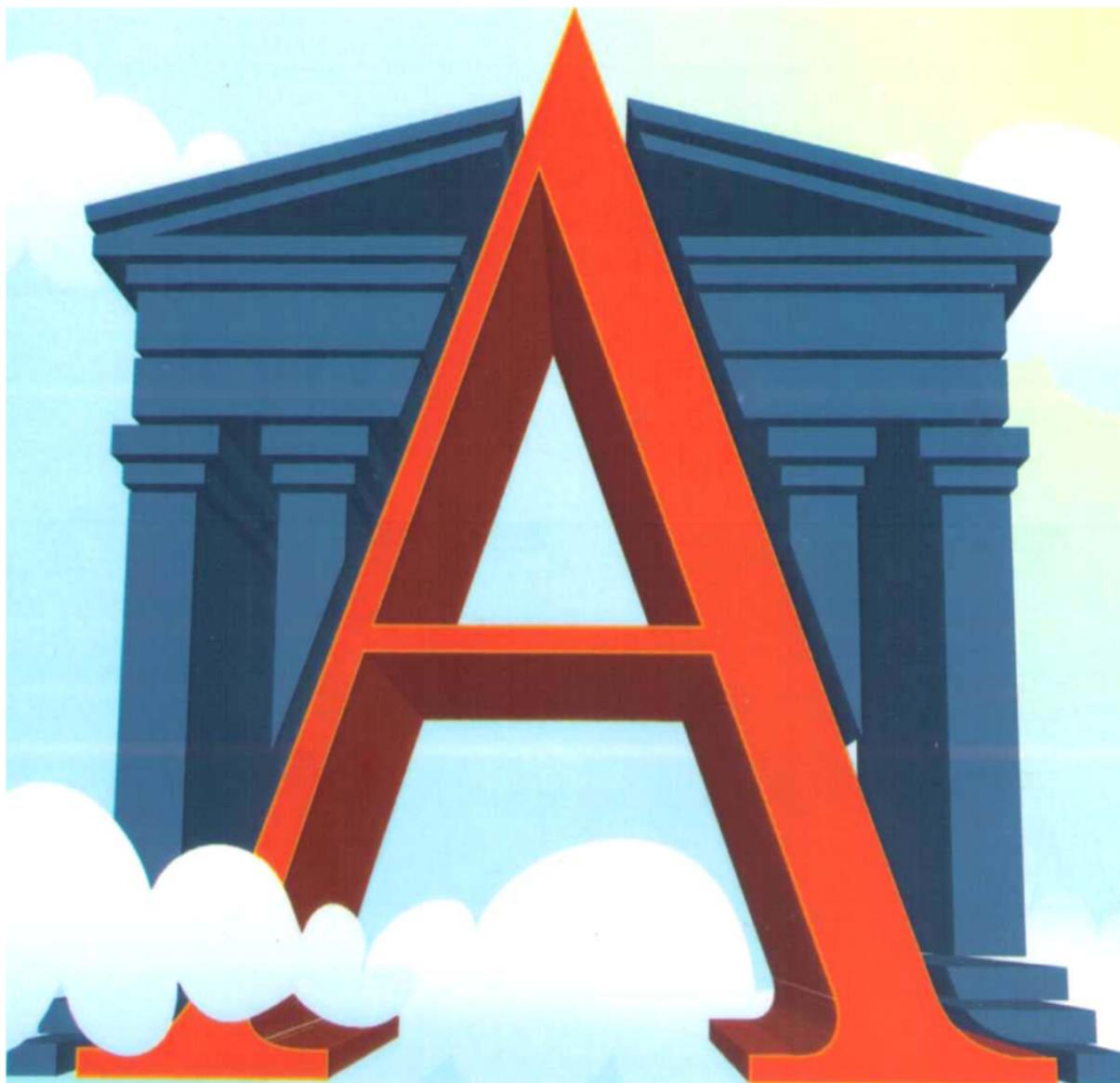


# INTERNAL AUDITING & RISK MANAGEMENT

ANUL IX, Nr.3(35), Septembrie 2014



U N I V E R S I T A T E A  
A T H E N A E U M

& Centrul de Excelență în Managementul Financiar și Audit Intern

# **INTERNAL AUDITING & RISK MANAGEMENT**

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**Revistă trimestrială editată de Universitatea „Athenaeum” &  
Centrul de Excelență în Managementul Financiar și Audit Intern**

**ANUL IX, NR. 3(35), SEPTEMBRIE 2014**

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## **ROMANIA'S ACCESSION TO THE EURO AREA**

**Carmen ALBU**

Doctoral student in Economics, National Institute of Economic  
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### **Abstract**

*Romania's decision to join the European Union was a strategic orientation embraced practically all the political forces of the country and the overwhelming majority of the population. Romania's accession to the European Union determined invariably joining the euro area, which gives full content integration in EMU. Joining the euro area is forcing Romania to meet the conditions set by the Maastricht Treaty in mitigating and eliminating gaps as quickly as possible.*

*Article demonstrates that the single currency, the euro, is a strategic objective of great importance when the decision is actually implemented will be evaluated carefully to see what are the advantages, and limitations that this approach entailed.*

**Keywords:** Euro area; nominal convergence; single currency; Maastricht Treaty.

**JEL Classification:** E52; O47; F33.

### **1. Introduction**

According to the treaty of Amsterdam, all the countries acceding to the European Union are obliged to adopt the single European currency, Euro. Thus, entry into the euro area is not optimal but an obligation of a legal and institutional and assumes countries with the signing of the Accession Treaty. There are no permanent derogations as in Great Britain and Denmark, countries benefiting only temporary exemption. Although Member enjoy their temporary exemption does not require a deadline to adopt the euro. This is justified by the fact that when the decision to introduce the single currency must not reflect a hasty choice. Although the changeover is an important strategic objective, this step must be analyzed taking into account the benefits and costs.

Romania joined the European Union on January 1, 2007, assuming the obligation to adopt sooner or later the euro. In order to enter the euro zone, Romania must fulfill, like other states, nominal convergence criteria set by the Maastricht Treaty, a number of conditions relating to real convergence. Achieving nominal criteria does not guarantee that Romania will benefit from the integration of real convergence is the substance of a successful integration.

