation. A review of the costs and benefits and, in particular, the economic benefits of the improved capacity and performance and reduced cost of re-signaling. Increasing the number of passengers transported by rail will require increasing the number of trains, with associated train service costs, but this are assumed when estimating the benefits of ERTMS deployment. Economic benefits through implementing ERTMS accrue to rail users by cutting crowding and delays, as well as benefits to road users by taking the rail part of the passenger / cargo transported previoulsy by road.
- *compliance with the directives of the European Commission* on interoperability;
- *safety* - a means to provide more ATP to reduce the incidence and consequences of the signals at danger (SPADs).

As an innovative and unique signaling system, ERTMS greatly facilitates cross-border movement. With a high performance of its signaling system, ERTMS allows significant increases in traffic along the railway networks, and proves to be an effective solution to absorb the demand for freight and passengers.

- **in Romania**

Developing a national plan for the implementation in Romania of the ERTMS / ETCS, started from the signaling strategy based on current facilities and future upgrades, and on the allocated funds for this area [1].

Thus, for large stations was considered necessary to introduce electronic interlocking installations (type SIMIS W-SIEMENS L90 respectively ESTW type RO - ALCATEL compatible for connecting to the ERTMS / ETCS) and for small stations were produced two versions of computerized operating stations for interlocking installations (CED).

Because equipment evolution is increasingly spectacular and the pressure to reduce maintenance costs is increasingly powerful, the National Railway Company "CFR" SA, included in its strategy a project for electronic interlocking systems development for small and medium stations [5].

The implementation of ERTMS / ETCS is based on a number of railway specific requirements; therefore in Romania the requirements can be classified as:

• *superior requirements* covering essential requirements for ERTMS / ETCS;

• *operating requirements* that describe the need for the ERTMS / ETCS in terms of operations that are carried out to the rail;

• *functional requirements* of the system ERTMS / ETCS.

For reasons of cost and given the size of the railway stations, in Romania, initially, are equipped with ETCS only signals on direct lines and stations and BLA signals.

Important benefits related to the implementation of electronic interlocking systems are:

▪ achievement of all the possible routes of movement and maneuver for a given configuration of the station, which gives greater flexibility to traffic management;

▪ providing opportunities for changes and adjustments during operation, without the need for significant periods of time when the system is turned off;

▪ increasing the safety of rail traffic;

▪ ensuring maximum reliability of the system thus enabling reduced maintenance activity;

▪ effective preventive and corrective maintenance activities computer assisted, including diagnostic functions and fault location;

▪ reduction in operating costs by reducing the system items that require periodic adjustments such as relays;

▪ providing technical support for the development of rail traffic management by incorporating interlocking system as a subsystem in ERTMS / ETCS.

Through the rail modernization program has been implemented the integrated project for Romanian Railways exploitation management informatization - IRIS (Integrated Railway Information System) [4].

IRIS program is a component of the railway rehabilitation program financed by BIRD and it was ment to increase the competitiveness of the Romanian railways in the context of free access to the European railway system. The main objective of the project was to optimize and automate a number of key activities and to build a rail information infrastructure capable of supporting further development.

XSELL project is an upgraded version of the electronic sales system for booking and selling seats. The implementation solutions by SC Rail Informatica S.A allow rail to provide additional economic and procedural advantages and procedures for its clients: it is cheaper than imported solutions, it is already in operation and it answers Romanian specific requirements and it is suitable for any passenger rail operators.

CFR uses a new type of engine, equipped with command and control systems of last generation (computer traction, engine frequency control systems (the chopper)).

The performances of such technologies have proven extremely high and therefore they got a broad generalization on the rail market.

6. Conclusions

Advanced information and communication technologies can contribute significantly to achieve a sustainable, competitive and reliable rail.

ERTMS is the most advanced train control system in the world and it brings significant advantages in terms of maintenance cost, safety, reliability, punctuality and traffic capacity. This will bring considerable benefits to the rail sector, leading to strengthened international freight and passenger transport.

ERTMS contributes to increasing the competitiveness of the rail, which makes this system to compete with other modes of transport such as road. The ERTMS system allows interoperability throughout the European rail network.

Romanian Railways have a duty to integrate the national railway infrastructure to the technical and European level operational parameters, to be compatible with and an interoperable part of the future trans-European rail network.

ETCS implementation-Level 1 in Romania lowers the costs by reducing the exploitation of items that require periodic adjustments, gives traffic management a greater flexibility, increases rail traffic safety, ensures maximum reliability of the system to thus enable the reduction of maintenance activity, and also effective preventive and corrective maintenance activities computer assisted, including diagnostic functions and fault location.

The introduction of ETCS-Level 1 offers also some important advantages: improved security, interoperability, increased comfort of the passenger transport through optimized braking and reduced specific consumption of traction power, and reduced brake wear.

Current sizing of digital railway telecommunications networks services provides the necessary full range of domestic rail infrastructure to rail operators and companies working in the railway sphere.

Synchronous and asynchronous transmission rail networks can provide the logistics to extend IT & C projects of national and local operators in areas with a low density of supply of services: voice, data, video and value-added services (Internet, teletext, videotex, facsimile, mail voice).

Railway telecommunication networks' great advantage is given by the conditions imposed by the railway area beneficiaries where communications are up for decision (concurring to traffic safety), are secure and operate on the principle "backup backup".

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The Actuality of Macroeconomic Imbalances

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Abstract: *Of all the current macroeconomic imbalances, the inflationary phenomenon is one of the most difficult to combat. In some countries, inflation was the main enemy of economic progress. The effects of this phenomenon are largely dependent on the intensity of expectations as well as on the ability to be kept under control by monetary authorities. Lately there has been a significant decline in inflation in both developed and developing countries, as well as increasing commitment of monetary authorities in obtaining the lowest rates of inflation. This article aims to analyze the pillars of direct inflation targeting strategy, prerequisites and developments of new directions of monetary, pointing to the experience of countries that have adopted inflation targeting strategy from 1990 to present.Capturing the coordinates of inflation targeting strategy in Romania tracked the factors that led to changing the previous strategy and prerequisites for adopting new strategies to combat inflation.*

Keywords: inflation, economic growth, monetary aggregate.

JEL codes: E31; F41; O11.

1. Introduction

Inflation is a general, long time rise in prices of goods and services that has many negative effects, including: lowering the value of money, reduced purchasing power, discouraging savings and investment. Inflation is determined using a consumer price index, which is determined by a basket of goods and services considered relevant for the average consumer. Price stability attracts more and more attention due to the positive effects it has on the economy, which is why central banks of more countries are considering price stability as the final goal of monetary policy.

To achieve the ultimate objective of monetary policy, central banks use the following strategies: exchange rate targeting, monetary targeting and inflation targeting. The most recent implemented strategy is the direct inflation targeting. Central Bank estimates and publishes the inflation target set, and through the monetary policy instruments used it tries to bring the inflation rate in the established target.

After World War I, with the crisis caused by the collapse of the gold standard, policies to combat inflation by targeting the price level or the inflation rate instead of exchange rate were developed.

Since 1990, central banks not only in developed countries but also in emerging or developing countries have adopted inflation targeting strategy.

The first country to adopt inflation targeting strategy was New Zealand in 1989. "On the other hand, Armenia, Czech Republic, Poland and Hungary have adopted inflation targeting as a monetary policy strategy while they were still in transition from a planned economy to a market economy."[44] The crisis of 1997 caused many emerging economies to adopt this strategy, but countries that use fixed exchange rate regimes have been forced to adopt floating regimes. Recent studies have shown that the adoption of inflation targeting strategy has proven to be the most effective alternative to combat inflationary pressures. Because "inflation targeting also depends on the monetary policy transmission channel, namely the interest rate channel, some emerging economies have strengthened the financial sector."[45]

Central banks in developed countries - the European Central Bank (ECB), the U.S. Federal Reserve (FED), the Bank of Japan, National Bank of Sweden - have adopted some of the key elements of inflation targeting. Although their goal is to reach a threshold as low inflation, they do not publicly announce a numerical target, nor have other milestones, such as a rate as low unemployment and long-term maintenance of a moderate rate of interest.

Inflation targeting strategy was adopted in Romania in August 2005[46], when the preconditions necessary for the application of this strategy were satisfied. To facilitate the transition to the monetary policy regime, in November 2004 the National Bank of Romania stopped announcing the targets of real appreciation of the exchange rate and reduced foreign exchange market interventions.[47] Basically, Romania passed from managed floating exchange rate regime to the free rate.

Changing monetary policy strategy for the adoption of inflation targeting was motivated by the fact that monetary targeting lose effectiveness, meaning that the link between monetary aggregates has become increasingly unpredictable. Control of monetary aggregates has been weakened due to restructuring and capitalization of two of the largest state-owned banks (Agricultural Bank and Bancorex), who were in bankruptcy.[48] Possibility of changing monetary policy strategy was first mentioned in 2001. Debated by the National Bank of Romania since 2000, it was agreed that inflation targeting strategy can be successfully implemented only in terms of promoting a coherent economic policy. Thus, a major problem for Romania was achieving a balance on setting interest rate policy so the inflation targets to be achieved without generating a surplus of capital inflows that could adversely affect the external competitiveness of the economy and prospects for long-term growth.

There were two categories of factors due to which in 2005 the National Bank of Romania has decided to adopt inflation targeting strategy, namely price stability and weakening money-inflation aggregate relationship . Giving up monetary targeting, Central

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[44] Sarwat, Jahan - *Inflation Targeting: Holding the Line* (http://www.imf.org/external/pubs/ft/fandd/basics/target.htm)

[45] Idem 1

[46] http://www.bnr.ro/Tintirea-directa-a-inflatiei-711.aspx, accessed 15 Nov 2013

[47] Dinu, M., Socol, C., Niculescu, A., (2005), *Economia României. O viziune asupra tranziției postcomuniste*, Economic Publishing House, Bucharest, p. 251

[48] Idem 6, p. 249

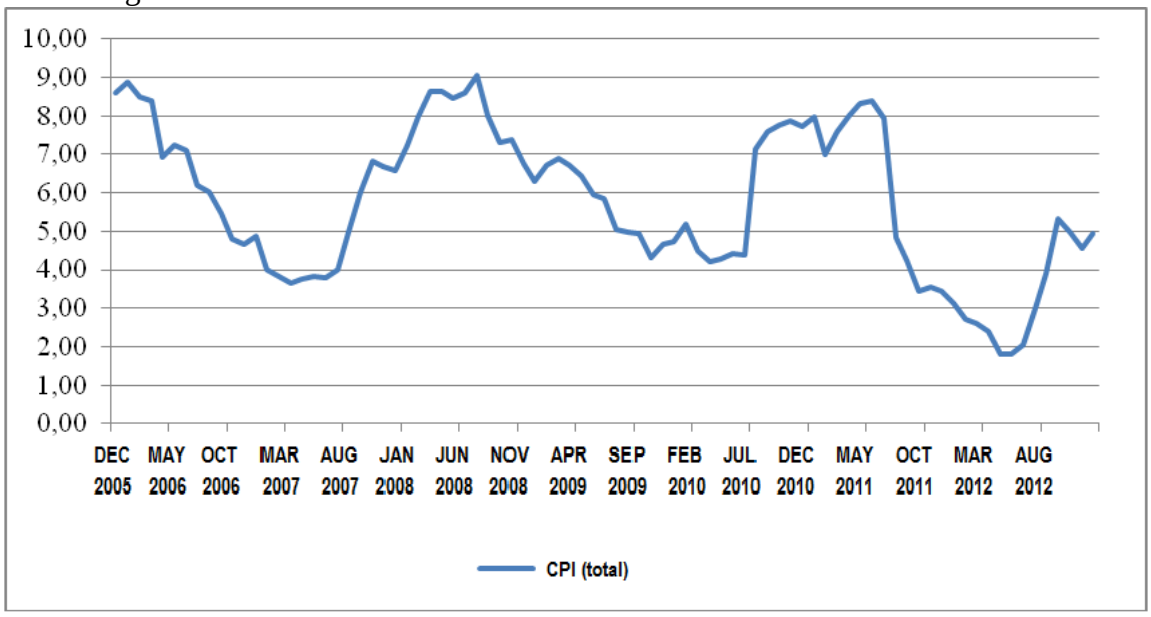
Bank has not reduced attention on the development and monitoring of these aggregates, regarded as part of substantiation for monetary policy decisions .

On the other hand , the liberalization of the capital account was not favorable to use the exchange rate as a nominal anchor for the monetary policy, risks of maintaining a fixed exchange rate was increased, especially in the case of emerging countries. Romania had no reserves required for a fixed rate regime. Thus the possibility of massive speculative capital inflows or outflows, whose impact on the evolution of the exchange rate of the national currency and inflation could be considerable.

Also, the volatile and unpredictable nature of both the velocity of money and the money multiplier, accompanied by misunderstanding by the public of appropriate nominal anchor, led to an ineffective mechanism for controlling inflation expectations.

In September 2008, the annual inflation rate reached 7.3%, down 1.31 percentage points from July (8.61%) when it reached the peak. Given the nature of supply, agricultural production recovery after suffering a negative shock in 2007, had a positive influence on the deceleration of inflation. The volatile price dynamics countered the negative effect of administered prices and fuels. Also, faster wage increases and productivity gains still cause inflationary pressures through wage pressure on excess demand. In July 2008, the National Bank of Romania decided to increase the monetary policy rate to 10.25% per year (see Figure 1).

Figure 1. Evolution of inflation rate in Romania between 2005 – 2012



Source: www.bnr.ro (accessed 15 Nov 2013)

In September 2009, the annual inflation rate fell to 4.94%, 0.92 percentage points below the inflation rate in July (5.86%). Low volatility in the exchange rate of the national currency contributed primarily to maintining the downward trend of the national currency exchange rate. In July-August signals of attenuation of inflationary pressures of labor cost, mainly attributed to the private sector, emerged. A significant inflationary impact was represented by a further increase in excise duty on tobacco products. The measure taken by the National Bank of Romania in 2009 to curb inflationary pressures decrease was primarily lowering the interest rate from 10.25% to 8%. The level of required reserve on liabilities in lei was reduced to 15% from 18%, and in currency to 30%, down from 40%.

In December 2011, annual inflation fell to 3.14%. Substantial decline in inflation in the second half of the year was supported by easing commodity prices and energy supply

(good agricultural production amid domestic and international level, but also driven by the price of crude oil on exernal markets), but also due to dissipation of adverse effects associated with statistical significant price increases in those markets during the third quarter of 2010 - the first quarter of 2011 and increase of share of value added tax from July 2010. The influence of these factors led NBR to decline prudent monetary policy rate, which fell by two consecutive steps of 0.25 percentage points to the level of 5.75%.

At the end of 2012, annual inflation rate was situated at 4.95%, down 0.38 percentage points below the peak for this year, but remained outside the range of variation. This decrease was partly due to sustained correction of volatile food prices, decline in international prices of oil and currency appreciation against the euro. The increase of administered prices, the gradual incorporation of higher consumer prices, rising costs of raw vegetable after substantial reduction of agricultural production and the deterioration in inflation expectations acted against the downward trend.

At the end of the first quarter of 2013, the annual inflation rate was valued at 5.25%, 0.3 percentage points higher than that recorded at the end of last year (4.95%). The main side effects were caused by electricity price increase in January, the increase in excise duties due to the change in exchange rate (used in their calculation) and the rise of oil prices on the international market in January and February. Annual growth rate of volatile prices continued to reduce inflationary pressures on account of favorable statistical effects.

In creating the organizational and technical framework necessary for the implementation of inflation targeting strategy, Romania received assistance from the International Monetary Fund (IMF), but also from the Czech National Bank .

2. The monetary policy strategy of the European Union

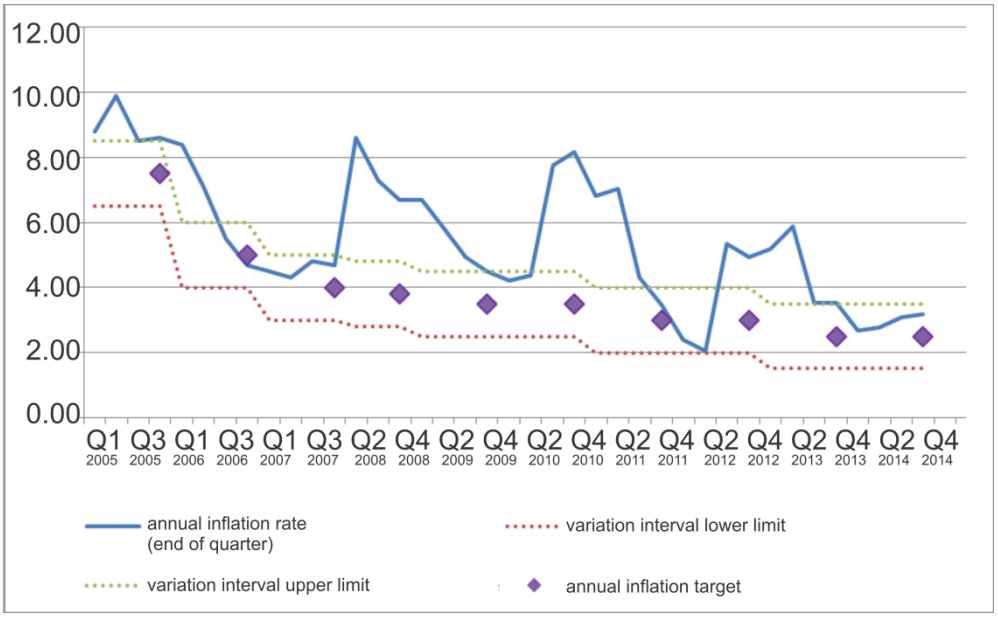
Germany had an important contribution to the drafting of the Maastricht Treaty. Considering that price stability is an important indicator of a country's macroeconomic performance, it has become one of the conditions of accession to the European Union. Acording to nominal convergence criteria, in order to join the EU a country must have an "inflation rate close to the average inflation rate in countries with the best performance to price stability"[49].

Adopting the strategy of inflation targeting in 2005 had the impact of lowering inflation to a single digit value, facilitating the entry of Romania into the EU in 2007. Inflation targets are expressed with annual rate, measured by the consumer price index and are "set as the central point with a variation interval of $\pm$1 percentage point"[50] (see Figure 2). Since the adoption of inflation targeting strategy in 2005, the target was reached in two years, in 2006 and 2011. Except for the years mentioned above, most of the period, inflation remained above the range of variation. Note that the target is considered achieved if inflation rate at the end of the year is within the range of variation.