With the EU accession, countries wanted to enter as soon as possible in euro area. The conditions for adopting the single currency were established by the Maastricht Treaty. Nominal convergence involves following criteria established by the Treaty of Maastricht price stability, long-term interest rate, exchange rate stability, sustainable fiscal policy etc.

## **2. Analysis of nominal convergence criteria**

Analysis of the average rate of inflation over a period of one year shall not exceed by more than 1.5 percentage points the average rates recorded in the three best performing EU members that fall below the ratio of 2.8%. Romania succeeded after 24 years of capitalism to enter the West in terms of inflation. GDP/capita is 22% out of France or Germany. Good agricultural production and reducing VAT on bakery products led inflation to 1.55% in December 2013, the minimum of the last 24 years, inflation falling to the lower limit of the central bank's target range for the past year 1.5 to 3.5%. The central bank has achieved its inflation target in 2006 and 2011 is the first time that Romania's annual inflation below 2%, which is common in Western countries limit to dreaming during hyperinflation and rampant inflation during 1990 - 2000 on the other hand, GDP/capita in Romania is only 7,000 Euros compared to 32,000 Euros in the euro area, so four times lower, and wages are 7-10 times lower than in France, Germany and the Netherlands.

In the absence of reducing VAT on bakery products and exceptional agricultural year 2013 annual inflation rate would be somewhere in the range of 3 to 3.5%, so the upper limit of the central bank target. Moreover, annual growth in non-food prices was 3.6% and services 3.4%, while food prices fell by 1.8%.

With an inflation rate of about 1.6% in 2013, the lower limit of the target NBR, Romania completes the picture of a very low inflation in Central and Eastern Europe.

For 2014 analysts have predicted that inflation continued to hover in the early month around minimum threshold of 1.5%, but then increase to 3-4%.

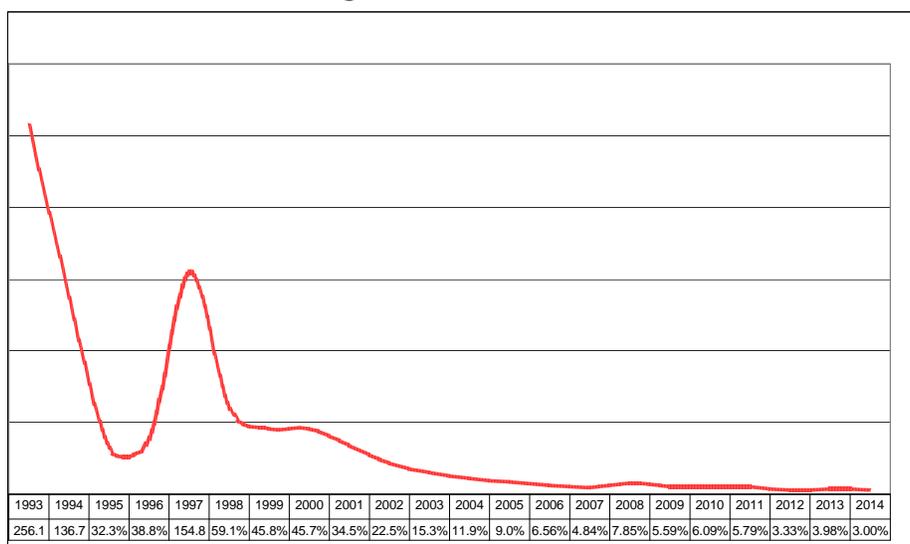
The downward trend of inflation in early 2014 and still weak consumer demand could encourage the central bank to continue easing cycle

by reducing key interest rates and the gradual decrease reserve requirements, measures that will lead to cuts in interest rates credit and credit recovery, with a favorable impact on the economy. Moreover, the central bank started the year with a reduction in key interest rate from 4% to 3.75%, as accompanied by the decrease of the USD reserve ratios from 15% to 12% and currency 20% to 18 %.

Price developments since 2005, the first year of inflation targeting, consumer prices grow by 6.56% compared to the annual target of 7.5% in 2006; annual inflation fell spectacularly at 4.9%, below the target of 5%, and in 2007 went back as spectacular to 4.84%, above the target of 4%.

Neither in period 2008 - 2010 had the annual inflation failed to reach the central bank's target range. Fight with prices became much tougher on the international financial crisis, the higher prices of oil and other materials (see Figure. 1).

**Figure 1. Inflation rate**



Source: <http://www.insse.ro/cms/ro/content/ipc-serii-de-date> - Author's processing

In the crisis, commitment to inflation targeting came into conflict with the possibility that the central bank to help counter recession. In addition to the inflation target, the central bank had settled sometimes conflicting objectives related including exchange rate policy and regulations in lending - that had the control and rein in lending.

Year 2011 ended with inflation at 5.79%, the target, while in 2012 Romania reached an inflation rate of 3.33% outside the target band in low agricultural production, a higher energy, gas and oil, and because of

currency depreciation. Weak demand in the economy could not offset a series of price increases.

Inflation fell sharply in the autumn months, less than 2%, after the first two quarters of 2013 has fluctuated between 5-6%. The downward trend of inflation encouraged monetary policy easing by reducing key interest. Central bank cut the key interest rate in the second half of last year by 1.25 percentage points, bringing it to a historical low of 4%, in the hope that banks will reduce interest rates on loans in lei making the cost of borrowing in the currency comparable national euro credit.

Disinflation was influenced particularly by good crop year and reduces VAT on bread since September, from 24% to 9%. In the case of bread, the transmission has been significantly reduced by about 95%. In September, the annual inflation rate slowed significantly to 1.88% compared to 3.67% in August. In November, consumer prices stagnated from the previous month, due to cheaper food, so that the annual inflation rate stood at 1.83%.

In December 2013 the inflation rate was 0.3% compared to November, so that from December 2012, consumer prices rose by 1.55%. Non-food products recorded an annual increase in prices of 3.6% and prices of services rose 3.4%, while food prices was a decline of 1.81%.

The central bank revised its inflation forecast for the end of 2014 from 3.1% to 3% (without taking into account the impact of higher taxes), anticipating a decline in the rate in the range in the early part of next year and then a comeback, especially base effect. NBR inflation target is 2.5% +/- one percentage point.