[49] Angelescu, C., Socol, C., Socol, A., (2009) *Politici economice*, Economic Publishing House, Bucharest

[50] http://bnr.ro/Tintele-de-inflatie-3325.aspx (accesed 15 Nov 2013)

Figure 2. Evolution of annual inflation rate



Source: www.bnr.ro (accessed 15 Nov 2013)

In 2005, the year of adoption of the new monetary policy strategy, the target of 7.5% was missed only 0.1 percentage points (see Table 1). In 2006, inflation had a downward trend, facilitating reaching the target of 5%. The next year, and in 2008 as well, we can see that inflation has fluctuated a lot, missing the target by 1.57 percentage points and 1.5 percentage points respectively.

In 2009, the target was missed again by very little, only 0.2 percentage points, unlike in 2010 when inflation fluctuated by 3.46 percentage points above the inflation target. In 2012 the target was missed, but at a lower level than in previous years, and in 2013, in May, the difference between the actual level of inflation and the upper limit of the range of variation was about 2 percentage points.

Table 1. Reaching inflation targets

Year	Target	Result	
2005	7,50%	NOT REACHED	8,6%
2006	5%	REACHED	4,78%
2007	4%	NOT REACHED	6,57%
2008	3,80%	NOT REACHED	6,3%
2009	3,50%	NOT REACHED	4,74%
2010	3,50%	NOT REACHED	7,96%
2011	3%	REACHED	3,14%
2012	3%	NOT REACHED	4,95%
2013	2,50%	-	5,32%[51]

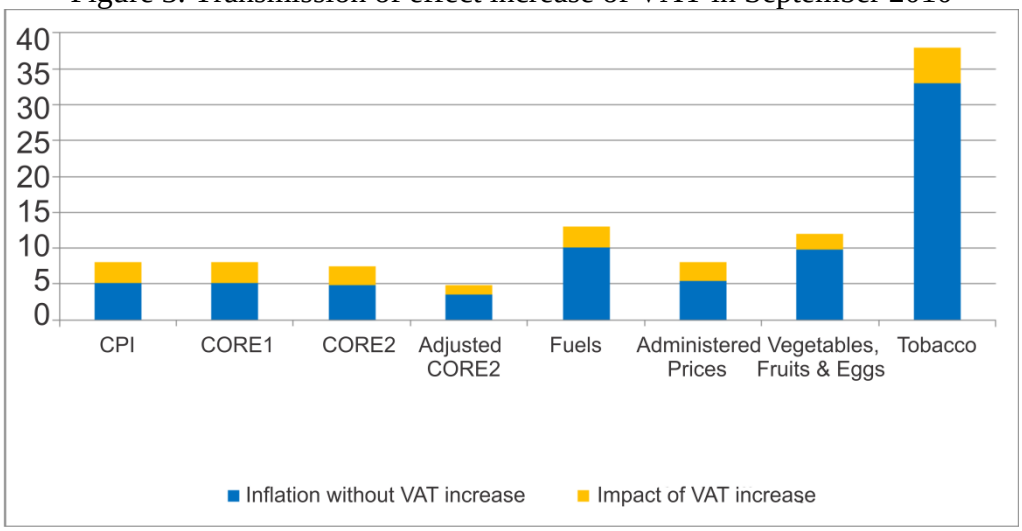
Source: www.bnr.ro (accessed 15 Nov 2013)

[51] Inflația pe luna mai, www.bnr.ro

In order to fulfill the objectives of fiscal policy and public sector revenues established by multilateral agreement with the IMF and EU, Romanian Government decided on 26 June 2010 to increase the VAT rate from 19% to 24%. This government measure has the impact of increase in retail price and thus increasing short-term inflation measured by the CPI.

VAT rate increase has a permanent impact on prices and a temporary impact on inflation. Suppose that T is the quarter in which the measure of increase in VAT. This measure affects: the quarterly rate of inflation in the quarter in which it is applied and incorporated increase prices, the annual inflation rate over four quarters, until the base effect is removed.[52]

Figure 3. Transmission of effect increase of VAT in September 2010



Source: www.bnr.ro (accessed 15 Nov 2013)

The 5 percentage points increase was sent in stages, but in different proportions to CPI components by the end of the third quarter, affecting goods and services with a share in the consumption basket of about 91 % . The remaining 9 % are goods and services to which a reduced rate of VAT applies (newspapers , medicines, temporary housing) or no VAT applies, namely: healthcare , financial and lease services. The largest effects are in prices of tobacco products , as can be seen (see Figure 3). In the first months of the implementation of the new rate of 24% , there was a direct effect on inflation lower than forecasted by the National Bank of Romania (61% versus 75%). Transmission of fiscal shock had a relative low influence for non-food goods. With regard to volatile price developments, even if the impact of the tax measure was low (below average), they increased from 8.3% to 12.6% in September. Floods in Romania and other European countries in June and July have caused significant losses of agricultural production in the segment of fruits and vegetables. This loss was felt both in domestic producer prices and in foreign prices .

The inflation target has been reached twice in the 8 years since the adoption of the new monetary policy strategy, inflation targeting strategy. Although there were factors that hindered deflation (the removal of the subsidies from the state budget for heating, and the nominal depreciation of the leu against the euro and especially against the U.S. dollar), factors helping to reach the target of inflation were predominant: depletion of the effect of VAT increase, the favorable impact of a good agricultural year, especially in the fruit and

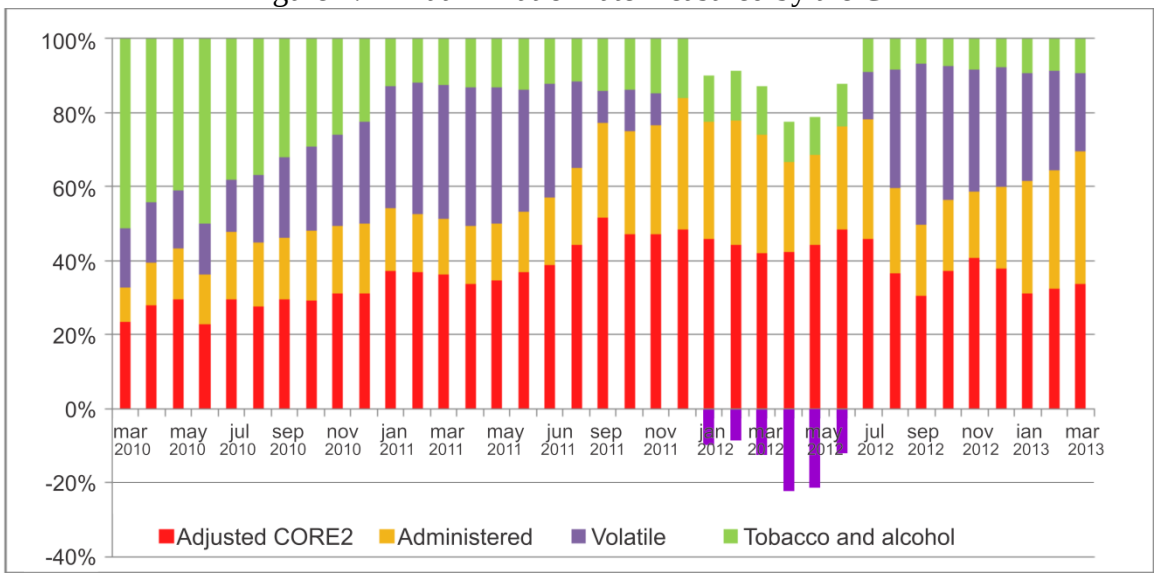
[52] Efect de bază = inflația din anul curent este influențată de modificarea prețurilor din anul de bază

vegetables prices, easing international markets of agricultural commodities and energy and elimination of the adverse effects associated with price increases in those markets in the last quarter of 2010; persistent negative deviation of actual GDP compared to the potential, lowering inflation expectations of consumers; "[53] increased competition in retail trade.

Analysing the components of the Consumer Price Index (CPI) in the last three years , ie the period March 2010 - March 2013, volatile prices had the largest share. As can be seen in Figure 4, volatile prices have had a negative influence on inflation in the first quarter of 2012. In 2011, the year the inflation target has been reached, it can be seen that the lowest weight they had tobacco products and alcoholic beverages, and volatile prices had the highest value of all analized time.

At the end of the fourth quarter of 2010, the annual rate of inflation measured by the CPI stood at 7.96% with 3 percentage points above the annual target of 3.5%. Increase in VAT rate was still the main factor in the failure of monetary policy program established by the National Bank of Romania. At the end of the first quarter of 2011, the annual inflation rate calculated using the CPI registered a value of 8.01%. Volatile prices recorded the largest growth rate in the last seven years, reaching 28.2% in March. Aggregate supply contraction in agriculture amid adverse weather conditions in the summer of 2010 stands behind this record value.

Figure 4. Annual inflation rate measured by the CPI



Source: www.bnr.ro (accessed 15 Nov 2013)

Administered prices have slowed growth by almost 1.6 percentage points in March 2011 to December 2010, reaching a value of 7.2%. During this period there was a slowdown in the annual growth rate in the case of tobacco products (-13.4 percentage points). At the end of the second quarter of 2011, annual inflation stood at 7.93%. Volatile prices brought the main contribution to moderating inflation, recording a value of 23% - by 5 percentage points down from the previous quarter. Administered prices contributed 1 percentage point to the inflation rate, reaching a value of 7.7% compared to 7.2% in March. This increase is due to a change of 5 percentage points electricity tariff as a result of the introduction from 1 April 2011 of a contribution to support energy production in cogeneration.

[53] Raport asupra inflației – februarie 2012, Conferință de presă, Bucureşti 2013

Prices of tobacco products also contributed to slowing inflation, manufacturers seeking restoration of margins affected by past increases in excise duties. During the third quarter, the annual inflation rate has recorded a strong downward trend, returning inside the variation range corresponding tot he annual target of 3%. Inflation rate at the end of the analyzed period inflation (3.45%) is the lowest level recorded since the 90s. Volatile prices continued to be the main source of moderation in inflationary pressures, reaching negative values of -10.7 %. These values were mainly due to the abundant supply of the domestic market. Fuel price increases were mainly due the depreciation of the national currency against the U.S. dollar . The fuel prices reached a value of -6.3 % in September compared to June 2011. This value offset the downward trend in oil prices internationally.

On the other hand, tobacco products dropped to 6.4% in September, from 15.2% in June. These values are due to base effect associated with the increase in the VAT rate, boosted by increased excise duty on this category of goods. In December 2011, the inflation rate reached 3.14%, being close to the inflation target of 2013. Substantial decline in the second half was due to easing tensions in food commodity and energy markets.

3. Conclusions

The experience of countries that have adopted inflation targeting strategy was useful in outlining the steps to be followed by Romania in changing monetary policy strategy. The main challenge they faced was gaining credibility of Central Bank and establishing a strong communication relationship with the public through quarterly reporting publicly available , designed to ensure transparency of the central bank.

As a country in transition, Romania is advised to use a strict inflation targeting at the beginning of period immediately after adopting the new monetary policy strategy. This action aims to stabilize prices. Even if the output gap can fluctuate significantly during this period, after stabilizing prices the move to flexible inflation targeting can be done, when the central bank may also focus on stabilizing the output gap.

Prior to the adoption of inflation targeting strategy fulfillinf certain preconditions is necessary: securing price stability as the main objective of monetary policy, the lack of fiscal dominance, central bank independence and proper functioning of the financial system and markets. The main factors that contributed to the inflation targets were agricultural production amid a good agricultural year and fuel prices that have been significantly reduced at international level. The effect of increasing the VAT rate was gradually transmitted to components of core inflation and absorbed very quickly by the economy.

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Legal and Illegal Tax Evasion

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Abstract: *In the economic and social plan, tax evasion is a reality seen in various forms, such as the keeping of not realistic accounting books; willful destruction of documents that might lead to the discovery of real product deliveries, adopted prices, fees received or paid, establishing false customs declarations for the goods import or export, preparing false tax declarations, while knowingly not mentioning but a portion of the incomes. The largest tax evasion - 60% - is generated from VAT, while social contributions generate approximately 24% of the total fiscal evasion, mainly through the phenomenon of "illegal work" (employees in the underground economy). For this purpose it is necessary a deep reform of the taxes administration, mainly in the direction of increasing the degree of tax collection. The phenomenon as a whole is very difficult to control and to quantify and to this contribute also the tax laws' peculiarities, tax policies, corruption and the standard of living.*

Key words: tax evasion, fiscal fraud, mechanisms of the tax evasion

JEL classification: H2, H26, H3

1. Literature Review

The definition of relevant terms used in the characterization of the phenomenon of tax evasion seems at first glance to be relatively straightforward. Unlawful tax evasion (tax fraud) is defined as the illegal use of various means with the aim of reducing tax liabilities-for example, false tax returns for taxable income. By contrast, the lawful tax evasion –for instance tax-planning or attenuation - is legal, the only question that arises is whether such action is correct or not from the technical point of view. This might require though a court decision. However, the distinction between tax evasion and fraud is basically clear. Although it is not a new phenomenon, or unknown, lawful tax evasion has become a subject barely discussed intensively in the past few decades. In the contemporary era, the used terminology has become increasingly more complex, especially due to the fact that the tax authorities are trying to blur the distinction between the two concepts and introduce in the sphere of tax fraud acts and facts that according to the theory are normally included in the category of lawful evasion.

In this context, it should be stressed that the lawful tax evasion involves taking parts of the taxable matter, without having the character of an offence or crime. *"Tax evasion is built on lawful paradoxes, which do not allow an unequivocal confirmation or denial of certain legislative controversial issues and, therefore, submitted to interpretation."*[54] As a rule, the lawful tax evasion is defined as legal procedures that allow you to designate the dropping of taxation without contrary to tax laws.

[54] Pătroi D. (2006), Tax evasion between the permissive side, offense type and criminal character, Economic Publiching House, Bucharest, pg. 86.

Basically, any public report that analyzes the lawful tax evasion must begin with the statement that the activities that led to its manifestation are legal, although it affects the amount of payment obligations by the State budget. Without a doubt, it is well understood that there is a major difference between tax evasion, which involves hiding or concealing revenues, whether fraudulent or not, and that is essentially illegal, and the lawful evasion respectively, which is legal.

To be able to be dealt with and put into practice a lawful evasion requires a very good knowledge, understanding and application of existing tax laws. This is a particularly important topic relevant to explaining fiscal gaps. The term of tax evasion is not synonymous with tax fraud. Lawful tax evasion involves the attempt to reduce the amount of owed taxes by employing absolutely legal fiscal means. It occurs when individuals take advantage of weaknesses or ambiguities identified in the tax legislation. Although the means used are legal and not fraudulent, the effects are considered inappropriate or abusive. Thanks to subjectivism in the interpretation and application of tax legislation, delimitation of the border between lawful tax evasion and evasion in certain specific cases can be difficult to draw.

In terms of fiscal fraud, this implies a violation of tax laws, a conscious and deliberate crime against the rules regarding the payment of the taxes.

Unlawful tax evasion or tax fraud is analyzed by symmetry with the previous formula. It means a conscious and direct violation of tax laws, being a direct and deliberate infringement to the rules laid down for the determination and payment of a tax. This is the case of taxable matter dissimulation through the lack of tax declaration, through fictitious transactions or creation of fictitious businesses.

According to experts in the field, the tax fraud represents *"all practices aimed at circumventing all or part of the tax due to the State."*[55] The definition seems confusing and incomplete because it excludes items of intentionality and the mechanisms through which they are circumvented the State's tax revenue. Also, it is not taken into account the element of crime occurring in the direction of avoiding the payment of taxes or to obtain undue benefits from tax sources.

The concept of tax fraud unites "all illegal practices which allow not paying, in whole or in part, the tax required. These practices are likely to be sanctioned through administrative or even criminal punishments."[56]

Criminal law is different from country to country, so offending behavior considered as such according to the laws of a country cannot be considered as being criminal in nature according to the criminal laws of another country. Furthermore, the definitions of tax fraud and evasion may overlap, so it is up to the administrative demarcation of acts/instruments, namely the decision to continue or not a case of tax evasion in a specific instance.

2. Legal Tax Evasion

Effective tax evasion may occur as a result of some legislative deficiencies or other discrepancies in the way in which legislation is drafted, that cannot be corrected through purposive interpretation. This is not necessarily a failure of policy, but it can also raise difficulties in applying the interpretation, particularly where the tax policy underlying the proposed legislation is not clear, as happens in the case of technical issues of tax law.

[55] Popa Ș., Cucu A. (2000), Underground economy and money laundry, Expert Publishing House, Bucharest, pg. 12.

[56] Craiu N. (2004), Underground economy between “Yes” and “No”, Economic Publishing House, Bucharest, pg. 28.

The phenomenon occurs particularly during periods of adopting new tax laws or changing old ones, but also when the State intensively uses tax levers to stimulate certain areas of activity. Evasion of tax obligations shall be performed through the interpretation of tax legislation in favor of the taxpayer. However, the effect of this behavior is represented by the reduction in budgetary revenues.

Many countries make a clear distinction between the *unacceptable and acceptable tax evasion*. Unacceptable tax evasion is done by means of authentic and legal transactions, but which involve false commercial structures. It's about indirect infringement or misuse of tax laws or bilateral treaties. Unlike these, acceptable methods of tax evasion or tax planning, determine the reduction of tax liabilities through transactions or other activities that are regulated by law.

Lawful tax evasion is favored by the tax laws complexity. Excessive complexity makes room for disputes concerning the legislature's intent and creates the necessary prerequisites to identify those arrangements within the letter, but not in the spirit of the law. In this context it is not surprising that the issue of tax evasion attracts considerable attention in areas such as the taxation of companies at the international level, in which case national tax systems must interact with external tax systems, which is why complexity is probably inevitable.

Another area in which there is a lawful tax evasion is the taxation of financial companies where financial innovation (for instance the use of derivatives) allowed the conduct of transactions in ways that lead to a more favorable tax treatment, but with essentially the same economic substance as simple transactions that would have been taxed less favorably.

3. Unlawful Tax Evasion

Unlawful tax evasion (tax fraud or fraudulent) implies direct and deliberate circumvention of tax laws, being criminally sanctioned. It gets substance through illegal hiding of all or part of the taxable matter by taxpayers in order to reduce or eliminate their tax liabilities. This has a negative impact on the financing of public expenditure. Evasion means *"a deviation (usually criminal) from the tax agenda (stated by specific rules), with the deliberate willingness to evade taxation and related (most often) to the transmission of inaccurate or incomplete information, which are designed to give the author of the offence undue tax advantages."*[57]

Fraudulent tax evasion forms are[58]: traditional, legal, accounting, and by circumvention.

Tax fraud can occur at two times: at the settlement of the tax and at the moment of payment. The first phase aims to reduce taxable matter by minimizing the income and over sizing the financial expenditures. The second phase takes into account indirect taxes, in particular the Value Added Tax (VAT) and customs duties. For example, through a false import declaration relating to the characteristics of the imported products, they may transfer from a higher tax to another, a reduced one.