Price stability is a major concern for many countries, so it is not surprising conditioning of the Treaty on European Union, especially given the concerns of Germany in the field. An assessment of the state of compliance with this criterion in recent years in countries of Central and Eastern Europe shows that inflation is under control now, but is expected to contribute to European integration, at least in the beginning, to an increase in price (alignment to the European average) and therefore the indicators suffer an increase in the coming years. Among the first steps to be taken to achieve average inflation target set by the Treaty of Maastricht, include: maintaining a prudent wage policy in the public sector; improving revenue collection rate from the state budget, particularly VAT Reduce the budget, particularly interest costs; strengthening fiscal discipline; reduction in administered prices; maintain the exchange rate at a level consistent with the inflation target set in; reduction credits, especially in foreign currency granted governmental sectors and lowering interest rates.

Nominal convergence analysis takes into account the average nominal long-term interest in the last 12 months before the examination

must not exceed by more than 2 percentage points the average long-term interest rates in the three best performing EU Member States.

It is believed that long-term interest rate reflects the durability of convergence achieved. Considered rate is calculated as the average nominal interest rate on long-term government securities in the last 12 months. Government securities issued in Romania market have a maturity far and enjoy a high degree of liquidity, with no liquid secondary market where they can be traded.

Money market interest rates increased slightly during March to June 2010, manifesting a high degree of volatility, especially in the segment guaranteed. Spreads between interest segment unsecured guaranteed and were also characterized by volatility and remained at elevated levels compared to previously recorded turmoil in financial markets in August 2007 partly reflected developments tensions market participants' concerns about sovereign risk in some euro area countries, despite the persistence of broad liquidity conditions.

This criterion is directly related to the one shown above, the inflation, and without fulfilling the former is almost impossible for the second to be made. Because of inflation, nominal interest rates in Romania have remained extremely high, well above 10%. Control of inflation will reduce interest rates to the level required. Romania's entry into EMU could decisively influence the development of long-term interest rates, in order to ensure convergence at the level of Member States.

If the analysis refers to the exchange rate stability, we must note that the exchange rate of the national currency against the euro must be within the range of  $\pm 15\%$  without severe tensions for a period of two years before the examination.

At least at first, keeping the national currency in a fixed course against the euro, the  $\pm 15\%$  of parity should not be a problem. In Romania, in the period 2008 - 2009, appreciation / depreciation maximum daily exchange rate leu/euro average of two years was  $15.05\% / - 6.37\%$ <sup>1</sup>.

In fact, the central bank's policy of slight appreciation of the leu against the euro and dollar (basically depreciated less than the annual inflation rate), emphasizing targeted disinflation, but on the other hand is the only way to increase purchasing power national currency, something of interest from the perspective of European integration and the approach, even in a small way, the level of income.

Exchange rate chart presents an increase in the exchange rate of the Romanian leu against the euro, reaching a maximum of 1 EUR = 4.3219 RON In January 2012 until 1 EUR = 4.4654 RON in June 2012, in the next

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<sup>1</sup> [www.mediafax.ro](http://www.mediafax.ro), accessed on 19.09.2014

period characterized by a slight appreciation of the RON / EUR is currently keeping around rate 1 EUR = 4.4173 RON (see Figure 2).

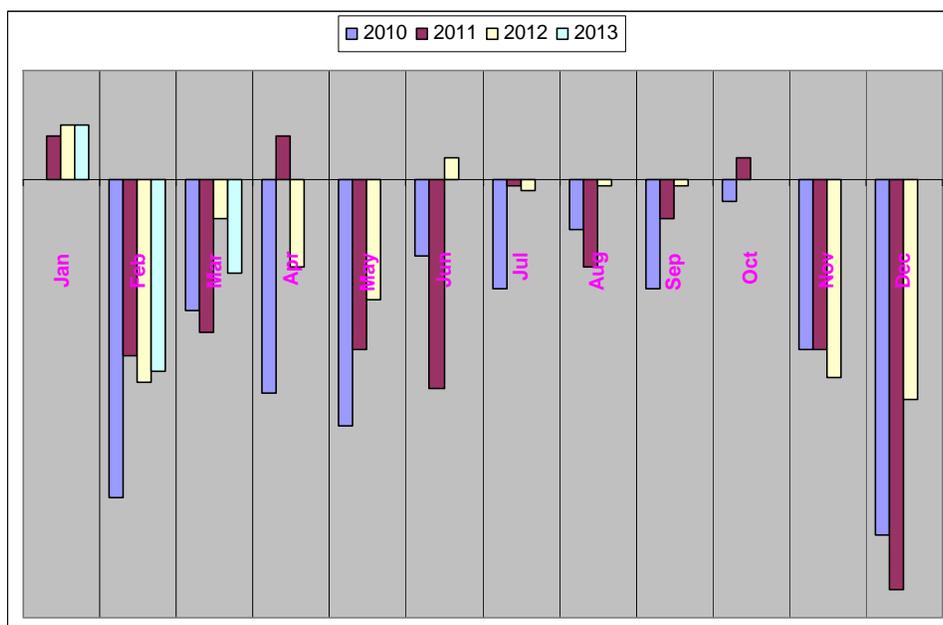
**Figure 2. Exchange rate**



Source: <http://www.cursbnr.ro/grafic-valute>

Analysis of the budget deficit is a basic parameter of macroeconomic policy, being correlated with other indicators to ensure macroeconomic balance necessary to comply with the commitments assumed by Romania's EU accession process (see Figure 3).

**Figure 3. Budget deficit**



Source: Author processing

In March 2013, budget revenues increased by 8.3% and 14.1% spending, deficit increasing by 140% compared to March 2012 - from 0.7 billion to 1.7 billion.

In the first quarter of 2013, the deficit was 4.19 billion compared with 3.39 billion USD in 2012 deficit target for this year is 13.3 billion and in the first quarter reached 31.5 % of this target.

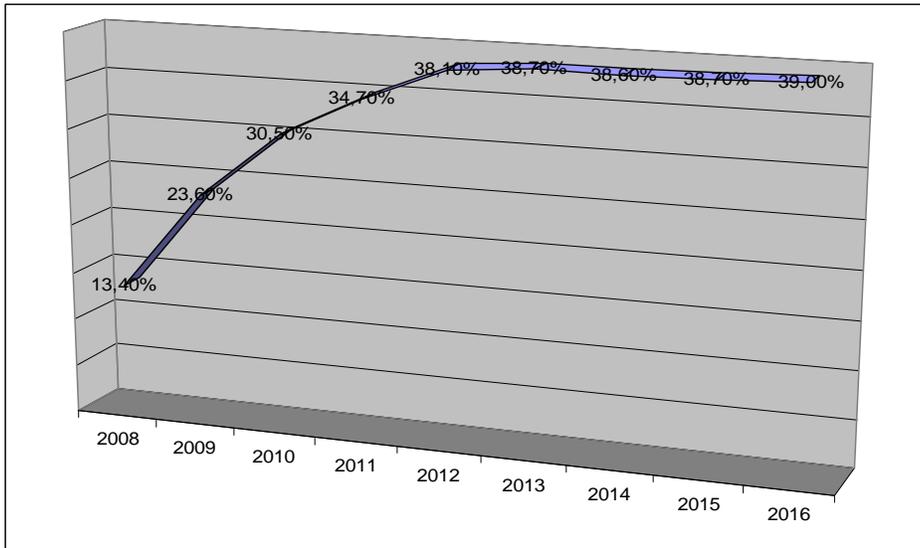
Given that investment fell 2 billion, and however, the deficit rose to 0.8 billion from last year, most likely in the middle of this year, the government will be forced to make a budget amendment by to cut back on expenses.

The main objective of public debt management is to maintain its level within sustainable limits and providing resources to finance budget deficits and resources to pay debt service at the lowest possible cost and acceptable risk levels<sup>1</sup>.

The budget for 2013 estimated a debt level of 225.7 billion lei (approx. 50.15 billion Euros), up from 207.3 billion Lei in 2012. These figures represent net debt of Romania and reflect steady increase in the level of this debt as a percentage of GDP in recent years (see Figure 4).

**Figure. 4. Percentage of public debt in GDP**

<sup>1</sup> www.gov.ro, accessed on 19.09.2014

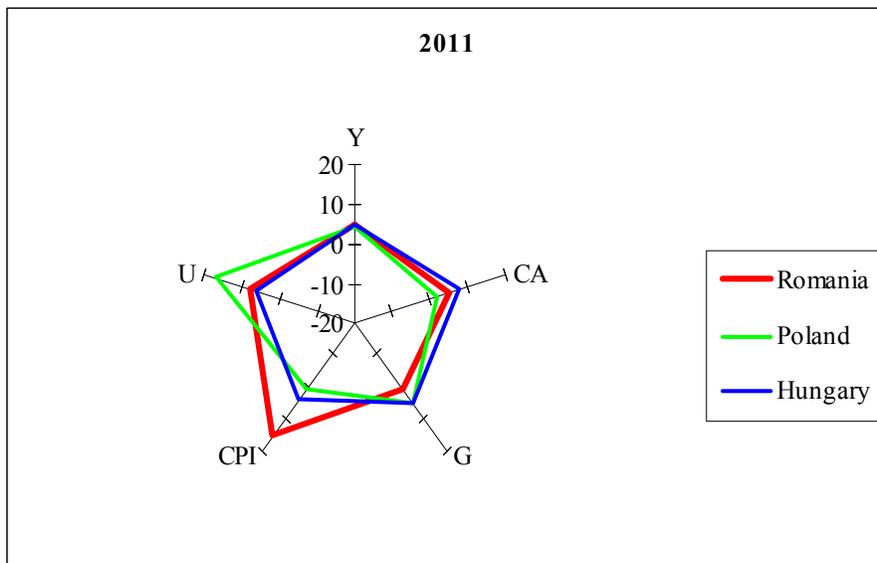


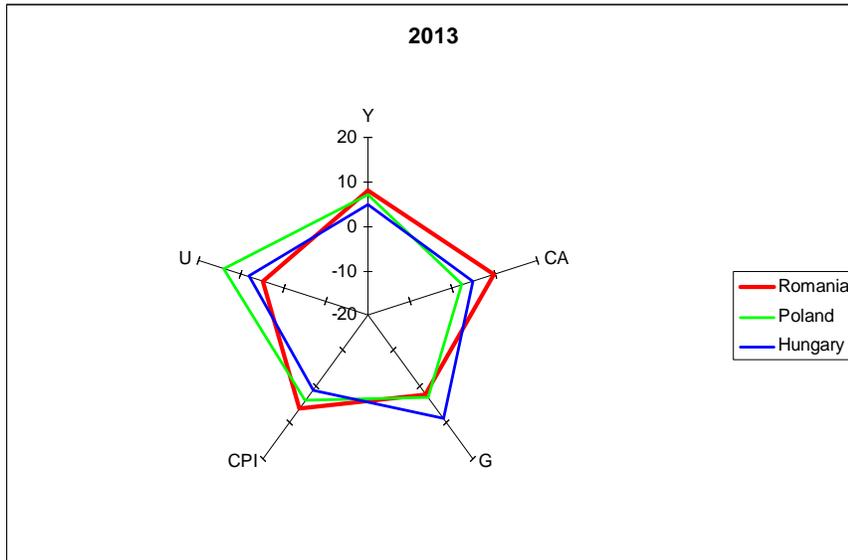
Source: Author processing

In terms of debt, we can say that Romania already meets the convergence criteria of sustainability financial position of the Government. Public debt will register in the coming years, growth controlled so that its level to maintain reasonable limits set by the Maastricht criteria, falling public debt ceiling, approved annually by law.

Synthesizing previous indicators presented can be achieved by building the following figures, known in the literature as the pentagon indicators and comparison of these indicators by many countries (in this case Poland and Hungary) (see Figure 5).

**Figure 5. Macroeconomic pentagons for 2011 and 2013**





Source: Author processing

Where: Y: Real GDP (%)

CA: Current Account deficit / GDP (%)

G: Government deficit / GDP (%)

CPI: Consumer Price Index (%) annual average

U: Unemployment (% at end of period)

Pentagon construction principle allows the same graphical representation of the five traditional indicators, considered as representative of the "economic health" of a state (real GDP, the current account deficit, fiscal deficit / GDP, inflation, unemployment), and represented on a scale from 20 to 20.

In this graph I represent the size of these indicators in three countries, namely Poland, Hungary, Romania comparing position largest economy in the states and they are aligned size of the convergence criteria.