Among the ways of manifestation of tax fraud there are the following:

- lack of/partial statement and lack of the incomes registration for the deliberate purpose of their non-taxation;

[57] Pătroi D. (2006), Tax evasion between the permissive side, offense type and criminal character, Economic Publiching House, Bucharest, pg. 97.

[58] Hoanţă N. (1997), Tax evasion, Economic Pulishing House, Bucharest, pg. 191.

- hiding the real size of revenue by drawing up fictitious documents or falsification of documents;
- the establishment of phantom companies through which illicit commercial operations are carried out, identification of the directors, members or shareholders being virtually impossible;
- smuggling.

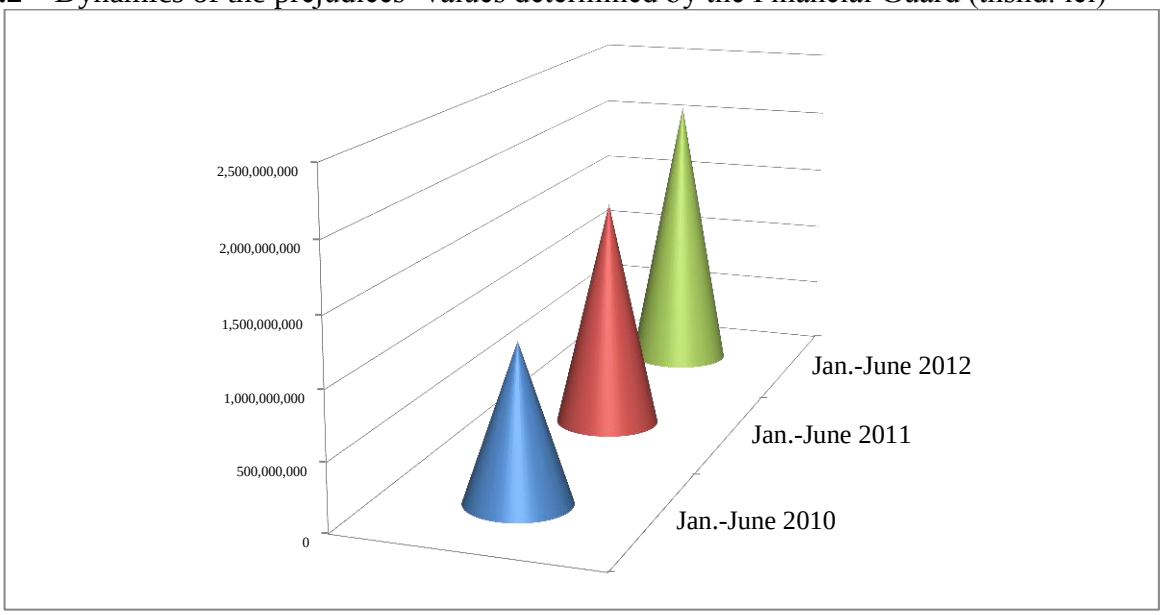
As a result, fiscal fraud is of bad faith and represents an intentional, direct and certain breach of tax laws.

The multiple transformations (qualitative, quantitative, structural, legal, etc.) that have occurred in the Romanian economic environment have led both to reinforce old "trends" in the field of tax evasion and tax fraud, but also to the emergence of new methods and directions in this regard.

The main ways of tax fraud regard:

- "evasion of payment of VAT on intra-Community transactions or, by case, the amplification of this illegal activity by processes known as "Carousel fraud";
- evasion of excise duty through the illicit sale of fuels obtained from mixtures of petroleum fractions, re-distribution of energy products, etc.;
- evasion of excise duty through illicit trade of cigarettes from smuggling or illegally manufactured;
- evasion of excise duty, by trading made clandestinely liquors, framed with bad faith in the category of intermediate or from smuggling;
- evasion of payment of VAT through the import of consumer goods and stating very low values, followed by illicit trade, at the level of the real market price"[59].

Fig. 1.2 – Dynamics of the prejudices' values determined by the Financial Guard (thsnd. lei)



Source: Ministry of Public Finances, National Agency for Fiscal Administration, Financial Guard, Report on the results of the Financial Guard's activity in the 1st semester, 2012, www.gardafinanciara.ro

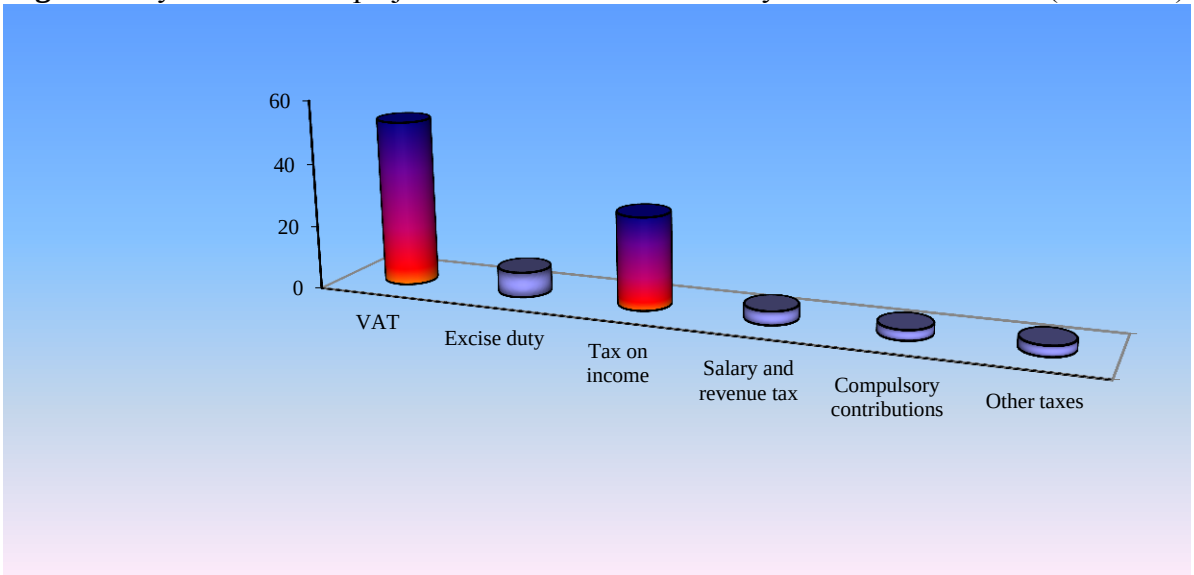
[59] Ministry of Public Finances, National Agency for Fiscal Administration – Report on the control activities carried out by the Financial Guard

Considering the multitude of acts of tax evasion nature, from practical cases[60] analysis presented to the general public, cases investigated by the bodies with powers of inspection, we have identified the main areas, mechanisms and techniques used by persons or groups of persons for committing this crime:

1. in the field of intra-Communitary acquisitions;
2. in the field of production and sale of oil, fuels and other oil components (mineral oils);
3. in the field of production and sale of alcohol and alcoholic beverages;
4. in connection with the production and sale of cigarettes and tobacco products;
5. in the field of recovery of recyclable industrial waste (in particular ferrous and non-ferrous);
6. in the field of operation, management, processing and sale of timber;
7. trade in grain, milling and bakery products;
8. in the field of gambling and casinos;
9. in the import of goods.

It was found that the fraudulent tax evasion (tax fraud) is a dynamic phenomenon that adapts in a very flexible and fast way to the economic situation, according to which changes its orientation from an income tax to another.

Fig. 1.3 - Dynamics of the prejudices' values determined by the Financial Guard (thsnd. lei)



Source: Ministry of Public Finances, National Agency for Fiscal Administration, Financial Guard, Report on the results of the Financial Guard's activity

Figure 1.3 shows a high fraud in VAT, income tax and excise duties.

Less rigged are the local taxes and fees, which are easier to follow. In their case tax administrations do not have special problems and as a result, are less affected by tax controls.

The most commonly used means[61] of partial or total circumvention of taxes are set out below.

[60] The different presented tax evasion mechanisms have been taken from the Financial Guard's Reports.

[61] Ene C.M. (2010), Underground economy – Theory, models, applications, Transversal Publishing House, Târgoviște, pg. 358.

In the case of *VAT*, the main mechanism through which the evasion of payment is represented either by the fictitious increase of deductible VAT, either by false reducing the collected VAT. A significant proportion regards also the refunds of VAT. Some of the techniques of fraud of this tax are considering:

- no sales invoices;
- not-including in the basis of VAT calculation of all bills or all transactions falling within the scope of VAT;
- willful and wrong application of the deductions of VAT or repeated deductions in the same document;
- misuse of VAT forms;
- reduction of VAT by stornos without legal documents;
- unwarranted application for VAT refund;
- intra-Communitary acquisitions/delivers without complying with the legal provisions concerning the reverse taxation, etc.

In the case of *corporation tax*, fraudulent actions relate to the following:

- reduce the tax base through various means (including on costs of some oversized charges without evidence or without legal basis, such as fines, penalties, expenses, depreciation, daily allowances, protocol expenses, etc.);
- deduction of personal expenses of the owners, shareholders or employees;
- failure in the accounting records of all incomes;
- erroneous computations and discrepancies between the records and the factual stock or between shipping prices and the prices in real mode;
- failure in accounting of exchange rate favorable differences or prices or of the differences established by inspection acts;
- failure in accounting of obligations concerning the due income taxes and failure to comply with payment terms of corporation tax, etc.

As regards *excise duties*, tax fraud is carried out through:

- non-inclusion in the tax base, in whole or in part, of the taxable amounts;
- improper calculation or miscalculation of excise duty on alcohol and alcoholic beverages in the context of changes in alcoholic strength;
- non-inclusion in the sale price of the products of the excise tax imposed on them;
- failure in accounting of obligation for payment of excise duty;
- evasion of excise duty, passing excise imposed goods to some category with no excise duty obligation, etc.

Income and wages taxes are rigged by the following methods:

- non-inclusion in the tax base of all revenues;
- miscalculation, non-retaining and mispayment of the wages tax in the case of temporarily employed persons, part-time or of those with a collaboration contract;
- non-taxation of income paid to employees by means of income of wage-type nature like incentives, bonuses, benefits in cash or kind, etc.;
- non-compliance with legislation on tax basis calculation, aggregation and personal deductions;
- the non-registration of payment of tax obligations on wages;
- non-compliance with the terms of payment of wage taxes.

Such procedures are elements of the tax evasion crime, and their particular content put them within the following categories:

- "the crime of refusal to present the official accounting documents required to establish the budgetary obligations;
- the crime of evading payment of tax liabilities by issuing incomplete or improper official accounting records or through acceptance of such documents;
- the crime of evading the payment of tax liability by means of not recording some activities or by exerting unauthorized activities;
- the crime of evading payment of tax liabilities by non-declaration of some incomes, or by hiding taxable source or object, or as a result of fictitious transactions;
- the crime of failing to reveal in legal accounting documents the revenue or to register fictitious expenses, in order to avoid the payment of tax liabilities;
- the crime of organizing or leading double accounting records or alteration or destruction of legal accounting documents or data storage means, for the purpose of reducing tax liabilities;
- the crime of evading payment of the taxes through ceasing of the shares held in a limited liability company;
- the crime of fictitious reporting on the premises of a company, its subunits or working points, in order to circumvent the tax control"[62].

Obviously, all these offences laid down by laws constitute forms of manifestation of tax fraud. Following the legal procedure differs depending on the offence, but the regulatory means always produce a result, materialised in pecuniary penalties (administrative fines) or imprisonment (depending on the offense, the limits range from one year to 12 years)[63].

Concluding, processes used by taxpayers to evade tax liabilities which they are responsible are diverse, but in constant adaptation to changes in tax laws and accounting. No one and nothing can provide practical, concrete situations diversity, nor offenders' ingenuity.

Due to the fact that by evading the payment of taxes certain individuals or interest groups earn huge profits at the expense of honest traders, who feel the inequitable distribution of the tax burden, it is important to identify the causes generating tax evasion so that mitigation/combat efforts of this phenomenon can be oriented in the correct and realistic direction. "Maximizing the public budgetary resources cannot be achieved except through the entire taxable materials detection and correct assessment of it, through the proper application of tax methods and techniques for determining taxes and fees and by discouraging the phenomenon of tax evasion"[64].

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Maximizing Labor Market Mobility

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Abstract: *Employment policies are a set of measures developed by the state to intervene in the labor market in order to stimulate job creation, improvement of human resources to adapt to the needs of the economy, to ensure fluid and efficient labor market flexibility, decreasing the imbalances and dysfunctions.This article attempts to link the maintenance and increase of employment rate through direct or indirect actions to ensure jobs for young people entering the labor market, for the unemployed and others who want to hire as employees. Goal of ensuring full employment of labor on the one hand seeks a decent living, and on the other hand a high level of product supply.*

Keywords: macroeconomic imbalances; increase quality of life; labor market flexibility.
JEL Classification: O11; F22.

1. Labor market complexity

Labor market is one of the most complex markets, which is defined as all acts of buy and sale of labor, their specific relations, taking place in an economic space; it reveals meeting labor demand with supply, establishing on this basis of conditions for hiring employees, negotiating and securing workers' salaries on performance, achieving labor mobility on wages and jobs, companies, areas.[65] Labor market is uneven, inconsistent, fragmented, more organized and regulated in relation to other markets, a higher degree of imperfection; also, the market is contractual and particular.

Full employment structure reflects the level and quality of labor resources used optimally, i.e. it favors maximizing effectiveness translated into economic goods to satisfy human needs and human communities.[66]

In relation to employment, unemployment can be also appreciated. The essence of the concept of unemployment is similar to that which causes unemployment as macro imbalance (see Table 1), which however customizes, depending on the economic and social, tangible, specific historical conditions.

[65] Aceleanu,M., I., Creţu, A., Ş., (2010). Strategii şi politici de ocupare în contextul pieţei actuale a muncii, Editura Ase, Bucureşti.

[66] Burghelea, C. (2011) "Economic Crisis perspective between current and forecast", *Theoretical and Applied Economics*, Vol. XVIII, No. 8, pp. 137-147.

Table 1. Registered unemployed by level of education
(thousands persons)

	2008	**2009**	**2010**	**2011**
Total unemployed	403	709	627	461
Of which women	187	302	264	204
Primary, secondary and vocational	312	503	442	321
Of which women	132	190	164	127
High school	71	156	135	101
Of which women	42	83	71	53
University	20	50	50	39
Of which women	13	29	29	24

Source: www.insse.ro

In 2009, the number of unemployed has increased as a result of the financial crisis, with 306 thousand compared to 2008, after which a slight decrease has been observed, which then widened, at the end of 2011, reaching a little higher than that recorded in 2008 (see table 2).

Table 2. Unemployment rate by gender, age group and area (%)

	2008	**2009**	**2010**	**2011**
Total	5,8	6,9	7,3	7,4
Under 25 y.o.	18,6	20,8	22,1	23,7
25 y.o. and over	4,4	5,4	5,8	5,8
Masculin	6,7	7,7	7,9	7,9
Under 25 y.o.	18,8	21,2	22,3	23,7
25 y.o. and over	5,3	6,1	6,3	6,3
Feminin	4,7	5,8	6,5	6,8
Under 25 y.o.	18,3	20,1	21,8	23,8
25 y.o. and over	3,4	4,5	5,1	5,2
Urban	6,8	8,1	9,1	8,8
Under 25 y.o.	23,2	27,1	30,5	32,4
25 y.o. and over	5,3	6,5	7,4	7,0
Rural	4,6	5,4	5,0	5,5
Under 25 y.o.	14,7	15,5	15,3	16,7
25 y.o. and over	3,3	4,0	3,6	4,1

Source: www.insse.ro

The unemployment rate is an indicator by which the intensity of unemployment is measured. In 2011, in our country this indicator equaled 7.4%, up from previous years: 0.1 percentage points compared to 2010, by 0.5 percentage points compared to 2009 and by 1,6 percentage points compared to 2008, when the lowest unemployment rates were recorded.[67] The unemployment rate for women was 6.8%, up 0.3 percentage points from the previous year. For men, the unemployment rate was constant, the same level of the previous year (7.9%). In urban areas, the unemployment rate significantly exceeds the rate in rural areas (in

[67] Mărcuţă, L., Mărcuţă, A., Tindeche, C., (2013) "Analysis of Romanian GDP during crisis", *20th International Economic Conference - IECS 2013, Post Crisis Economy: Challenges and opportunities*, Sibiu, România.

2011: 8.8% vs. 5.5%). Those most affected by unemployment are young people aged 15-24. The youth unemployment rate was 23.7% in 2011, with significant differences in the average (32.4% in urban areas compared to 16.7% in rural areas). For the unemployed aged 25 years and over this indicator was 5.8% (see Table 3).

Table 3. Long-term unemployment rate, by sex and area (%)

	2008	2009	2010	2011
Total (12 months and over)	2,4	2,1	2,5	3,1
Male	2,9	2,4	2,9	3,4
Female	1,8	1,7	2,1	2,8
Urban	2,9	2,6	3,2	3,9
Rural	1,7	1,5	1,7	2,1
Young (6 months and over)	10,5	10,3	13,0	15,0
Male	10,5	10,9	13,8	15,3
Female	10,5	9,3	11,8	14,6
Urban	12,7	13,5	17,8	20,8
Rural	8,6	7,6	9,1	10,3

Source: www.insse.ro

In 2011, long-term unemployment rate was 3.1%. This is slightly up compared to the values recorded in the three years preceding (2.4% in 2008, 2.1% in 2009 and 2.5% respectively in 2010). By gender, this indicator has values of 3.4% for men and 2.8% for women in 2011, and the same year according to the average values of 3.9% in urban areas, compared to 2,1% in rural areas.

Long-term unemployment among young people has followed an upward trend in the period (from 10.5% in 2008 to 15.0% in 2011), especially in the context of the current financial crisis (see Table 4) .

Table 4. The incidence of long-term unemployment (as a share of total unemployed)

	2008	2009	2010	2011
Total (12 months and over)	41,3	30,9	34,9	41,9
Male	42,9	31,6	36,9	42,6
Female	38,4	29,8	32,0	40,9
Urban	43,4	32,2	35,2	44,3
Rural	37,5	28,7	34,2	37,1
Young (6 months and over)	56,3	49,5	58,8	63,4
Male	55,6	51,6	62,0	64,8
Female	57,4	46,3	54,1	61,5
Urban	54,6	49,8	58,4	64,2
Rural	58,6	49,0	59,6	62,0

Source: www.insse.ro

The incidence of long-term unemployment was between 2008-2011 on the rise. Thus, after a decline in 2008 from 41.3% to 30.9% in 2009, it starts to increase with the values of 34.9% in 2010 and 41.9% in 2011.