There is an improvement in the following indicators presented in 2013 for Romania, from 2011: real GDP volume (increase for Romania and Poland about 8% and stability in Hungary), the inflation rate decrease to around threshold of 6.5% for Romania, stability in the two countries; unemployment rate fluctuates around the threshold of 13% for Romania (less than in Poland and Hungary), the other two maintaining relative position; fiscal deficit relative to GDP also presents a favorable situation Romania (around the threshold of 2.5% of GDP); show an increase in the

current account deficit for Romania to around 10% of GDP threshold and a decrease in Hungary, Poland showing a certain stability.

### 3. Conclusions

The euro is designed to foster the achievement of the single European market on which the goods, capital and people. With Romania joining the European Union started a new dispute over the transition to the euro. However, if joining the euro zone is in itself a very important strategic objective, when the decision is actually implemented will be considered with caution to see the advantages, and limitations that this approach entailed.

As they began to take shape and the views of the other new EU member countries, the transition to the euro area should not be unnecessarily accelerated and adopting the euro should not be treated as an end in itself.

Through this prism, Romania must not precipitate joining the euro area, since our country has important catch.

Romania with the GDP/capita of 54% is not ready to join the euro area. For GDP/capita to increase to the value of 60% Romania needs five years the GDP growth to be 4% per year. The structure is still different sectors of the euro area but is closer than in previous years. The evolution of economic openness had an upward trend reaching over 85% and the degree of trade integration with the euro area is quite high.

If I make a recommendation to our country can only say that Romania's entry into the euro area should be made in the period 2018-2020.

Following the experiences of countries that have already adopted the euro it can be concluded that once announced the probable date for euro adoption, the whole society should be mobilized to support this option, and microeconomic and macroeconomic policy decisions must be subordinate<sup>1</sup>.

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## **REGIONAL SUSTAINABLE PROGRAMME IN ORDER TO ACHIEVE THE EUROPE 2020 GOALS**

**Daniela ANTONESCU,**  
Institute of National Economy, Romanian Academy

### **Abstract**

*The regional policy is a key element of Europe 2020 for smart, sustainable and inclusive economy. Thus, EU's growth strategy reinforcing priorities should help the Member States and regions to deliver high levels of employment, productivity and social cohesion.*

*Europe 2020 continues to implement Lisbon and Goteborg requirements for economic growth and jobs, and respond to globalization challenges and expansion opportunities. The next generation of programme will financed many sustainable activities in especially in industry and entrepreneurship.*

*The paper presents the new conditions of financed regional sustainable programme and projects in context of actual regulations and procedures of regional and cohesion policy.*

**Keywords:** Europe 2020, sustainable development, smart development, region

**JEL Classification:** Q2, Q20, Q28, R10, R11

### **Introduction**

At global level, the impact of climate change is expected to become more widespread and to intensify. The effect distribution of these phenomena is expected to vary considerably among regions and countries, and impacts will depend to vulnerability of populations or ecosystems<sup>1</sup>.

Developing regions, and particularly the poorest and most marginalized populations within these regions, will generally be both the most adversely because they are less able to adapt than developed regions. Although the impacts of climate change are specific to location and to the level of development.

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<sup>1</sup>Trade and Climate Change, WTO-UNEP Report, Forest Stewardship Council (FSC), ISBN: 978-92-870-3522-6, [http://www.wto.org/english/res\\_e/booksp\\_e/trade\\_climate\\_change\\_e.pdf](http://www.wto.org/english/res_e/booksp_e/trade_climate_change_e.pdf)

Climate change is one of the greatest challenges facing the European Union in actual programming period. This period already begun and the regions face the new challenge to become SMART regions concentrating on sustainability, competitiveness and inclusive economy, also to continue the old cohesion objectives. These priorities should help the EU regions deliver high levels of competitiveness, employment, productivity and social cohesion.

In this context, I intend to examine the aspects and regulations of the new programming period dedicated to regional sustainable development.

### **1. The Europe 2020 goals**

2014 is the first year of a new programming period, after the seven years characterised by global and financial crisis, declining GDP, low employment rates at the European Union level.

While the new goals were very ambitious and connected to the Lisbon and Goteborg Strategies, due to the global-financial crisis and her shock (starting in 2008), the EU and member state faces to high challenge to recover its economy.

The aims of the new programming period, laid down in the Europe 2020 strategy, are very ambitious. In order to achieve smart, sustainable and inclusive growth, the EU has to mobilize all of its forces for achieves the strategic goals.

The regions play an important role in this process, because they are the main beneficiary of the financial resources: Structural Funds, Cohesion Fund, EAFRD<sup>1</sup>, EMFF<sup>2</sup> etc.

In accord with the financial instruments past experience, the legislative and policy framework for 2014-2020 period encourages the use of financial instruments as a more efficient and sustainable sources.

One of the main financial instruments of programming period 2014-2020 is ERDF (European Regional Development Fund) which its allocations depends on the next category of region:

- more developed regions (focus on at least two of priorities and receive at least 80% of funds);
- transition regions (60 % of the fund)s;
- less developed regions (50 % of the funds).

Furthermore, some ERDF resources must be channelled specifically towards low-carbon economy projects: more developed regions: 20%, transition regions: 15% and less developed regions: 12%<sup>3</sup>.

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<sup>1</sup> European Agricultural Fund for Rural Development

<sup>2</sup> European Maritime and Fisheries Fun

<sup>3</sup> [http://ec.europa.eu/regional\\_policy/the\\_funds/regional/index\\_en.cfm](http://ec.europa.eu/regional_policy/the_funds/regional/index_en.cfm)

It is well-known that due to the reduction of the financial sources available for 2014-2020 periods, it cannot expect to use more funds for some category of regional development activities. Thus, is needed to use them in a more effective and efficiency way.

## **2. The new regulations**

Analysing the new regulations of the actual programming period, I have a “back to the future” feeling. Some of the innovative regulations of 2007-13 programming period did not preserve and the other was improved.