GDP is the gross value of all goods and services for final consumption, made by economic agents operating within a country in a given period of time. Romania National Accounts have been developed since 1989 on the basis of the European System of Integrated Economic Accounts metodology 1979.

Since 1998 Romania started to use the new European System of Accounts 1995, 1998 being the year of connection between the two versions of the European System of Accounts.[68]

Table 5. GDP Values

	2008	**2009**	**2010**	**2011**
GDP - million lei in current prices	514700,0	501139,4	522561,1	578551,9
GDP – change over previous year (%)	7,3	-6,6	-1,6	2,5
GDP per capita – lei	23934,6	23341,4	24383,1	27017,73
GDP per capita **–** change over previous year (%)	7,5	-6,4	-1,5	2,53)
GDP per capita – $	12633	11945	11904	12476
GDP per capita at standard purchase rate – $	11700	11000	11400	-
Rate of gross value added (GVA / Production) (%)	46,5	46,2	45,7	44,6
Investment rate (gross fixed capital formation/GVA) (%)	35,8	27,2	26,5	27,9

Source: www.insse.ro

Gross domestic product in nominal terms in 2011 was 578,551,900,000 lei, returning 27,017.7 lei per capita. Also, the GDP in real terms grew by 2.5% compared to 2010, and this indicator is per capita by 2.5% percentage points higher than the previous year (see Table 5).

Compared to the last two years of contraction, the Romanian economy registered a slight economic recovery (-6.6% in 2009 compared to 2008, -1.6% in 2010 compared to 2009).

Evolution of gross domestic product in 2011 had the following characteristics, by activity sectors: services had the greatest contribution to GDP, namely 45.4% of the total (262 705 600 000 lei), industry ranked second with 26 3% of GDP (152 062 900 000 lei) construction contributed 9.8% to GDP and agriculture, hunting, forestry and fishing contributed with 6.5% of GDP (56,744,500,000 lei construction, 37,837,700,000 lei agriculture). Gross value added recorded in 2011 was 509,350,700,000 lei and accounted for 88.0% of GDP (see table 6).

Table 6. GVA

GVA	2008	2009	2010	2011
Agriculture,hunting and forresting	8,7	8,2	7,8	8,6
Industry	27,8	28,2	29,7	30,4
Construction	14,0	14,6	13,4	13,3
Services	49,5	49,0	49,1	47,7

Source: www.insse.ro

Gross value added in the private sector took in 2011 following characteristics by industry: significant shares in gross value added continues to hold the private sector in

- [68] Dobrotă, N., Aceleanu, M., I., (2007). *Ocuparea resurselor de muncă în România*, Editura Economică, Bucureşti.

agriculture (93.4%), with 22.6 percentage points above the average private sector of the economy, compared to the previous year, this indicator increased by 0.7 percentage points in industry gross value added accounted for 81.9 % of gross value added of the sector, which is 11.1 percentage points more than the average private sector. Compared to the previous year , the indicator decreased by 0.3 percentage points. The private sector in construction was 95.7% , 24.9 percentage points above the average private sector over the previous year , this indicator decreased by 0.2 percentage points, the share of private sector services was 74.3% of total gross value added of the sector, which stood at 3.5 percentage points more than the average private sector compared to the previous year, gross value added in private services was higher by 2.2 percentage points.

Finally, in 2011, an encouraging aspect observed was the change of sources of growth, from an excessive orientation towards consumption to a stronger contribution of exports, agriculture and industry.

Table 7. Labour productivity per person employed

	2000	2008	2009	2010
Romania	23,7	49,1	49,2	48,9
Germany	107,1	107,9	104,9	105,4
France	120,3	116,1	117,2	116,0
Italy	127,4	112,9	112,1	109,4
Bulgaria	31,3	39,6	40,1	41,3
Hungary	57,1	70,9	72,1	71,2

Source: www.insse.ro

Labour productivity per person employed in Germany, France and Italy, is far above the EU average (see Table 7). Other countries, Hungary, Bulgaria, Romania are below the EU average. In Romania, the labor productivity per worker has increased, estimating that it will continue in the next period. This growth has been affected by the current crisis, however, on the other hand, al labor productivity is still well below the EU average.

2. Labour migration

Under capitalism, the issue of labor migration has been and is amply reflected in the socio-economic and political literature, including Romanian one. The process was analyzed by historical subperiods within this timeframe.

International capital flows are closely related to the movement of labor abroad. A part of labor from low developed and developing countries are determined by the tendency of concentration of capital from developed countries to emigrate to the developed countries.[69]

The existence of economic disparities between low developed countries and industrialized countries are the main cause. In the hope of greater gains, these gaps cause individuals to seek better paying jobs. Labor market supply responds to ther higher number of jobs in areas of high growth by territorial mobility of labor. A number of features influence moving to work abroad, including: the individual characteristics of the person who migrates, characteristics of the area of departure and arrival area and distance. The most important

[69] Gheorghiu, A., Gheorghiu, A., Spânulescu, I., (2009) "Target market risk evaluation", *Proceedings of the International Conference on Econophysics, New Economics & Complexity - ENEC-2009*, Editura Victor, Bucureşti, ISSN 2065-2550, p.113.

individual factors to explain the availability of migration are related to age, marital status, education.

The decision to work abroad also yakes distance into account. But geographical distance is not as important as social distance is, the latest referring to the obstacles in front of the person moving to work abroad. Such obstacles arise in the process of its adaptation to the new social area or locality. Government policy on taxes, social protection measures for unemployed and behavior of firms in terms of policies promoting employees also have an important role (see Table 8).

În luarea deciziei de a lucra în străinătate este importantă, de asemenea şi distanţa. Însă, nu atât de importantă este distanţa geografică, cât este distanţa socială, aceasta referindu-se la obstacolele care stau în faţa persoanei ce se deplasează la muncă în strainătate. Astfel de obstacole apar în procesul adaptării sale sociale în noua zonă sau localitate. Politica guvernamentală în domeniul impozitelor, măsurilor de protecţie socială a şomerilor şi comportamentul firmelor în termenii politicilor de promovare a angajaţilor, au de asemenea un rol important (vezi tabelul nr.8).

Table 8. Romanian citizens who have established residence abroad

	2008	**2009**	**2010**
Total	8739	10211	7906
By sex			
Male	3069	3768	2917
Female	5670	6443	4989
By age group			
Under 18 years old	1214	1316	1062
18-40 years old	5829	6621	5029
41-60 years old	1419	1915	1562
61 years old and over	277	359	253
By nationality			
Romanians	8485	10052	7834
Magyars	194	103	42
Germans	18	15	8
Jews	27	27	8
Other nationalities	15	14	14
By country of destination			
Australia	82	128	81
Austria	345	421	569
Canada	1738	2045	858
France	431	576	405
Germany	1788	1938	1399
Greece	85	124	133
Israel	50	111	62
Italy	1098	984	844
Spain	238	547	882
U.S.A.	1591	1793	1086
Other countries	932	1198	1304

Source**:** www.insse.ro

Officials do not hold completely reliable data about the number of Romanians who work abroad. Countries where Romanians aretemporarily working do not know their number

and on the other hand they can not provide reliable information on workers in their territory who entered legally. Between 8% and 10% of Romanians aged 15-64 years are left to work abroad. In this regard, there have been outlined three courses of action Romania should follow in the field of migration, namely: policies that are focused on working abroad, policies on immigration and policies regarding migration and development, issues requiring thinking of migration on regional development. Romania lacks the connection between migration policy and development policy. To assess the effectiveness of employment in Romania is necessary to know the size of the income from people - Romanian citizens working abroad . In 2008, Romanians working abroad sent home about 6 billion Euro, or 5 % of GDP.

Workers go to work abroad bring money into the country, but in the long run these departures affect the labor market by creating a skills shortage in certain professions.

3. The capital value of the labor market

In any economy, the labor market was always paramount and required attention because work is the active, primary and determinant production agent and also a factor of circulation, distribution and consumption.

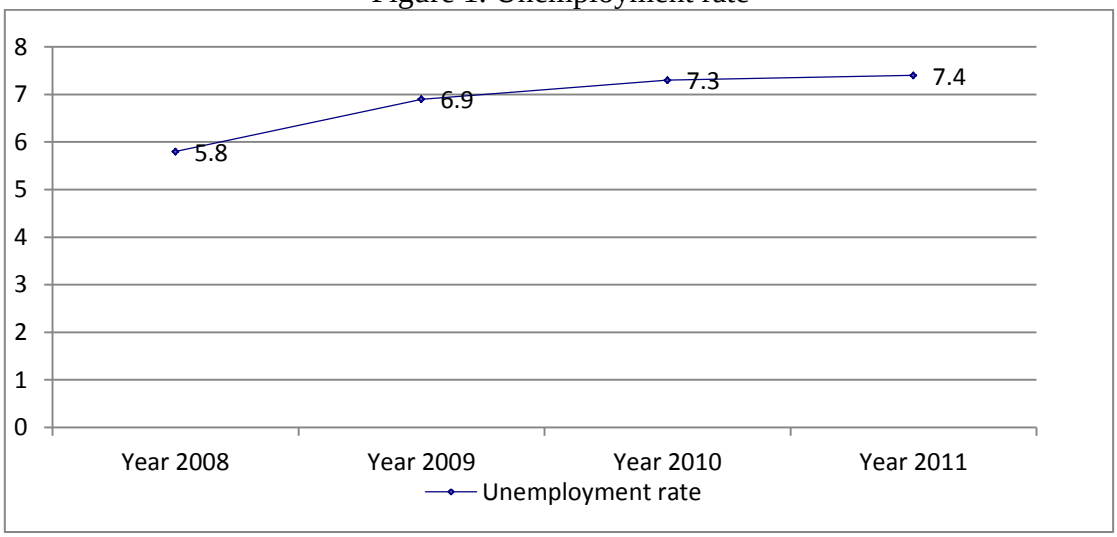
Economic crises can be defined as situations of pronounced instability are accompanied by volatility and uncertainty growing. In various branches of the economy, the crisis has caused and continues to cause various effects, the most important being the effects on jobs and employment policies . Many businesses reduced their activities as a result of the crisis, which is a measure of adaptation to the turbulence in the market, which led to a large number of layoffs and the reduction in salary remuneration. By reducing the number of taxpayers, layoffs have created effects on social security budgets, health, and pensions. There is a reduction in the volume of economic activity as a result of increased unemployment, which has implications on revenues and expenditures. On the one hand, a greater number of unemployed means less revenue to the budget, on the other hand, spending on social protection and assistance.

There is an increase in working poverty due to the impact of the economic crisis on employment and productivity. For many families, the work does not provide enough income to overcome poverty line anymore.

Large foreign investors in Romania gradually restrict their activity, they passed to the application of restrictive economic measures that have direct impact on the employment situation of being under the influence of the consequences of the international economic crisis, closely linked to the financial one. Due to lack of orders internally and externally, companies such as Colgate and Kraft Jacobs Palmolive Brasov, Dacia Renault Pitesti, Ford Craiova, Arcelor Mittal Galati announced decrease of activity. In Romania, Colgate Palmolive still has one production unit working in Bucharest. The company announced it would move its activity in Poland, in a mining area where production deployment will be done with less expenditure.

Capital-intensive sectors, the sectors with a long production cycle and offering durable products are affected mainly by the loss of jobs. First, those hardest hit by the crisis are those that fueled it in their desire to provide as much financing solutions to their clients, commercial banks, investment banks, investment funds and strategic investors.

Figure 1. Unemployment rate



Source: personal processed data from www.insse.ro

The evolution of unemployment in recent years can be seen in the chart above (see Figure 1). If in 2006 the unemployment rate fluctuated until 2008, since 2008 there has been a significant increase in the unemployment rate, to 6.9 in 2009, this reaching values of 7.3 in 2010 and 7.4 in 2011.

In today's society, the dynamics of multiple work potential benefits are discussed, analyzed and assessed with known terms such as: training, professional formation, qualification, use, occupation, employment, enrolment, consumption of labor resources or of employment. Conducting a social activity was always preceded by a special preparation. New methods for peole training were developed and diversified. These systems have had to turn adjustments and continuous improvement.

In a world where information is widely available, the role of educational institutions is changed by modern information and communication systems. An integral part of the globalization process is education, and this is also an economic resource base that can sustain long-term competitive advantage. As element of the new society, the central problem of knowledge, it is not in terms of its existence, but the content of new knowledge in ways to stimulate the formation of the whole society and the economy.

From perspective of a perfect society education serves mainly for widening perspective on life and live it to increase satisfaction. It opens new horizons in the individual languages, literature, art, music and the diversity of the world. Those who have benefited over the years from a good education have not doubted for a moment that they do receive and will receive a greater reward; the opportunity to receive a solid education expands and generalizes this reward .

For any economy, education becomes crucial because, through education, the relationship between man and society are diversified. As a member of society , the individual is able to contribute something to balance what he receives from living together with other individuals . With globalization and the technological revolution, the economy needs well-trained labor force, requiring skills, a solid knowledge, creativity and increased accountability.

For an educated population , there may be many social benefits , because there is an increase in productivity. That person will be as adaptable, as it allocates more to education.

By training potential innovators , investment in human capital leads to an advance of knowledge and contribute to economic growth. Winning greater stability in the labor market

is still a reason to support raising the level of education , which reduces the default risk of unemployment.

To support continuing education, lifelong, Romania must realize learning strategies through training and improving the quality and efficiency of education. As a result of European integration, it is necessary to aim career development, improving skills and reducing disparities professional qualification. Reaching an average participation level in lifelong learning at least 12.5 % of the adult population of working age 25-64 years was set as a target at EU level. Achieving these targets is very important because it will allow Romania to meet an increase in productivity and competitiveness to face the labor market. Pursued policies will aim: increasing investment in human resources, investment in adult training in enterprises, access to relevant information on adult education and training opportunities, using information and communication technologies. Educational process involves achieving efficiency and modernization directions.[70]

In the educational process, we follow several lines of action to streamline and modernize it: education seen as a national priority, new legislative basis of education; passing from redressing reforms to systemic reform, integration into the European Higher Education Space; better education funding, increased investment in research, the use of IT&C in education through measures related to training content, the correlation of disciplines and knowledge transmission efficiency.

Objectives of labor resources policies are to maintain and increase the employment rate. These are accomplished by direct or indirect actions, being designed to provide jobs for young people entering the labor market, for the unemployed and other people who want to hire as employees.

Specific performance of the labor market are influenced by the actions and policies that affect themselves the initiatives related to training and education. The rate of return on investment in education can be reduced by progressive taxes. Increasing young people's interest to invest in education is driven by high rates of return on investment in education.

Incentive to invest in education can be enhanced by the financial support of public education in the form of grants and contributions, by reducing the cost of investment. On the other hand, investment in education can be supported by loans and guarantors for students and flows of revenues and earnings may be affected by the expected duration of the studies, which are obtained by accumulating the stock of human capital as a result of investment in education.

OECD has advocated since the early 1990s for application of active policies to active labor markets. These policies are designed to distinguish from passive interventions in the form of unemployment benefit payments. Active labor market policies aimed, in OECD vision, to report rapid development of skills and employment opportunities for employment through education and continuous training, assistance in finding employment, creating jobs directly allowing the accumulation of experience.

On the achievement of the educational conditions necessary for joining the EU, Romania has made some progress, such as Romania's participation in Community programs Socrates, Leonardo and Youth. Our country is also characterized by the lack of an overall policy implementation of active employment based training through a low participation of adults in lifelong learning. In Romania , the education dropout rate is increasing, education

- [70] Aceleanu,M., I., Creţu, A., Ş., (2010). Strategii şi politici de ocupare în contextul pieţei actuale a muncii, Editura Ase, Bucureşti.

and training system being unfit for the new demands of the market and public investment in education is also limited a long time.

The main purpose of the educational system in our country to face the globalization of the world economy is to provide mass training, and training specialists in the competitive world market. Workers need better training and ability to adapt to changes due to increased international competition. Global economic competitiveness is increasingly based on knowledge and skills. Thus, teaching and learning lead to increased productivity, which corresponds to an increase in the stock of human capital .

By improving the quality and efficiency of education and training, Romania must implement strategies for lifelong learning . Development of a policy for lifelong learning requires continuous training and retraining of the workforce by updating and adapting skills to face competition from an enlarged Union and the global economy .

4. Conclusions

Labor market which is constantly changing attempts to deliberately size for global requirements. People who are part of this massive process of change are the ones who must make their contribution to what today's society that is seeking to implement quality of life. At the macro level, formation and support of a new managerial class is developed, empowered to drive competitive businesses in the harsh conditions of globalized economies. It is intended to apply measures to create and strengthen the middle class able to compete with large companies - especially those in relationships with foreign companies operating in Romania. A great source for creating new jobs is the rural economy, there are many requests for services and availability of unemployed labor force.

Study and evaluation processes in the labor market as size, structure and trends are underlying the definition of active employment policies and social protection under the most different of their sides.

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Wage Implications at EU Level

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Abstract: *In all conditions of time and space, economic activity necessarily involves active work as a determinant factor of production and beneficiary of its results. In the market economy, labor services are provided to production, as with the other factors of production, through market transactions. This article aims labor factor, the role and characteristics of labor as a production factor and the employment in the EU. As a secondary market, labor market is influenced by other markets and generates, in turn, effects that are found in all other structures of the market economy system.*

Keywords: labor market; employment activity; supply and demand.

JEL Classification: E24; P25.

1. The price of labor

Labour market or workforce market is the area where labor demand by those who need it (firms) and supply of labor, represented by owners of labor, meet and are freely negotiated. Through specific processes for transactions taking place in this market, primarily through wage formation process balance between supply and demand of labor is secured.

The labor market is closely related to other input and product markets (material goods and services) . The rising prices of consumer goods will affect negotiations on the payroll, as input prices change will affect supply and demand in the product market.

Interrelation between real flows (factors and products) and monetary flows (income and expenses) resulting from transactions that occur on all these markets stems from the economic circuit unity.[71]

[71] Mărcuţă, L., Mărcuţă, A., Tindeche, C., (2013) "Analysis of Romanian GDP during crisis", *20th International Economic Conference - IECS 2013, Post Crisis Economy: Challenges and opportunities*, Sibiu, România.

In the whole circular flow of economic activity, the role of the labor market is primarily played through the following functions: efficient allocation of labor resources between sectors, industries, economic and territorial units according to the volume and structure of demand for labor, which is at its turn determined by the request for economic goods; wage formation by comparing the labor supply and demand, as a price or income to remunerate labor; source of information for professional guidance and training as well as a means to control the information provided in connection with failures and imbalances that occur in the economy; through special organizations, labor market also fulfills the function of social protection of the disadvantaged working population due to economic circumstances in the economy.

On the labor market, like on any other market, wage is the result of the interaction of supply and demand for different skills and abilities, of free negotiation between resource owners and employers. Individuals, as bearers of labor supply, aim to obtain the best price for their offered services. In turn, entrepreneurs are interested in reconciling the specific qualities required in production at the most affordable price. Salary is the ultimate expression of the contribution that entrepreneurs consider employees bring through produced goods in order to satisfy anticipated consumer preferences. If, for example, consumers give a lower value to a specific good, all inputs that have contributed to obtaining it will be worth less. In other words , not only is the employee who will receive a lower salary, the entrepreneur will also be affected because its profits will be substantially reduced.

The corollary of this reasoning is the following: is the consumer who ultimately determines the factors of production and income distribution. A change in consumer preferences coming from the population is a first real way to change input prices. These will increase for the factors employed in the production of more wanted goods, and will fall for the others.[72]

Right to salary appreciated as a corollary of the right to work - is a fundamental prerogative of the individual, and this is emphasized by the Universal Declaration of Human Rights, "Everyone who works has the right to just and favourable remuneration ensuring for himself and his family an existence worthy of human dignity"; minimum wage is the wage considered sufficient to meet the vital needs of the employees, taking into account economic and cultural development of each country.

Introducing and maintaining it is based on two main arguments. The first is to relieve poverty faced by some of the population. The second is aimed at reducing the level of employer's control over the wage.

A logical inference regarding the minimum wage is that it is always above the equilibrium wage established on the market, if it's equal to or less than the balance, the measure imposing the minimum wage would prove unnecessary .

Economic laws show that a price increase involves significant changes on supply and demand, meaning that there will be fewer jobs offered by companies, thus affecting a part of the workforce. It should be noted , however, that labor supply and demand do not meet a single labor market; there is a range of different skills and qualities. So the imposition of the minimum wage has the same effects for all individuals or in all economic sectors. Young people are among those who suffer most from the reaction of entrepreneurs when minimum wage rises.

[72] Gheorghiu, A., Gheorghiu, A., Spânulescu, I., (2009) "Target market risk evaluation", Proceedings of the International Conference on Econophysics, New Economics & Complexity - ENEC-2009, Editura Victor, Bucureşti, ISSN 2065-2550, p.113.

The reason is that they form the category of less experienced with the lowest skills and abilities and therefore the lowest performance in economic activity.

Damage to young people is twofold. On the one hand , they lose the opportunity to immediately earn a certain income and therefore to be able to meet their necessities to a greater extent. On the other hand, because the minimum wage sends them unemployed, they can not gain the experience and skills that, in a subsequent period, would have brought an increase in their salary . If there would be no minimum wage , young people could offer their services at a lower price until they gain the experience necessary to obtain a higher salary .

Also, there are negative implications on the company's economic prosperity, but they require some mental effort to be noticed . First, consumers are deprived of the services of those laid off, even if their marginal productivity was low. The total supply of goods is reduced, and this has significant implications on the level of personal satisfaction of needs and hence on living standards.

Secondly, part of the active population becoming unemployed implies a greater effort from the state budget and consequently rethinking the tax rate of population. Another unseen thing is that a tax increase leads to a reduction in income that individuals will have, ie a reduction in consumption and their economies. Further, a reduction in consumption, especially savings, generates a reduction of investment in the economy and employment. But as a rule, people only see what will appear immediately in front of them (minimum wage increase) and will not see what is lost: the production of those who were laid off or affected jobs.

Another segment of the population negatively influenced by taxation and increasing the minimum wage is made up of some national minorities.

Measures to increase the minimum wage highlights another error sometimes present in economic analysis, namely that an increase in labor costs leads to an increase in the total cost of production and thus the price of the good produced in the society.

Often, it is possible that due to stiff competition, many companies can not apply price increase for products. This has important implications for economic analysis of the effects of the minimum wage. If the minimum wage increases and a company can not transfer any cost increase in price, then it will seek to increase efficiency by eliminating employees became too expensive compared to their contribution to obtained production or by replacing them with more efficient technology, employees with higher qualification, etc.[73]

In Romania, the Law 14/1991 established the principle of wage negotiation within public and businesses what is traditionally designated by the concept of wages liberalization. Theoretically, the only proper application of the principles of salary negotiation is to establish wages by law or by other regulations for personnel in state companies, as well as that of very specific state organizations. Also by law minimum wage is set, with a social protection objective. With these exceptions, currently wages are set by collective union negotiation. Implementing Rules of the Law no. 19/2000, approved by Ministry of Labour and Social Solidarity by Order no. 340/2001, which detailed elements that are included in the individual gross salary, it shows that it includes: gross base salaries, bonuses , allowances, amounts paid from salary fund, the amounts awarded at retirement, annual awards, payments in kind, other incomes. The base salary is the main part of total wages agreed in the employment contract; the specified amount is actually paid to the employee under prescribed conditions (actual time worked and the results obtained in relation to performance standards). It is established for each employee based on studies, experience, skills and outcomes of individuals, on the one

[73] Ciucur, D., Gavrilă, I., Popescu, C., Popescu, G., H., (2008). *Teorie economică generală*, Editura ASE, Bucureşti.

hand, and wage policy of the firm, types of payroll, the importance, complexity and responsibility incumbent to the position on which the employee is enroled.

Salary additions and bonuses form the variable part of the salary that is to be granted only for special outcomes of the employee, work performed under difficult conditions, significant results for the enterprise, loyalty and stability in employment (seniority).

2. The employment in the EU

European Union (EU) is an economic and political union, developed in Europe, which is composed of 27 states. Origins of the European Union come from the European Coal and Steel Community (ECSC) and the European Economic Community (EEC) formed by six countries in 1958. In the coming years the European Union has expanded through the accession of new member states and increased its strength by adding economic, social and political to its abilities. The Maastricht Treaty established the European Union under the present name in 1993. The last amendment to the constitutional basis of the EU was the Lisbon Treaty, which entered into force on 1 December 2009. The EU operates through a system of supranational independent institutions and intergovernmental decisions through negotiation between member states. The most important institutions of the EU include the European Commission, European Council, European Union Council, the European Court of Justice and the European Central Bank. The European Parliament is elected every five years by EU citizens .

The EU has developed a single market within a standardized system of laws which apply in all member states. Within the Schengen Area (which includes EU Member States and non -EU states) passport controls have been abolished. EU policies aim to ensure the free movement of people, goods, services and capital, laws in justice and internal affairs were issued and common policies on trade, agriculture, fisheries and regional development were kept. A monetary union was also established, the eurozone currently consisting of 17 states. By the Common Foreign and Security Policy, the EU has developed a limited role in international relations and security.

With a combined population of over 500 million, representing 7.3% of the world population, the European Union has generated a GDP of 17.6 trillion U.S. dollars in 2011 (more than any other country in the world), which accounted for 20% of estimated GDP in terms of purchasing power worldwide.

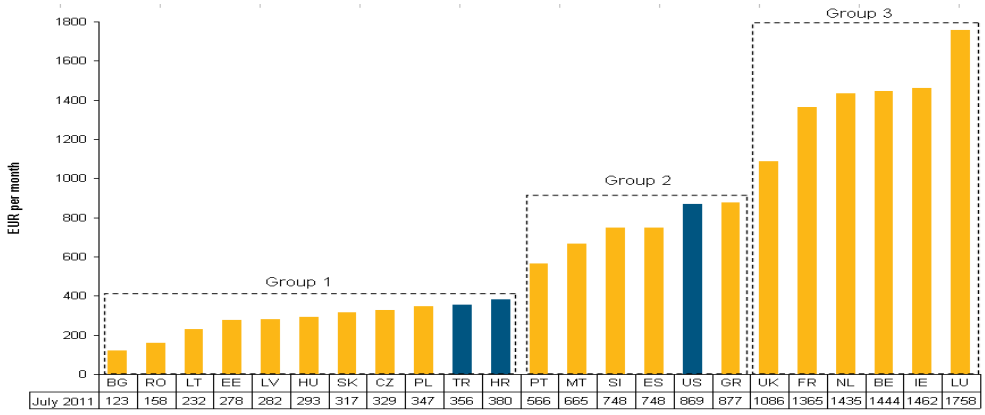
It is considered to be a sui generis construction, considered by some as a de facto confederation. Since 1 December 2009, the European Union has legal personality and may conclude international treaties.

In 2012 it was awarded the Nobel Peace Prize, "for over six decades has contributed to the advancement of peace and reconciliation, democracy and human rights in Europe." According to data provided by Eurostat, although most countries have introduced minimum salary differences between its levels are enormous.

Minimum wage statistics published by Eurostat refer to Monthly National Minimum Wage. National Minimum Wage is usually applied to all employees, or at least a large majority of employees in the country. Minimum wages are gross amounts, ie before deduction of income tax and social security contributions. These deductions vary from country to country. National minimum wage is required by law, often after consultation with the social partners, directly or through national intersectoral agreement (such as in Belgium and Greece).

In July 2011, the legal minimum wage varied from 123 to 1758 EUR per month, gross.

Figure 1. Minimum Wage levels in EU states



Source: www.eurostat.ec.europa.eu

Figure 1 shows the minimum monthly wage in euro in Member States, Croatia, Turkey and the United States in July 2011. Between Member States, the gross minimum wage in the economy varied from 123 EUR (Bulgaria) to 1 758 EUR (Luxembourg).

The 20 Member States together with Croatia, Turkey and the United States can be divided into three categories, depending on the minimum wage at 1 July 2011. The first group includes the eleven countries with the lowest minimum wages, between 100 EUR and 400 EUR per month: Bulgaria, Romania, Lithuania, Estonia, Latvia, Hungary, Slovakia, Czech Republic, Poland, Turkey and Croatia.

The second group comprises five Member States (Portugal, Malta, Slovenia, Spain and Greece) and the United States, with an intermediate level of the minimum wage from over 550 EUR to just under EUR 900 per month.

The third group comprises six Member States (UK, France, Netherlands, Belgium, Ireland and Luxembourg), where the minimum wage was over 1 000 per month.

According to data provided by Eurostat, although most countries have introduced minimum salary differences between its levels are enormous. Minimum monthly net salary in Romania is established by law in 2012 to 162 euros (750 lei) which places the Romanian state in the penultimate position in the European Union regarding the regulatory minimum gain, and the differences between the minimum wage in the EU are significant. EU countries that use the minimum salary can be divided into three categories according to its level: the first category includes 11 countries whose minimum wages are the lowest in the European Community, ranging between 100 and 400 EUR: Bulgaria, Romania, Latvia, Lithuania, Slovakia, Estonia, Hungary, Czech Republic and Poland. The second category includes countries whose regulatory minimum wage is between 400 and 1000 EUR: Portugal, Slovenia, Malta, Spain and Greece. The third category includes six countries in the EU whose minimum wage equals or exceeds the level of 1.150 EUR. They are: Great Britain, France, Belgium, the Netherlands, Ireland and Luxembourg.

However, according to Eurostat, the Romanians have the lowest purchasing power while Luxembourgers can buy most of their minimum wage. In Spain, the minimum monthly wage established by law is 748 euros and in the UK this amounts to about 1,202 euros.

Other Member States , where numerous Romanian currently work, such as Italy and Germany have no regulations on minimum monthly earnings .

Huge differences between countries in terms of current level of the minimum wage is a major obstacle to a hypothetical future jointly guaranteed minimum wage. The European Union requires Member States to adopt common rules on minimum wage or mandatory collective agreements. Minum wage in the economy is used as a tool for combating poverty

and social gaps, but also as an incentive to employment, being higher than unemployment or any other social allowance .

It will take at least five years before the average net wage in Romania will reach a level similar to that achieved in the countries of Central Europe in 2004, at the time of integration. At least this is what statistics and forecasts on the evolution of earnings show. Currently, the average monthly salary in Romania is 1751 lei, which would be the equivalent of 470 euros, according to the National Statistics Institute. In the European Union, Romania has the highest growth rate of gross wage. However, Romania still has much to achieve a decent level of this economic indicator reported in developed countries in the European Union.

Data on average hourly earnings and the cost of labor shows that currently, Romania levels of these indicators is quite similar to the data in some countries in Central Europe, 1996-1997. Thus, in Poland, in 1997, the labor cost was around 3.4 euro / hour, while in Hungary the level recorded was about 3.2 euro / hour.

On the other hand, taking into account the evolution of the average wage in our country, we can estimate the average hourly cost about 3.5 euros per person. This means that the price of labor in our country has reached a level similar to that of some countries in Central and West Europe in 1997. Furthermore, data published by the National Prognosis Commission show that in 2008, the GDP per capita was about $ 5,400 (4,000 euros), quite similar to that in Poland in 1999. Also, at that time, the average net salary was in the range of 300 euros. Similarly, in Romania, the average net wage was in September of 2012 about 340 euros.

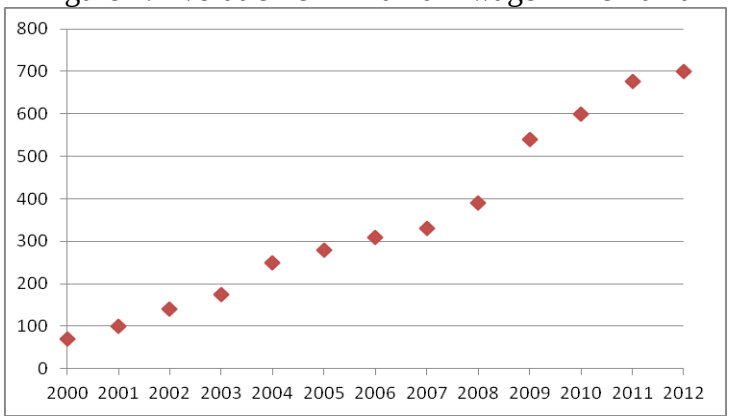
The average monthly wage in Germany reached 3,452 euros. This figure, pushed 12-month forward shows an excess of 195% of GDP per capita. Currently, France recorded an average salary of 2,440 euros, leading to an annual gain of 133% of GDP per capita. In the UK the average wage reaches 2,700 euros per month. In Austria, where GDP per capita exceeded 29.9% of salary, this is currently around 2,620 euros. Belgium has an average salary of around 2739 euros per month. In Spain, the average wage is 1,538 euros, so, unlike the other major western economies , this annual salary only goes up to 98.3% of GDP per capita. In Slovenia the average wage reaches 1,029 euros / month. The average monthly wage in the Czech Republic is 714 euros and the GDP per capita is 14 546 euros.

In Greece the average wage reaches 750 euros per month, while the average salary in Bulgaria was only 176 euros. In Hungary, the average salary is 646 euros, so that year a Hungarian employee received the equivalent of 61.5 % of GDP per capita, calculated at approximately 12 602 euro .

Croats are paid 82.7% of GDP per capita, at a monthly salary of 630 euros. Central and Eastern Europe has the poorest wage level. Although the new EU Member States achieving a higher growth rate of the old members , wage differences will be overcome soon. However, in the case of Romania, the period required to recover the gap will be even greater. Thus, based on current income situation and considering the evolution of wages and labor costs in Central European countries, we can say that in Romania it is possible that the net average wage to reach a level comparable to that of the Member States that joined the EU in 2004 (around 500 euros) only after 4-5 years.

In the past 12 years the minimum wage in Romania has undergone a considerable increase ranging from 70 lei in 2000 to 700 lei in 2012 (see figure 2).

Figure 2. Evolution of minumum wage in Romania



Source: www.insse.ro

In late October 2012 in Romania there were 4.3 million employees. Distribution of employees by the gross wages indicates that 5.0% of the employees who worked at least 23 days, full time, in October 2012 and were remunerated the minimum wage (700 lei) or less, 46.7 % of employees' gross salaries were between 701 and 1,500 lei, 32.1% between 1501 and 3000 lei, 11.0% achieved gross wages between 3001 and 5000 lei, while 5.2% had gross wages over 5000 lei.[74]

Distribution of employees by the gross wages shows a concentration in wages below 2,000 lei, both among women (70.1%) and men (65.4%). Gross average wage base in October 2012 was 1828 lei for employees who worked 23 days of full and average gross salary realized was 2052 lei. Compared to the previous year, the average gross wage base increased by 6.3% and average gross realized wages by 6.8%.

Gross salary in October 2012 compared to October 2011 showed moderate increases in most economic activities except hotels and restaurants (-4.7 %) and other service activities (-0.3 %). The most significant increase in economic sector (excluding the following activities: public administration, education , health and social) were in the activities of administrative services and support services (13.0%), mining and quarrying (10.8%).

Since June 2012 GEO 19/2012 approving measures to recover wage cuts were applied. Compared with the same period last year, in October 2012 all budget sector activities registered increases of both the base salary and the salary achieved as follows: 12.5% in public administration and 12,6%, in education 9.1% and 9.7%, in health and social care by 8.1 % and 10.3%.

Average gross salary includes besides basic salary and a variable part consists of bonuses and additions as a percentage of salary or as a fixed amount .

Analysis of the relationship between basic salary and salary on activities, shows that the largest bonuses and additions are included in the foloowing economic activities: mining and quarrying (35.5%), production and supply of electricity, gas, steam and air conditioning (28.3%), transport and storage (24.6%).

Average gross earnings of employees who worked at least 23 days full time was 2151 lei. Women earn on average 10.9 % less than men, making a gross average earning 2018 lei (versus 2266 men earned). Men are allocated higher average gross earnings than women in most economic activities, the largest differences being found in financial intermediation and

[74] Burghelea, C. (2011) "Economic Crisis perspective between current and forecast", *Theoretical and Applied Economics*, Vol. XVIII, No. 8, pp. 137-147.

insurance (38.1%), other services (33.5%) , manufacturing (30.8%), trade (23.4%), information and communication technology (16.0%), education (14.0%), health and social assistance (12.7%).

Distribution of average gross earnings by major groups of occupations shows that employees of one major group - members of the legislature, the executive, senior government leaders, managers and senior officials realized the greatest gains in all activities (4989 lei), with values between 2134 lei in hotels and restaurants and 9407 lei in financial intermediation and insurance. Lowest gross earnings are in the major groups of laborers and service workers (1092 lei and 1128 lei).

3. Conclusions

Unemployment is today one of the least embraced phenomena affecting the economy. Unemployment became a problem with industrial development, since the second half of the eighteenth century. In times of recession the industrial enterprises shrinking their production released a significant number of workers who became unemployed. Most often contemporary unemployment is addressed and analyzed as an imbalance of national labor market, as a place of encounter and confrontation between aggregate demand and aggregate supply of labor. The labor market does not function as a normal market both because of legal restraints (employers and unions) and the balance of forces between them. Contemporary labor market may find itself in the situation of balance or imbalance, ie underemployment or overemployment. Through social policies promoted by governments of all countries, the occupancy rate of the active population tends to get as close to full employment.