Firstly, the funds for agriculture (EAGF) and fishing industries establish in the same framework (ERDF and ESF). The Common Strategic Framework (CSF) will translate the objectives and targets of the EU priorities (smart, sustainable and inclusive growth) into key actions for the ERDF, the CF, the ESF, the EAFRD and the EMFF which will ensure an integrated use of the CSF Funds to deliver common objectives<sup>1</sup>. The CSF Funds need to address multiple development needs at regional/local level. To facilitate the implementation of multi-dimensional and cross-sectoral interventions, it proposes to *strengthen community-led initiatives, facilitate the implementation of integrated local development strategies and formation of local action groups*.

In 2014-2020 period, many beneficiaries will use funds from different funds with different eligibility rules. But the emphasis has therefore been placed on measures to ensure that administrative costs are proportionate and that the administrative burden associated with the management of EU funds by beneficiaries is reduced.

The aim is to harmonise, to the extent possible, these basic rules for instruments implemented under shared management, in order to reduce the multiplicity of rules applied on the ground. Simplified costs options such as flat rates and lump sums provide the means for Member States to introduce performance-oriented management at the level of individual operations.

Provisions on the delivery include common rules on eligible expenditure, the different forms of financial support, simplified costs, and durability of operations. The proposal also envisages common principles for the management and control systems. In the context of the CAP, the current rules on administrative costs and the control systems will be maintained and sustained.

The scope of actual regulation is to cover the main geographical aspects, financial resources and principles of assistance, programming, major projects, joint action plans, territorial development, monitoring and

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<sup>1</sup> [https://www.mmr.cz/getmedia/ec9a91ce-e804-4d02-9493-de169d78cf80/01\\_general\\_proposal\\_en.pdf](https://www.mmr.cz/getmedia/ec9a91ce-e804-4d02-9493-de169d78cf80/01_general_proposal_en.pdf).



In order to address the issue of absorption of funding the Commission is proposing a number of steps:

- rates for cohesion allocations fix at 2,5% of GDP;
- capping co-financing rates at the level of each priority axis within the operational programmes at 85% in less developed regions (or in certain cases, 80% and 75%) and outermost regions, 60% in transition regions and 50% in more developed regions;
- to include certain conditions in the partnership contracts regarding the improvement of administrative capacity.

Another issue for improve the absorption capacity is to reduce bureaucracy result from forced separation of the ERDF and ESF (the mono-fund rule). *Structural Funds can be combined in the same Operational Programme, which promotes more the integrated approach.*

One of the new regulations propose the possibilities to obtain a concentrated use of the Structural and Cohesion Funds for implementing regional goals. Thus, the use of funds in 2014-2020 programming period connects to 11 thematic objectives (determined by the new Common Strategic Framework). The 9 EU flagship initiatives proposed for 2014-2020 period are the following:

*Thematic Objective 1 - Research and Innovation*

*Thematic Objective 2 - ICT*

*Thematic Objective 3 - SME competitiveness*

*Thematic Objective 4 - Low Carbon Economy*

*Thematic Objective 5 - Adaptation and Risk Management*

*Thematic Objective 6 - Environment and Resource Efficiency*

*Thematic Objective 7 - Sustainable transport and network*

bottlenecks

*Thematic Objective 8 - Employment and Labour Mobility*

*Thematic Objective 9 - Social Inclusion and Poverty*

*Thematic Objective 10 - Education*

*Thematic Objective 11 - Institutional Capacity*

A simple look at these objectives, we can conclude that they represent a general approach of sustainable development of region and member state.

### **3. Regional development contribute to sustainable objectives in EU-28**

The sustainable regional development is a flexible, holistic and innovative approach and, in the same time, an old idea. The important part of this approach is engaging all levels of government and the community to share information and to foster an integrated and targeted path to sustainable development.

Within European Union, sustainable growth is clearly stated and involves disconnecting growth from overuse of natural resources. Also, regional policy support Strategy 2020 and its aim sustainable and job-creating growth. Therefore represent a vital element for support investments in sustainable growth (climate, energy and environmental issues). The change of paradigm for sustainable growth paths and a greener economy is as much a priority both less economically favoured and high developed regions.

Across diminish the climate change by tackling greenhouse gas emissions, regions need to ‘adapt’ to climate change. European Commission is anticipated that most regions will be negatively affected by climate change, varying across territories (source: White Paper on adaptation to climate change).

In the actual financial period, European Commission proposes a closer alignment of regional funds with the priorities of the Europe 2020 strategy requires by regulations. The new regional programmes start to prepare by local and regional authorities.

For regional authorities, Structural Funds played an important role in achieve the sustainable challenges. During the 2007-13 periods, almost a quarter of regional policy funding – totalling some €105 billion – will co-finance projects which can support sustainable growth objectives, as highlighted in Table 1 below.

**Tab.1 Regional policy 2007-13 allocations contributing to sustainable growth**

	Amount of adopted Operational Programmes - Bn € (rounding) -	Amount allocated to selected operations by end 2009 Bn € (rounding)	%
<b>DIRECT</b>	<b>45</b>	<b>9.9</b>	<b>21.8%</b>
Water supply	8	1.7	20.6%
Waste water	14	3.8	27.5%
Waste	7	1.1	15.6%
Nature protection	5	1.0	18.7%
Climate change adaptation	8	1.8	23.0%
Eco-innovation in SMEs	2	0.5	19.6%
<b>INDIRECT</b>	<b>59</b>	<b>13.4</b>	<b>22.5%</b>
Rail	24	5.4	22.5%
Urban transport	8	2.2	28.4%

Other sustainable transport	5	1.0	21.7%
Electricity	1	0.02	4.0%
Sustainable energy	9	1.4	15.4%
Urban and rural regeneration	14	3.4	25.0%
<b>TOTAL</b>	<b>105</b>	<b>23.3</b>	<b>22.2%</b>

Source: [http://ec.europa.eu/regional\\_policy/information/pdf/brochures/rfec/2011\\_sustainable\\_growth\\_en.pdf](http://ec.europa.eu/regional_policy/information/pdf/brochures/rfec/2011_sustainable_growth_en.pdf)

#### 4. Conclusions

In actual programming period, regional operational programme can contribute to sustainable development in two main directions: *investing more and better in sustainable growth*. Thus, it should encourage a greater strategic investment focus on sustainable growth, with an emphasis on resource efficiency and improving policy delivery mechanisms through the more effective integration of sustainable development principles in operational programmes and in the design, selection and implementation of projects.