According to the opinions of various Romanian and foreign economists achieving a full occupancy is considered almost impossible, stating that satisfactory occupancy is 97-98 % and 2-3 % vacancy . Economic growth in conditions of high labor productivity is no longer able to create new jobs in order to ensure full employment .

Large imbalances manifest on the market segment of young labor force, which results not only in lack of jobs, but also in a professional training in conflict with the structure of labor market demand. There are also subjective reasons related to the retained behaviour of employers to recruit young people, either because of their lack of experience, either because of the fact that they do not fit in labor discipline. Economically there can be distinguished the negative consequences of unemployment nationally and at individual/family level.

The existence in romania of a long-term chronic unemployment, which generated employment crisis, will require active employment policies aimed at micro and macroeconomic objectives. The main actions, measures to promote active policies are: organizing training courses for those who come on the labor market and desire proper qualification and qualification of the unemployed consistent with occupational structure of employment, economic stimulation through economic and financial levers, the expansion of economic activity by providing incentives to encourage investment in the development and economic growth, the creation of new jobs. All these measures to decrease the unemployment rate will improve quality of life.

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Economic Analysis of Employment

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Abstract: *In social policy, a distinct field is the employment policies. Their aim is to maintain and increase employment through direct or indirect actions. These actions are intended to provide jobs for young people entering the labor market, for the unemployed and others who want to hire as employees. This paper aims to achieve a perspective on labor market and employment policies with its typologies, causes, effects, generated by these policies on the individuals and society. The employment impact on the population identifies and examines various indicators of the labor market.*

Keywords: labor market; labor resources; occupancy rate.

JEL Classification: E44; J11.

1. Introduction

In the employment of resources, occupational structures occupy a special place, these being analyzed in time and space. The link between quantitative demo-economic and qualitative aspects consists of the structures of employment, showing the efficiency of labor resources usage.

Over the decades, structural analysis of human resources has become increasingly broad and deep, with the development of demography, sociology of work and economics, using various criteria for grouping and regrouping of labor, the most common criteria being: social sectors - economic (primary, secondary, tertiary), qualifications, age, urban or rural environment, professional status.

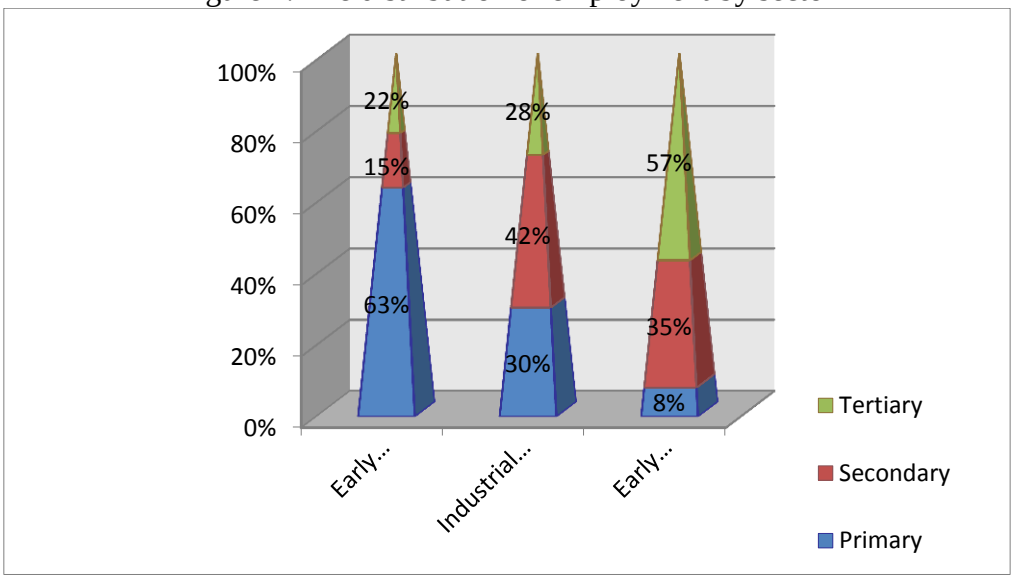
2. Atypical developments of employment resource analysis

We begin analyzing and exposing problems related developments specific atypical social sectors - economic presentation occupational structure of the employed population.

In the social – economic sector, we highlight the situation in Romania in relation to the global evolution of this phenomenon, based on the correlation between the distribution of employment in three sectors and three historical periods (early industrialization, industrial period and early postindustrial civilization). Over the three periods, worldwide, there has been a decline in the primary sector, in contrast to a sharp increase in people employed in the tertiary sector. During the industrial period, the secondary sector is growing, with the highest

proportion of the three sectors, as a result of industrial development while in the post industrial, services were to hold the largest share (see figure 1).

Figure 1. The distribution of employment by sector



Source: Dobrotă, N., Aceleanu, M., I. (2007) Employment of labor resources in Romania, Ecoomic Publishing House, Bucharest

Romania is part of the group of countries with low average income per capita. In these countries there has been an increase in employment in the industry even in the post-industrial period, which historically speaking is an atypical evolution.

In recent years, the service sector has grown in importance, both worldwide and in our country. The difference lies in the fact that in Romania services that require higher qualifications have not developed in favor of services that require low qualifications.

At the turn of the century, these types of restructurings presents notable features, as can be seen from the following table (see table 1).

Table 1. Population by sex, age groups and environment (million inhabitants)

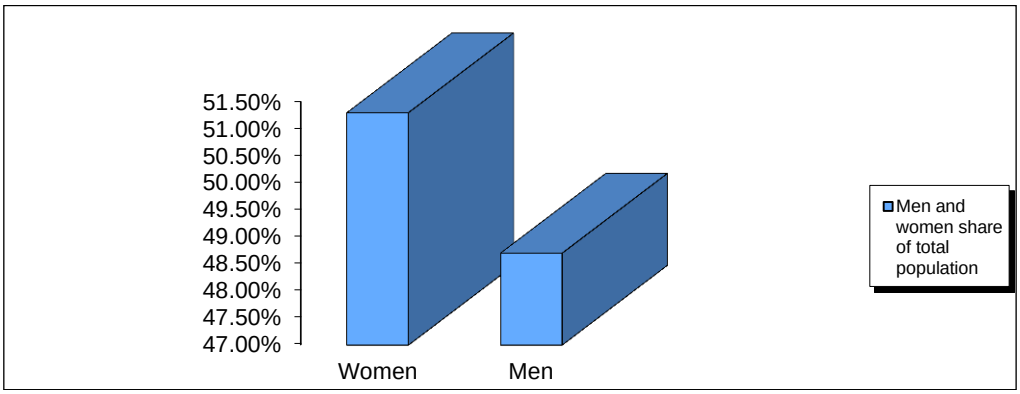
	2008	**2009**	**2010**	**2011**
By sex				
Male	10,5	10,5	10,4	10,4
Female	11,0	11,0	11,0	11,0
By age groups				
0-14 years old	3,3	3,2	3,2	3,2
15-59 years old	14,0	14,0	13,8	13,8
60 years old and older	4,2	4,3	4,4	4,4
By environment				
Urban	11,8	11,8	11,8	11,8
Rural	9,7	9,7	9,6	9,6
Total	21,5	21,5	21,4	21,4

Source: www.insse.ro

According to statistics, from 1 January 2011 Romania had a population of 21,413,815 inhabitants, of which 10.4 million men (48.7%) and 11.0 million women (51.3%). Between

2008 and 2011 negative values of natural increase combined with those of external migration caused the population to decrease with 114 800 people. Thus population bears the imprint of a specific population aging process, marked by declining birth rates, which reduced the absolute and relative young population (0-14 years), and the increasing proportion of elderly (60 years and over). Compared to January 1, 2008, in 2011 the share of young population (0-14 years) had been reduced from 15.2% to 15.1% while the share of the elderly (60 years and over) increased from 19.5% to 20.5%. Adult population (15-59 years) represent 64.4 % of total, down 266 thousand compared to 2008. In the adult population, the share of the age groups 30-34 years , 40-44 years , 55-59 years has grown, and that of the age group 15 - 19, 35-39 years , 45-49 years decreased (see Figure 2).

Figure 2. Share of men and women in total population



Source: personal processed data from www.insse.ro

The labor market in Romania has undergone significant changes in the process of economic transition regarding the volume and structure of the main indicators of labor. The process was characterized by reduction of the active population and employment while maintaining relatively constant values of the unemployment rate. The financial crisis onset, especially in the second half of 2008 had an effect on the structure of the workforce, bringing an increase in the phenomenon of unemployment at the same time with the diminuation of occupied population[75]. During the last half of the 90's, the active population is maintained at a high level (11 million people), the new millennium starting with a significant decline in the indicator. After 2002 the active population fluctuated around 10 million. Active population counts in 2011, 9.868 million, of which 96.1% are in the working age group (15-64 years).

In the period 2005-2008, increase of employment continues and since 2009 it began to decrease, reaching in 2011 the lowest recorded value (9.138 million people). Men represent 55% of employed persons. The majority of employment was from rural environment until 2002. Since 2003, most of the employed population resides in urban areas - 55.5% in 2011. Employment prevails among occupied population with a value of 67.3% in 2011 (see table 2).

In 2011, the number of unemployed was 730 000 people, which is 0.7% more than in 2010 and compared to 2009 is 7.3% more. Of the total number of unemployed existing in 2011 28.8% were young (15-24 years).

[75] Burghelea, C. (2011) "Economic Crisis perspective between current and forecast", *Theoretical and Applied Economics*, Vol. XVIII, No. 8, pp. 137-147.

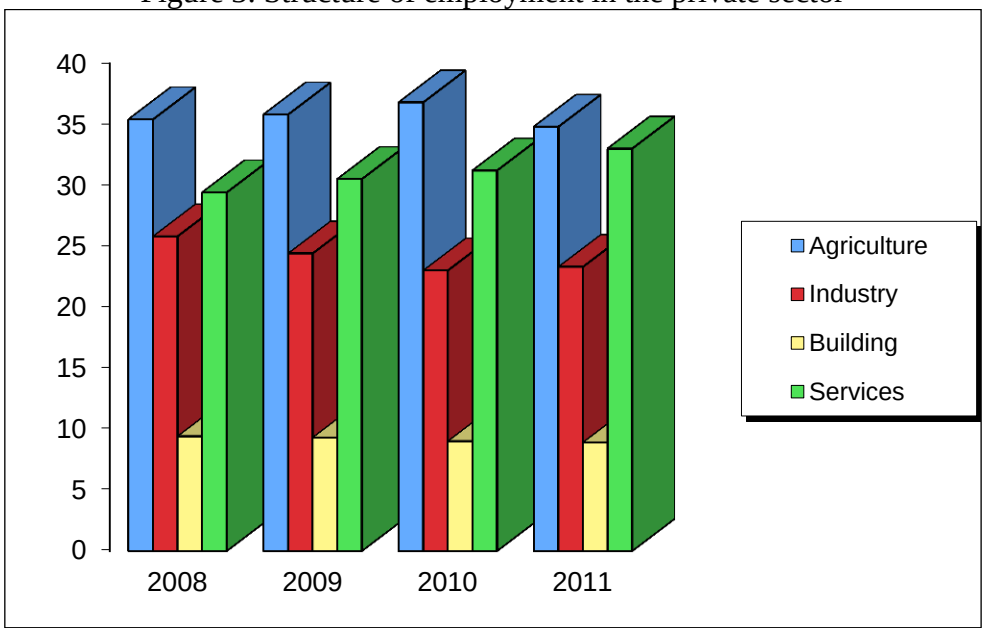
Table 2. Active population, occupied population and ILO unemployment (thousands)

	2008	2009	2010	2011
Total active population	9944	9924	9965	9868
Women	4418	4400	4416	4411
Urban	5471	5475	5538	5563
Total occupied poipulation	9369	9243	9240	9138
Women	4212	4143	4128	4112
Urban	5101	5032	5032	5072
Total unemployed	575	681	725	730
Women	206	257	288	299
Urban	370	443	506	491

Source: www.insse.ro

Structure of employed population is a representative indicator for the activity level of development of a country is widely used in international comparisons (see Figure 3). Proportion of population in agriculture, industry or services reflect a particular model of economic development, especially in the current conditions, when the global major structural changes occur.[76]

Figure 3. Structure of employment in the private sector



Source: personal processed data from www.insse.ro

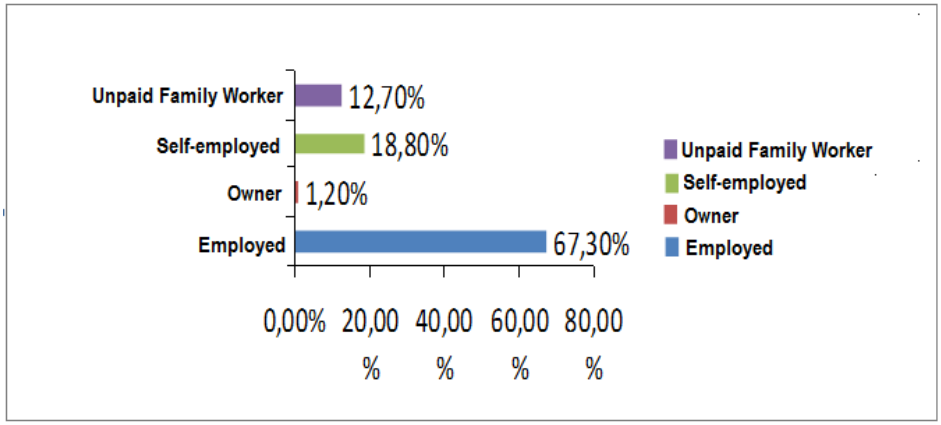
In the years of the analyzed period (2008-2011) the share of private sector employment remains around 80% . Of total employment in the private sector in 2011, 65.2%

[76] Gheorghiu, A., Gheorghiu, A., Spânulescu, I., (2009) "Target market risk evaluation", *Proceedings of the International Conference on Econophysics, New Economics & Complexity - ENEC-2009*, Editura Victor, Bucureşti, ISSN 2065-2550, p.113.

were active in industry, construction and services, compared to 63.2 % in 2010. Average number of employees in 2010 was 4.376.000, decreasing by 398.300 people compared to the previous year, which is a direct effect of the economic crisis triggered in the second half of 2008. The most pronounced decreases were recorded in the following activities: manufacturing, construction and trade. In 2011, the distribution of employees by economic sector shows that 61.8 % are in services (tertiary sector), up by 1.3 percentage points compared to 2009 and by 4.8 percentage points compared to 2008. 36.0% of all employees working in the secondary sector by 1.2 percentage points less than in 2009, and 4.9 percentage points less than in 2008. In agriculture (primary sector), the share of employees who have worked was only 2.2% , which is down 0.1 percentage points from the previous year and up 0.1 percentage points year 2008.

The transformation of the economic structure led to significant changes in the occupational structure of the population (see Fig. 4). There were job losses in the industry, which is partially offset by emerging jobs in services and industries. Conducting an analysis on the market was hampered by fewer jobs. This analysis is accompanied by an important activity in the economy, hybrid forms of formal and informal activities.[77]

Figure 4. Structure of employed population by employment status



Source: personal processed data from www.insse.ro

Activity rate and employment rate express participation of the nation in the labor force. These rates are influenced by the decrease in the active population and employment, which follows the slower decrease of the total population, the high share of employment in agriculture, the increasing number of those who go to work abroad, fewer employees, and changing the methodology of calculation of these indicators (see Table 3).

[77] Mărcuţă, L., Mărcuţă, A., Tindeche, C., (2013) "Analysis of Romanian GDP during crisis", *20th International Economic Conference - IECS 2013, Post Crisis Economy: Challenges and opportunities*, Sibiu, România.

Table 3. Activity rate and employment rate, by sex and area (%)

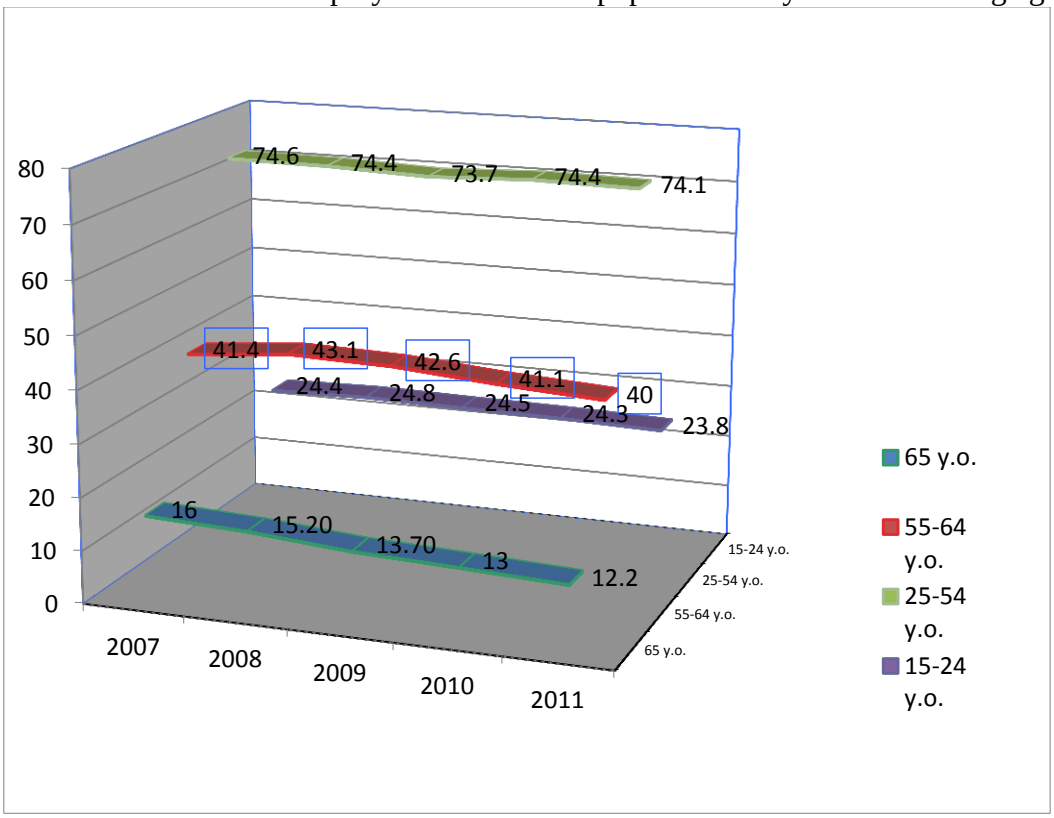
	2008	2009	2010	2011
Activity rate				
Male	70.6	70.9	71.5	70.7
Female	55.2	55.4	55.8	56.0
Urban	61.7	62.1	63.1	63.9
Rural	64.5	64.6	64.4	63.9
Total	62.9	63.1	63.6	63.3
Employment rate				
Male	65.7	65.2	65.7	65.0
Female	52.5	52.0	52.0	52.0
Urban	57.5	57.1	57.3	58.2
Rural	61.2	60.7	60.9	58.8
Total	59.0	58.6	58.8	58.5

Source: www.insse.ro

In 2011, the activity rate of the working age population (15-64 years) was 63.3%. It recorded higher levels for the male population (70.7% versus 56.0% for the female population) and in urban areas (63.9% compared to 62.6% in rural areas).