Regional policy must adjust its priorities for emerging challenges, respond to socio-economic needs and complement the pro-active work already undertaken in the regions.

Structural and Cohesion Funds still co-finance different categories of opportunities in order to sustainable growth.

Some regions are already in the process of changing towards more sustainability, restructuring their economies into *green economy*. Many regions have started putting in place sustainable development strategies such as the UN's Agenda 21<sup>1</sup> and other strategies. Regional networks to exchange good practices can be actively support for actual period. But this process is expensive and takes a long time to get visible results at the regional level.

<sup>1</sup> <http://www.un.org/esa/dsd/agenda21/>

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## **REGIONAL UNEMPLOYMENT AND TOURISM REGARDED AS PART OF THE NATIONAL ECONOMY**

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### **Abstract**

*Dealing with actions to promote economic growth, to ensure financial stability and budgetary consolidation, it is important and necessary to promote economic growth and competitiveness, to continue to consolidate the budget in a way favourable to economic growth, to fight against unemployment and social consequences of the crisis, to restore normal credit conditions in the economy and to update public administration.*

*Article tackles in a manner of its own the economic situation at national level, the evolution of unemployment at regional level but also touristic activity which has the leading part in increasing Romania's economy.*

**Keywords:** GDP; economic growth; competitiveness; sustainable tourism.

**JEL classification:** E20; L83; F43.

### **1. Introduction**

Romania benefits from preventive financial assistance over the medium term, granted under the mechanism for balance of payments until September 2015, subject to a maximum amount of 2 billion euros. This

financial assistance is intended for the Member States which are not part of the eurozone and is expected to contribute to the consolidation of macroeconomic stability, financial and budgetary issues and it is welcome given the instability of capital flows that affect emerging markets in particular. This preventive assistance is conditional upon the implementation of a comprehensive economic policy programme (structural reform measures, reform of business environment and goods market, among others). The specific objective of the medium-term budgetary policy provides for a deficit of less than 2% of GDP for the period 2015-2017.

In 2014 Romania enjoys a temporary deviation from the medium-term objective included in the Stability and Growth Pact, but the temporal deviation must be compensated in the next year. Thus, in 2015, should be sought an increase of 0.8% of GDP, after having achieved a stabilization of the recalculated structural balance. Around this time, it is expected that the share of government debt to GDP will reach 40 percent, but it would drop in the next period, the macroeconomic scenario on which budget forecasts are based being plausible. In spite of a slight deterioration of the structural balance in 2014, the requirements of the Stability and Growth Pact are met by Romania, taking into account the approved temporary deviation. It is also foreseen that, in terms of expenditure, Romania will deviate from the reference criterion.

## 2. Evolution of economic activity

Nationwide economic growth can be determined by analysis of the indicator that measures the country average real income (per capita GDP) by calculating the ratio between the actual level of GDP and the population of that year, including the goods and services on the domestic market (see table 1).

**Table 1. Country average real income**

Year	2007	2008	2009	2010	2011	2012
<b>EU average</b>	23.800	23.700	22.600	23.000	23.300	23.200
<b>Romania</b>	4.400	4.800	4.500	4.500	4.600	4.600

Source: [www.eurostat.ro](http://www.eurostat.ro)

Thus we can conclude that the calculated level of GDP, expressed in euro per capita, is well below the EU average, but it is on an upward slope since 2007 which has been continued to the present. The current growth rate can be improved by increasing investments and competitiveness at European level.

If we refer to the level of poverty at the national level compared to the EU average a situation unfavorable for our country shows, where disadvantaged people with an available income below the risk of poverty

threshold is set at 60% of the average available national income (after social transfers).

**Table 2. The level of poverty at national level compared with the European Union average**

Year	2010	2011	2012
<b>EU average</b>	23,7	24,3	24,8
<b>Romania</b>	41,4	40,3	41,7

Source: www.eurostat.ro

Comparing the two existing situations, otherwise calculated as a percentage of total population we note that the situation through which our country is going is worrisome because it appears that a percentage of just over 40% of the total population lives in precarious conditions, below the limit laid down of the national income. In comparison, the average of the European Union lies at about 24%, a percentage far better than the one recorded by Romania. Measures and urgent reforms are needed to improve this situation which is dangerous for the Romanian economy.

The dangerous situation on the Romanian economy is also determined by the unemployment rate showing the total number of unemployed active population, receiving unemployment benefit, calculated as a percentage (see table 3).

**Table 3. Unemployment rate**

Year	2007	2008	2009	2010	2011	2012	2013
<b>EU average</b>	7,2	7	8,9	9,6	9,6	10,4	10,8
<b>Romania</b>	6,4	5,8	6,9	7,3	7,4	7,0	7,3

Source: www.eurostat.ro

Average annual unemployment recorded by Romania is near the European Union average, but our country has better results from this point of view, Romania being below the European Union average with a percentage change between 1% and 3%. Even though Romania stands a little better in this respect, we can see how both the EU and Romania averages have an increasing trend, the number of unemployed persons in the total population increased steadily since 2008 to this moment, as proof of the actual percentage increase. The main reasons which led to this phenomenon were the recent economic crisis that hit in particular the Euro area, which has led to a much greater increase in the percentage of unemployed at Union level.

The evolution of the Romanian economy by development macroregions results in an overview of the level of involvement of each macroeconomic structure in national growth.

Thus, in the period 2002-2011 our country has recorded a remarkable growth of per capita gross domestic product (starting at 6,000 euro per inhabitant in 2002 and reaching 12,200 euros/inhabitant in 2011).

Note the gap between the Bucharest-Ilfov region and the rest of the regions, this being the only region which has gained in each of the years between 2002-2011 an amount greater than 200% over that recorded at the national level. Of the other regions, only the West region has surpassed the national average in terms of GDP/inhabitant in the period analyzed. The region which has had the lowest level of this indicator throughout the period between 2002 and 2011 is the Northeast.

Between 2002 and 2008 the level of per capita gross domestic product followed an uptrend in all developing regions of Romania. The highest growth, 21.76% was recorded in 2008 in the region that includes the capital.