One of the indicators expressing the demand for labor in the labor market is the vacancy rate, which was 0.64% in 2011 (an increase of 0.05 percentage points from the previous year, and 1.42 percentage points compared to 2007, when the vacancy rate recorded the highest value) (see figure 5).

Figure 5. Evolution of the employment rate of the population 15 years and over age group



Source: personal processed data from www.insse.ro

Among graduates of higher education there has been the highest employment rate for people of working age (82.1%). As well as education level decreases, employment declines too. Thus, 62.3% of the average level of education are employed and only 40.5% of those with low education are. The increase over the previous year (92 000 persons), employees, still hold the largest share (67.3%) in total employment. Self-employed and unpaid family workers accounted for 31.5% of employment in 2011.

Skilled workers in agriculture, forestry and fishing accounted for 23.1 % of the total employed population distributed by occupations. The total employment had a significant share of skilled workers (15.6%), specialists in various fields (14.0%) and service sector workers (12.8%). Depending on the distribution of employment by activity data shows that 28.6% of total employment were concentrated in agriculture, industry and construction 28.8 % , and 42.6 % in services. 6.525 million individuals were employed in non-agricultural activities, with significant shares held by those operating in manufacturing (25.6%), trade (17.9%) and construction (10.4%). Compared to 2010, the number of people who work in agriculture, forestry and fishing significantly decreased (-167 000 persons), but also of those who worked in construction (-24,000 persons), energy production (-11 000 persons), mining, transport and storage (all down by ten thousands). The average length of the working week in 2011 for main activity was 39.2 hours per week, 227.000 persons carrying out secondary activities, thus working on average 14.8 hours per week. In 2011 from total employment, 956 000 persons worked part-time. (see Table 4).

Table 4. Activity and employment rate by age in 2011

Rates	**20-64 years old**	**15-24 years old**	**25-54 years old**	**55-64 years old**
Activity rate - 63%	67,8%	31,1%	79,1%	41,5%
Employment rate - 58,5%	62,8%	23,8%	74,1%	40,0%

Source: www.insse.ro

3. Economic future

An issue of utmost importance for the future of any nation is the structure of the economically active population and demographic situation even before the technological level and quality of products, technical-productive capital and financial resources necessary for economic development.

Since 1912, population evolution was possible based on the information available when the Romanian population was 12,768,399 people. Modern sense of the theory of demographic transition is important for analyzing the evolution of the population of Romania. This theory was created in the last half of the twentieth century and reflects the evolution of the Earth's population in the last 250 years. Since the eighteenth century, the demographic transition is an evolutionary process that has been observed in a number of populations, is characterized by a significant decline in mortality and birth rates. Demographic transition has become a more complex process in this view, becoming an integral part of the modernization of society.

Unlike the Nordic countries and Western Europe, Romania entered the demographic transition later, this gap is due to the sustainable economic, social and political delayed compared to Western Europe.

Between 1930-1940, Romania’s population showed an increasing trend. As a result of the low birth rate and human losses caused by the war, during 1940-1946, the population decreased. Our country has recorded the highest population growth rate between 1966-1977 as a result of measures to ban abortion, natural increases being in 1966 - 1978 about 3 times

higher than in the years 1964-1966. Another atypical evolution of the Romanian population is marked by the period 1979-1991, which recorded an increase of about 1.3 million people. Changing the evolution of the population was marked by the start of the transition to a competitive market economy. Dynamics of Romanian population showed a continuous upward trend during 1950-1991, and since 1992, it was characterized by a downward trend . Following the accelerated decline of the birth rate and the increasing trend of mortality during 1992-1998 has seen a decline in their population , and adding to this negative balance of external migration. Since 1992 , Romania's population declined steadily from 22.800.035 people to 21,733,556 people in 2003, reaching 21,584,356 in 2006 and 21,413,815 inhabitants in 2011. This decline was due mostly negative natural growth of the population, due to result of lower fertility and low birth rate per 1,000 inhabitants .

According to all estimates on the evolution of the Romanian population, it is decreasing and it will to decline in the future until at least 2050. Forecasts to 2050 show that for 100 active citizens there will be 149 inactive, and the population over 65 will exceed 5 million, from 3 million, as it is today. Increasingly stronger decrease of young population aged 3-20 years will have a significant impact, reducing by 2050 from 5 million to 2.7 million people (see Table 5).

Table 5. Population decrease between 2011-2050

Country	Population (thousands people) 2011	Population (thousands people) 2050	Absolute decrease
Romania	21.390	18.678	2.712
Armenia	3.100	2.943	157
Bulgaria	7.476	4.651	2.825
Germany	81.726	73.607	8.119
Austria	8.419	7.521	8.98
Russia	141.930	115.113	26.817
Spain	46.235	35.564	10.671
Japan	127.817	99.887	27.930
Italy	60.770	50.390	10.380
Hungary	45.706	8.375	37.331
Greece	11.304	10.036	1.268
Belgium	11.008	9.067	1.941
Poland	38.216	33.780	4.436

Source: Dobrotă, N., Aceleanu, M., I. (2007) *Ocuparea resurselor de muncă în România*, Economic Publishing House, Bucharest

Demographic evolution in Romania have an atypical character that can be materialized: the population trending downward on the background of robust growth all over the world, change the direction of development since 1991 and this downward trend continued to 2050, the larger intensity of population reduction from all countries in depopulation process, large differences between the rates of decline after 1991, compared with growth in the years 1968-1990.

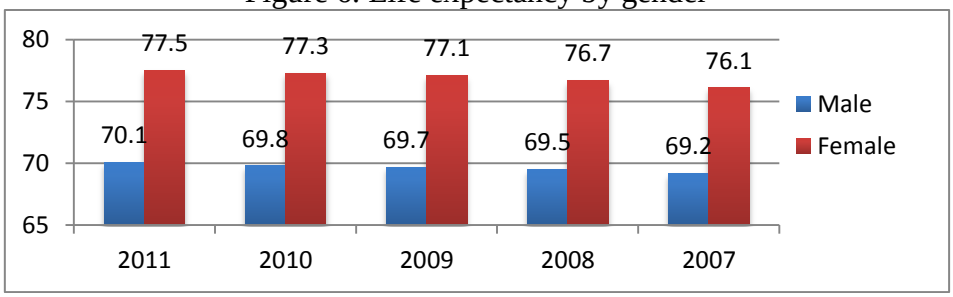
This trend of population decline was recorded in most European countries, which, together with the migration (to attract labor from other countries) will affect Romania as highly developed countries (especially from the Northern Europe) have programs attracting young labor from other countries to solve the problem of depopulation in their case.

The starting point in the design and development of strategies and policies aimed at labor market is represented by the evolution of the Romanian population, whereas the effects on labor resources, on labor supply, are major.

The first component of population movement is birth rate, which recorded a decrease, altough in the short and medium term mortality can not contribute significantly to reducing demographic decline in Romania. The only component that can be acted on with effective results remains birth. This can have positive and long lasting. The number of live births (196,200), registered January 1, 2011, decreased by 25.700 compared to 2008.

The second component of population movement is mortality, which remained relatively high in Romania. In light of the demographic should be considered signifiant continued growth of the level of this component. On 1 January 2011, there were 251 400 deaths, by 1800 more people than in 2008. In the same year there were 1900 deaths of children under one year. Both urban and rural, lower infant mortality was mainly due to the reduction postneonatal mortality (see Figure 6).

Figure 6. Life expectancy by gender



Source: personal processed data from www.insse.ro

The actual values of life expectancy continued to rise (70.1 years for men and 77.5 years for women), being higher than in 2008, both overall and by gender. Life expectancy increased by 0.8 or 0.6 years, both for the female population and for the male. Compared with men, women have a higher average life of 7.4 years. However, the literature speaks more about the quality of life, so about increasing the length of quality life, which includes many other economic and social issues to be taken into consideration.

4. Conclusions

Employment policy is part of the social policy of a country, with pension and social insurance, social assistance and family policies, labor relations, safety and health, health insurance policies in the sphere of housing and housing policies in education, social policies probation / social reintegration of persons delinquent and other social policies.

The future strategy and employment policies should start by fixing some fundamental objectives: revival of economic growth by creating new productive units and thereby new jobs, especially in key sectors of the economy, growth in a higher pace, jobs in research, innovation and education, along with greater attention to staff in these sectors (wages, basic material conditions documentation, relations with other countries, etc.). stimulating technological progress businesses by bringing them to the (or at least near) the competitiveness of other countries and making some serious changes in working conditions and labor system so as to generate sustainable motivation to bidders to occupy available jobs.

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Systhesis of the PhD Thesis
„New Dimensions of Cost Type Information for Decision-Making in the Wine Industry"

Dan TOPOR

Introduction.

The acceleration of the globalization process, the economical and financial crisis, the speed of the technological development, the companies' partnerships and mergers, the disappearance of the organization borders or the development of digital economy are just a few of the main causes which imposed the transformation of managerial accounting in order to adapt the techniques and its specific methods to the new information demands of the entity and company management.

Managerial accounting started from the simple equation of the production cost and it evolved subsequently in the direction of offering answers to the managers regarding the ways to reduce costs, their standardization or budget control. 1987 represents an important point in the evolution of managerial accounting as it is the moment when the lack of relevance of the information offered by the traditional methods used up to that moment was identified compared to the new information demands of the managers. This was the moment which triggered new orientations of managerial accounting (the ABC method, Balanced Scorecard etc.) and from which the transformation of the functions of managerial accounting started, with an emphasis on the way it can contribute to the administration of performance or to the creation and administration of the added value.

According to studies, the innovations in the area of managerial accounting come from the practical area, but are relatively rare and their dissemination is very slow.

As an answer to the critics brought to the traditional systems of managerial control and measurement and administration of performance, the end of the XX century is marked by the appearance of some new, innovative systems of managerial accounting, like: the method of total quality Management (TQM), the JIT method, the method of Activity Based Costs (ABC), the method of Activity Based Management (ABM), the method of the added economical value or the method Balanced Scorecard (BSC). Among these, practice has emphasized the BSC method as the most significant contribution of the contemporary period due to the consistency of the information offered. There are more uses that can be attributed to the BSC method: a planning instrument, a measurement system (which transforms the mission and the strategy into measuring objectives), a system for the administration of performance or an evaluation basis of the personnel's performance. As for the application of the method, there are two versions with different ways to implement and benefits: the method can be used as an instrument of managerial accounting[1] with the aim to help the management monitor and control the way in which the activities run or as an instrument of strategic control[2] with the aim to support the management in monitoring the performance resulted from the implementation of strategic plans. Also, the method has been adopted by a very large number of companies worldwide. Also, the Japanese models (TQM, JIT) had a relevant importance regarding efficiency which, no matter the geographical location of the entities who adopted them contributed significantly to the growth of efficiency and productivity[3].

The purpose of the present paper was the research from a theoretical and practical perspective of the ways through which the cost-type information contributes to the achievement of a management of performance, in the context of a troublesome relation

between the managerial accounting and the information system meant to ensure the improvement of taking decisions inside economical entities from the wine industry.

The starting point of this *scientific approach* was the analysis of the possibility to improve the activity of administration of costs in the wine sector by identifying a modern method to calculate costs and some instruments of administration of performances. The development of a new mentality on the position the managers from the wine sector adopt regarding the calculation of costs must be identified as quickly as possible, especially in the current state of the national economy. This mentality must be adapted step by step to the urge of mastering costs, forecast and their reduction.

The object of the research is to improve the managerial accounting system in the wine-viticulture field by implementing the Activity-Based Costing method in order to reduce production costs, collect the results obtained and adapt a system to administer performances by building a balanced control panel (Balanced Scorecard). In order to achieve this goal the following general objectives were identified:

O_1 : analysis of the current state of managerial accounting and emphasizing its evolution from the simple calculation of costs to the management of performance as well as emphasizing the importance of the cost-type information in assisting managerial decisions;

O_2 : synthesizing the main directions in the strategic approach of costs and in the strategic managerial accounting;

O_3 : demonstrating the ways to integrate some strategic methods of managerial accounting in the accounting system used by an entity belonging to the wine industry;

O_4 : analysis of the wine industry in Romania according to some Maths and Econometric models in order to identify correlations which can influence the way in which performance can be administered at the level of entities belonging to the same industry.

Designing a model which should integrate the activities, the costs associated to them and the strategic objectives of the organization shall contribute significantly to the achievement of the strategy to grow the performance by giving information on the strategic impact of activities, the concrete ways to administer operational costs, allotting resources or making processes efficient. Another use of such kind of model is obtaining useful information in redefining strategic objectives, identifying changes which come up in the strategic environment by analyzing the dynamics of the resource consumption or which should validate the options chosen in order to achieve the general strategy.

In order to achieve the objectives mentioned above, a series of *research methods* have been used, such as: documenting, analysis and synthesis of information, generalization, induction, deduction, comparative analysis, analogy, Maths and Econometric models, case study.

The reason for choosing the research theme

The continuous evolution of managerial accounting in the direction of improving the methods of administration of performance and identifying some new dimensions of the cost-type information for the decision process was the premise for choosing the theme of the current paper, the aim of which was to identify and analyze the possibilities of exploitation of cost-type information in the decision process in the wine industry by applying some integrated methods belonging to the strategic managerial accounting.

Due to the particular complexity of managerial accounting, we consider that the theme "*New dimensions of the cost-type information for the decision process in wine industry*" is very *up to date* and its approach needs an intense and sustained work of research and documenting.

This scientific approach proposed to adapt and implement a modern method to calculate costs and a modern instrument to administer performances inside an economic entity

from the wine sector in Romania. The elements at the basis of the answers offered by the challenges of this scientific approach are based on the following motivations:

-the need to know and learn more about the particularities that the organization of managerial accounting has in the wine-viticulture sector;

-the need to reach a personal achievement by reaching a professional achievement;

-forming personal and expert opinions and ideas following the PhD research made;

-the need for social recognition fulfilled in the ambition to produce results;

-solving some practical calculation problems of costs from the wine sector and offering alternative analysis and forecast solutions.

This paper called "*New dimensions of the cost-type information for the decision process in wine industry*" proposes to bring a significant contribution to the wine sector in Romania by approaching a modern calculation method (ABC) and with favorable influences on the administration of costs but also a monitoring and performance measuring instrument such as Balanced Scorecard. The complexity of this theme has major macroeconomic and microeconomic implications. The paper made concentrates on accounting calculation aspects, but also on financial and non-financial aspects. The need for this scientific approach resulted from the need to improve the existing calculation system of costs in this sector (method on phases), by applying a modern method to calculate costs and by introducing an adequate instrument to survey and administer performance in order to obtain by the entities' management who activate in the wine sector some operation information regarding production costs.

In the PhD research activity two directions have been taken into account: *a concept one*, through the added value brought to the knowledge of the strategic managerial accounting field and how it is organized in Romania inside the entities from the wine sector and *an applicative one*, through the need to improve the problems analyzed and to propose modern solutions of calculation, survey, control, forecast of production costs in the wine sector as well as monitoring and measurement of their performances.

The scientific research made contributed to the approach of deepening and perfection knowledge by emphasizing two aspects: *retrospectively*, by contributing to the establishment of some relation models among the factors which characterize a certain phenomenon, clarifying the causality relations among these factors and *prospectively*, by opening new horizons of knowledge in the researched field.

The paper "*New dimensions of the cost-type information for the decision process in wine industry*" proposes to contribute to the identification of some important concepts in the field of strategic managerial accounting and to analyze to what extent the managers of the economic entities from the wine sector use this instrument of administration to satisfy their information needs and to orient their decisions. In the preparation of this paper the importance of using the ABC method was emphasized, which was presented as an efficient alternative in determining production costs, maintaining the competition position and analyzing performances together with the equipped control panel (Balanced Scorecard), to the detriment of the method of calculating costs by phases, applied by certain economical agents who activate in the wine sector.

The research made concentrates on the case study built upon applying the ABC method and all the ideas are targeted towards adapting this method to the specificity of activity of the agents from the wine sector, being able to offer to the managers new cost-type information and possibilities to quantify and survey performance.

The scientific approach made was centered on the idea of identifying some direction lines which should be at the basis of a strategic managerial accounting scientific system, which should be part of the management process from the wine sector. Among these direction lines there are:

-the control of the current activities of an entity;
-creation of the activities necessary to create customer oriented value;
-planning future strategies and activities;
-ensuring the optimal use of resources;
-monitoring, measurement and evaluation of the entity's performances;
-improvement of the internal and external communication process.

Following the analysis of the current situation from the wine sector and the identification of a serious need to improve the calculation system and to survey production costs, we have concentrated our efforts on designing a new approach in this field. Therefore, the added value is emphasized both conceptually and applicative by using by all categories of users the information generated by this approach. This research had as a result, besides the survey itself many articles published in famous magazines, surveys and chapters in books published in famous publishing houses in the country, participations at internal and international scientific reunions.

The beneficiaries of this research are both the managers of the entities from the wine sector and external users of the information, like: the academic and research environment, institutions and regulators, partners and practitioners, the society through its assessment bodies of the economic phenomena.

The estate of knowledge in the field

Accounting is the main source of obtaining the information necessary for the management of an entity, being also the main leading instrument. Most of the information regarding the allotment and expense of the entity's resources is given by managerial accounting. The place of managerial accounting in the information structure of an entity is given by its quality to offer a clear image on the internal processes which run under the competent management of the leading bodies.

Inside the economic entities from the wine sector, knowing the costs is essential to establish the sales prices according to the market demands and the achievement of the forecast profit margin. Calculating the production costs is an important assisting instrument in adopting a decision. Practically, the value of a decision depends on the nature and quality of the costs taken into consideration. Any modification of costs reflects directly in the performances of the economical entities. With the help of a control on the costs, the entities from the wine sector can survey and analyze the whole activity run and they can identify the ways to reduce costs and to increase performances.

Studying the ways through which managerial accounting fulfills its qualities and supports the decision processes at the level of the entities from the wine sector in Romania had as a result the identification of the following situation: on one hand, where managerial accounting is organized traditional calculation methods are applied, like the method of calculation on phases and on the other hand, there is an average real interest of these entities regarding the organization of managerial accounting and the use of analytical data to analyze the consumption of resources, the potential and the place of the entity when facing different competitors in the sector (comparative analysis or benchmarking).

The situations mentioned above were due to the ignorance of a mandatory organization of managerial accounting for a long period of time, although the legislation in the field stated this. That is why, we consider that the change of mentality on adopting and implementing in managerial accounting some modern calculation methods of costs and measuring performances would be the best solution for which we pledge in this paper.

The exhaustive consultation of the literature in the field led us to the conclusion that for the industry from the wine sector in Romania there is a managerial accounting system adapted to the current conditions of this sector, but insufficient compared to the demands of

determining costs and informing managers. In the first part of this scientific approach we used a significant reference bibliography, we formulated the main theoretical aspects related to the organization concept frame of managerial accounting but also of calculating costs and in the second part we debated on the organization frame of strategic managerial accounting and the proposals to implement a modern method to calculate costs and to use an instrument of measuring the performances of economical entities. The calculation method Activity-Based Costing was chosen according to the specificity of the activity of entities from the wine sector. The current gap between the evolution of managerial accounting and the evolution of production technologies from the wine sector explains the need of a more pertinent calculation model of costs, adapted to the specificity presented by this sector.

Starting from the arguments made we also considered it useful to recommend the use in the managerial process of some instruments of analysis and measurement, administration of performances. The efficient organization of the economic activity run inside the entities from the Romanian wine sector also imposes the improvement of its leading methods, which implies the adoption or reconsideration of calculation methods of costs capable to make a division of this activity and to generate adequate information to the management regarding how to obtain results, but also adopting new instruments of analysis.

The synthesis of the main parts of the PhD thesis

The first chapter, *Managerial accounting-from the calculation of costs to the management of performance* presents a short overview of its evolution up to present, but also some future tendencies. The four big phases in the evolution of managerial accounting are described as follows: the beginning period 1820-1880 of the industrial accounting; the maturity period of managerial accounting 1880-1950; the period 1950-1980 with the appearance and development of the administration control, as an instrument necessary for managerial accounting and at the same time it is the period of conceptualization of practices in this field; the period 1980-present, a period of revival, dominated by the appearance of some new methods which use the ABC method, the Target-Costing method, the balanced scorecard method (the BSC method), the method of allotting costs on the life cycle (LCC) and the strategic managerial accounting (SMA). The last phase of the evolution of managerial accounting is dominated by the concept of strategic managerial accounting, a concept introduced at the end of the ‘80s and which developed in different areas which imply a large spectrum of interrelated disciplines, like: the management of performance, the management of the assets, the management of the environment, the financial management, the management of intellectual capital, the information management, the quality management and the strategic management.

Also, the cost-type information is described and its role in assisting managerial decisions, explaining especially the troublesome relation between managerial accounting and the information system to improve taking decisions inside economical entities. The author presents different categories of costs met in the decision process and he describes them through the criteria from national and international expert literature, with a special relevance in synthesizing and identifying those optimal costs which can be administered correctly at an internal level. The cost-type information the management needs in exercising the functions it possesses needs most of the time predictions on its future behavior, which implies using some Maths models, like the cost function. The need to model a cost function resulted from the need for information to elaborate decisions on the quantity of products which is going to be produced, establishing production costs or determining a metrics of performance. The author presents different strategies and methods to optimize costs (analysis of the value chain, analysis of the techniques to determine the cost drivers) as well as their impact on the costs of

the products analyzed. The problem of the cost optimization is treated only from a managerial point of view, but modeling Maths instruments have also been used.

Practices of managerial accounting at a national and European level are presented, based on the traditional systems of calculation of costs (the method of costs on process, the method of costs on orders, the method of costs on batches, the method of costs on contract) with their advantages and disadvantages by applying them to different industrial branches.

The documentary studies made by the author led to the identification of the factors which generate the transformation of managerial accounting, that is: motivating factors (the organization structure, the production technology, the market competitiveness), catalysis factors (low financial performance, loss of a market share, organization change), facilitating factors (human resource, degree of autonomy, legal regulations), organization factors, financial factors, motivational factors and managerial instruments. The author presents and analyzes new methods of managerial accounting, like: ABC, Target Costing, added economical Value, the management of the supplier chain, Shareholder Value Management, Total Quality Management, Just-in-Time, Balanced Scorecard.

The chapter ends by underlining the complex role of managerial accounting in measuring the performances of economical entities and with some preliminary conclusions on the administration of costs, which must be analyzed and integrated to the strategic objectives of the entities and it must target simultaneously not only aspects belonging to costs, but also aspects which target relations and the way costs influence other economical sizes like revenues, profit or prices.

The second chapter called *Theoretical considerations on the strategic administration of costs and strategic managerial accounting* underlines the importance of strategic managerial accounting as a managerial instrument of measuring the performances of the economical units. In analyzing the concepts of strategic administration of costs and strategic managerial accounting, the author makes a clarification of the concepts of strategy and strategic management. A comparative analysis which emphasizes the difference between the traditional administration of costs and the strategic administration of costs is emphasized by the author. Its achievement led to determining the management of costs from a conceptual and component point of view compared to administration accounting or managerial accounting. By using some instruments specific to the strategic administration of costs (analysis of cost drivers and analysis of the value chain), the entities can understand the causes of the appearance of costs, which contributes to a rethinking of the administration of revenues, reduction of costs and increase of productivity.

As it developed from managerial accounting, strategic managerial accounting has as a central element the cost-type information, which it integrates though in the business strategic management, which is a continuous cycling process. After the conceptual presentation of the notion of strategic managerial accounting, the author presents through its running phases certain differences between it and managerial accounting, but also its emerging which results from the notion mixture of analysis of value chain, analysis of strategic position and analysis of cost drivers. In this context, managerial accounting is essential and it must be based upon advanced methods like the method of target costs, value engineering, the method of Kaizen costs, the JIT method, the ABC method, the Balanced Scorecard method, etc. or on models which integrate the information offered by these methods.

One of the instruments specific to strategic managerial accounting is Balanced Scorecard (the balanced control panel). The author presents different conceptual approaches of the BSC notion, but also its evolution from origin to present. The administration of the Scorecard performance emphasizes its four dimensions through its own system of indices. The analysis of the method allows to identify three main functions: measuring performances (through financial and non-financial indices), supplying a system of strategic management

and communication made by "translating" the vision and the organization strategy at a level of measurable objectives by all categories of employees and for which there are well defined channels of transmission.

Based on diagrams, the author exemplifies the steps to implement the BSC method and concludes that the success of implementing the BSC method depends on the relevance and quality of the indices used. The indices specific to the method refer both to the measurement of the output, which are results of some past actions and to sizes which offer a prediction on future performances. The use of non-financial indices is associated significantly to strategies oriented towards innovation, adopting strategic initiatives related to quality, the duration of the development phase of products, regulations at an industry level or the level of financial risk. The advantages this method offers are at the basis of choosing it as an instrument to monitor and measure the performances of modern economical entities, which connected to modern methods of calculation and administration of costs like the ABC method lead to ensuring performances in the short run.

According to a comparative chronological analysis of the innovative methods of strategic managerial accounting (TQM, JIT, BPR, BSC, ABC), the author concludes that the ABC method is the method which in direct connection to BSC helps to clearly emphasize the performances of an economical entity and can also ensure a successful implementation inside the economical entities from the wine sector in Romania. As for the instruments specific to strategic managerial accounting, most of the times they are new applications derived from the existing instruments and used by entities and not completely new methods especially designed.

In the third chapter, *Present and perspectives in the wine-viticulture industry* the recent evolution in the wine-viticulture industry was presented, analyzed and graphically illustrated worldwide, European and national, as for the surface occupied by grape-vine (between 2007-2012), the wine production (between 1998-2012) and the wine consumption (between 1998-2012). The author also presents a top of the main wine producers worldwide. An interesting analysis is made on the production, wine offer and demand at the level UE-27 during 2011-2013 with an emphasis on countries like: France, Italy and Spain.

After presenting the eight important viticulture regions in Romania (*the Plateau of Transylvania, the hills of Moldova, the hills of Muntenia and Oltenia, the Banat area, the hills of Crişana and Maramureş, the hills of Dobrogea, the Danube's terraces, the sands and other favorable lands in the south of the country*), the author makes a thorough analysis on the evolution of the production and consumption of inland wine products. After 1990, the vineyards owned by the state run through a major privatization and/or restructuring process. The process mostly ended only in 2001 when approximately 180000 thousand hectares were returned to their rightful owners in small plots, of up to a hectare. In this context, big producers had the opportunity to buy the vineyards thus divided and to maintain the industry afloat. After Romania joined the European Union in 2007, the big producers could access and benefit from pre-joining investments in the wine-viticulture sector like equipment, consolidation of vineyards and replanting, which ensured the revival of the Romanian wine-viticulture. The author analyzes and illustrates from abundance the evolution of grape-bearing vine surfaces (according to types of ownership) and on the main viticulture regions of Romania, the grape production and the average production to hectare (between 2006-2011), the wine production in Romania (between 2000-2012) but also the wine and wine products consumption in Romania (liters/per capita), according to the data supplied by the INS.

Starting from the observations with an evolutionary character from Romania analyzed by the author, the need to adopt some solid regulations imposed, which ensure the legislation frame necessary for the development of a high-performance and durable viticulture. In this regard, the author identified several strategic objectives for the development of the wine

industry. In order to characterize the wine industry in Romania an econometric analysis was used. In order to build an econometric model meant to analyze the potential links which exist among different variables specific to the wine production, public data corresponding to the period 2000-2012 was used, taken from the global statistics made by the International Wine Organization (OIV), but also from the national statistics published by the National Institute of Statistics (INS).

At the end of the chapter the author expressed some appreciation regarding the future of the Romanian wine industry and the conclusions target the wine producers in Romania. Thus, in order to revive the national wine consumption, the wine producers developed real attractions by creating the so called "roads of the wine" meant to increase the consumers' appetite for quality wine. Besides the retail chains, Romanian producers began to build their own networks of stores, which allow them to adapt rapidly to the challenges of the pretty unstable economic environment. The success of this approach needs to establish the role and implications of the intrinsic and extrinsic factors at the basis of preferences, perception and consumption behavior, and subsequently the implementation in the practical activity of all this information.

Chapter four *Applying the methods of managerial accounting in the planning control activity and prices in wine industry* underlines the importance of improvement of managerial accounting and calculation of costs in the wine industry from Romania. Thus, the author starts with describing the technological process of obtaining wine (the main phases of the technological process to obtain white and red wine) according to the technical data supplied by S.C. Jidvei S.R.L. After making a short history of this company, of the range used and its evolution from a financial point of view, the author makes a critical analysis of the managerial accounting system and the calculation of costs. The principles of organization of administration accounting and the calculation of costs, the classification criteria of costs and the method of organization of administration accounting currently used, that is Standard-Cost have been taken into account. Considering these facts, the author proposes a way to improve the calculation of costs and to obtain performances in the wine industry by the integrated application of the ABC and Balanced Scorecard methods at S.C. Jidvei S.R.L. On the basis of applying the methodology to implement the two methods mentioned above through the applicative case study correctly elaborated, the author manages to highlight the clear advantages of guaranteeing a success in these directions. Thus, the author identifies the main activities, allots the expenses on activities also on the products based on the cost drivers correctly identified and determines the production cost ensuring reliable information to the management of the economical entity. The chapter ends with the analysis of the performances of S.C. Jidvei S.R.L. based on the implementation of the advanced methods of managerial accounting mentioned previously (ABC and Balanced Scorecard) and on the formulation of a preliminary conclusion which highlights the advantages offered by the two methods, but also some difficulties which might result from their incorrect application.

Our scientific approach ends with the last chapter *General conclusions. The perspectives of the research* by making some general conclusions of the research made, stating the limits of the research and mentioning the future research perspectives.

After having made the case study, respectively designing the integrated implementation of the ABC and BS methods, a series of conclusions for the different dimensions or phases run resulted. Thus, in the implementation of the ABC method there is a series of activities prior to the effective implementation of the method, which must be given a special importance as they influence directly the success of its implementation and the achievement of the objectives set, like: making up the implementation team, defining the form of the system of the ABC method, permanent training both of the members of the implementation team and of the personnel, continuous gathering of information, creating a

general model of the method or permanent revision of performances. In order to reflect correctly the company personnel's vision in the design and implementation of the method, it is necessary to form a team of representatives of the production, accounting, sales, IT and research-development departments, who know very well and thoroughly all the operations run in their departments as well as personal qualities which facilitate a good communication of the results they get to the other employees as well as the transfer of knowledge. A series of important decisions must be also elaborated in the design phase of the model, when it is important to establish if it is an independent system or it is integrated in the existing managerial accounting system, the degree of precision or detail of the activities, how to make the reports and its complexity. Regarding the training of the parties involved in the implementation process of the ABC system, three levels of personnel must be targeted: the management personnel, the implementation team and the users of the system, who must be offered different training according to the specific needs they have.

Probably the most important phase in the modeling phase of the ABC system is gathering information on the needs of the system users (what are the key decisions they must take and what is the frequency of this activity or what other additional information on costs they need to take decisions), which must be very detailed, through direct discussions made among a member of the implementation team and each user as well as by filling in questionnaires.

Another very important element is to create the model of the ABC method, respectively to identify resources, their drivers, the activity centers, the cost drivers as well as the cost elements and the objectives specific to costs. The activity of transposing the operations and processes run inside an entity is complex and needs time to analyze information and to identify the essential one (as we mentioned previously, the degree of detail activities is an important factor in the implementation of the ABC method – too many details can consume too many resources compared to the results offered, just like too few details may not offer relevant information to the process of elaborating decisions). But the most important step in designing the model is to identify resources and cost drivers which must be chosen in such a way as to reflect a cause-effect relation. A correct identification of them allows subsequently a simple allotment of resources on activities and subsequently of the activities on products.

Another conclusion resulted after having made the case study refers to the factors which influence directly the success of the implementation of the ABC method: the support offered by the managers from the higher scale of the entity, the resources allotted, the expert knowledge of the people who implement to which we add the personnel's training as well as the existence of some clear connections between the assessment of performances and the personnel's motivation or reward. As for the resources allotted, which represent an important factor, the success of the implementation of the method depends on the time and involvement of the personnel from the accounting department, the financial resources available to buy specific information programs or the development of some programs for the needs of the entity and the financial resources available for the use of the external consultants.

One of the main information offered by the ABC method refers to the identification of activities with the biggest costs, the decisions which are going to be elaborated referring to the determination of the cause of producing these costs, which can refer to a lack of efficiency or effectiveness.

As the information offered by the ABC method doesn't refer to actions or decisions which contribute to the increase of profit or of operational performance, the decision factors must initiate a continuous changing process at an organization level that they implement in order to obtain benefits from the information offered by the ABC method[1].

A special attention must be given to the way in which the information obtained after applying the ABC method is used, as there is the risk of obtaining a global result under the optimal limit wanted (the optimization of each system component can generate an unsatisfactory global result, as a reduction of the costs of some activities can generate the growth of costs of other activities).

When it comes to the link between the ABC and ABM methods, the ABC method must be regarded as a useful instrument in determining the cost of some activities as well as their output, but which is not enough when it is used in the absence of using the ABM method and when the administration of performance and the identification of the ways to improve it are targeted. The ABM method can be regarded as a philosophy which targets the planning, quantification of activities and the identification of some ways to increase performance and which is based on the information offered by the ABC method. The main benefit the ABM method gets from using the information generated by the application of the ABC method refers to the identification of the most adequate ways to eliminate the activities which do not bring added value to the entity or to reduce them, the final result being the growth of performance.

An important problem in implementing the two methods refers to the possibility that according to the information obtained, the managers elaborate decisions which target strictly the operational area of the activity, ignoring customer's satisfaction or reducing the activity flexibility and its potential to adapt to the changes from the market.

The cost of subtask is one of the important aspects treated by the ABM method, which doesn't allow their allocation on products, but their separate treatment. Thus, the unit cost of the product is not influenced by the production volume, but an increase of the production volume will generate a decrease of the costs of subtasks associated to each activity. Therefore, we can underline a benefit of the ABM method resulted from the identification of the cost of the subtask, which can be thus more efficiently administered.

Synthetically, the main difficulties encountered in the design of an integrated system of managerial accounting based on the ABC and BS methods were generated by:

-defining the cost drivers and obtaining enough and relevant data on them;

-obtaining information on time, which allows to monitor the changes appeared following the application of the methods;

-delays in applying the methods generated by giving a higher priority to other activities in which the organization personnel was involved;

-collecting data on the activities run and how they contribute to obtaining added value from employees;

-orienting the system objectives in the long run, which can generate irrelevant data for short term decisions.

Also, the benefits obtained through the integrated implementation of these methods can be synthesized as follows:

-there is a clear definition of the objectives related to performance;

-a strategy of allotment and prioritization of resources has been defined;

-the information supplied by the application of the methods is a continuous source of information of the personnel on how to reach objectives;

-there is a system of indices which doesn't include only to the financial ones calculated annually;

-a calculation and periodic evaluation procedure of the evolution of indices has been defined;

-new approach targeting the way in which administration accounting and calculation of costs meets the performance criteria and certification of the adequacy of these activities is one from down to up, opposed to the previous approach;

-there is a focus on the results of the activities which allow to identify the ways to make operations efficient;

-the new introduced methodology on how to use indices of measuring performance is a structured one, which allows to define the objectives related to performance, allotment and prioritization of resources, informing the management on how to reach the objectives, reporting success on reaching the performances established etc.

The content of the five chapters of the PhD thesis, characterized by a mixture of positivism and normativism was subscribed to the analysis of some aspects less approached or known regarding strategic managerial accounting as a new managerial instrument to measure the performance of economical entities, with direct application in the wine industry in Romania.

The synthesis of expert literature was made based on a critical analysis of the researchers' opinion from the area of managerial accounting, targeting the substantiating of theoretical conclusions by the results obtained in the case studies made. ***The documentation*** *for the present paper lies in consulting a number of over 165 bibliographical materials, that is publications and studies belonging both to some Romanian magazines and publishing houses and to international ones.*

In order to make the case studies, *data belonging to the entity analyzed was used, as well as specific statistic data on the wine industry* ***during 2000-2012****.*

As for ***the innovative character of the present thesis****, it lies in synthesizing a general frame of strategic managerial accounting which should sustain the relevance of application of some modern methods of accounting of costs in wine industry in order to identify some new dimensions of the cost-type information for the decision process. Also, the concrete ways to integrate the modern methods of strategic managerial accounting inside the existing system of administration accounting used by a company from the wine industry were demonstrated as well as the demonstration of the way in which Maths and econometric methods can be used to analyze the evolution of the wine industry in Romania.*

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