The economic crisis has led to a decrease in the level of GDP/inhabitant in all eight regions, but only for one year, after which it returned, with values higher than in 2008, with the exception of the Bucharest-Ilfov region that had a level of GDP per capita 4,46% lower. In 2011, relative increases were recorded in almost all regions (in the North-East, the level of GDP/inhabitant was constant), and in Bucharest-Ilfov region it has achieved a record level of GDP/capita: 30700 euro/capita, i.e. 251,63% times higher than the national average.

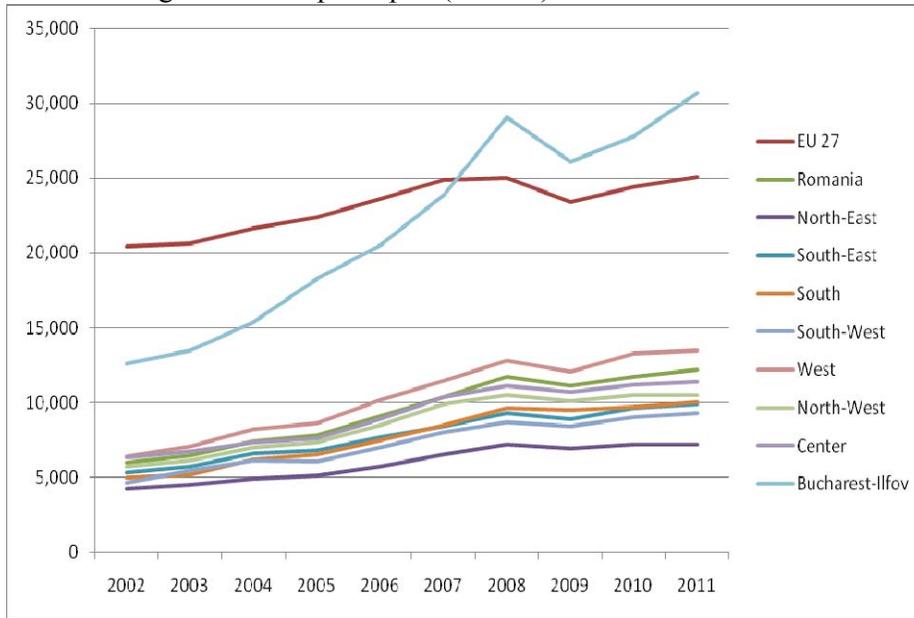
Compared to the national average, the GDP/inhabitant indicator shows that the disparity of development between the eight development regions continues to increase, especially between Bucharest-Ilfov region and the rest of the regions: Bucharest-Ilfov region during the reviewed period recorded twice the national average.

In 2002, the most underdeveloped region, the Northeast region recorded a level of GDP/capita by about 30 percentage points lower than the national average, while the southern region by almost 20 percentage points.

In 2008, disparities were much higher, only two of the regions managed to exceed the national average: the Bucharest-Ilfov region with 148.72 percentage points and the Western region with 9.01 points.

After 2008, the level of GDP/capita began to grow gradually in the two regions, while in the other regions it gradually decreased, but disparities between regions remained unchanged, compared to the national average (see figure 1).

Figure 1. GDP per capita (in Euro) between 2002-2011

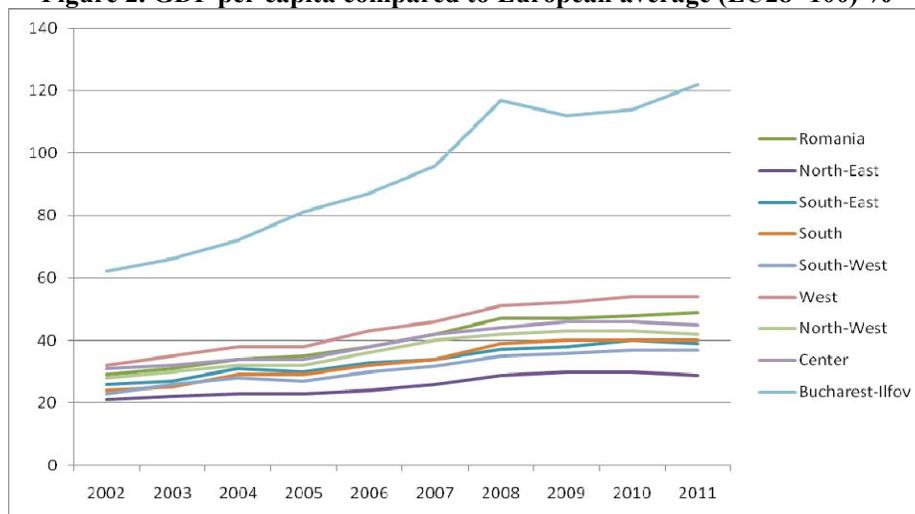


Source: www.eurostat.ro

Compared to the European average, there can be observed, further regional disparities between the Bucharest-Ilfov region and the other seven regions.

The greatest weight compared to the European average was recorded in 2011 in Bucharest-Ilfov region, 251.64%, while the rest of the regions have had a level of GDP/capita lower than the European average, excepting the West region which had a weight greater by about 10 percentage points.

Throughout the period under review, this discrepancy between the development regions of Romania has been kept, the most underdeveloped region, the Northeast had the smallest share, 21 percent, compared to the European average in the year 2002, and the proportion increased with very low rates, highest level being registering in the years 2009 and 2010, at 30% (see figure 2).

**Figure 2. GDP per capita compared to European average (EU28=100) %**

Source: www.eurostat.ro

An explanation of regional disparities in terms of GDP/inhabitant may be also interpreted by means of the indicator called labour productivity compared to national average in order to be able to observe better its development in the eight regions.

According to data provided by Eurostat, labour productivity in Romania has dropped considerably in the period 2002-2013. In 2002 compared to 2001, it increased by 17%, after which followed a sudden decline in 2003 of approximately 11%, a downward trend (excepting a mild comeback in 2004 by 5% compared with 2003) which continued until now. In 2013, the real labour productivity grew by 3.7% compared to the year 2012 when there has been a negative evolution (0.8%) compared with 2011.

Thus, it can be seen that in the period 2002-2008, three of the eight regions (Bucharest-Ilfov, Western and Center) have recorded values of labour productivity over the national average. Bucharest-Ilfov region obtained weights of over 200% compared with the national average before the beginning of the economic crisis. The region has gained advantage compared to the rest of the regions which have not exceeded the 120% weight compared to the national average in the same time frame. The lowest level of productivity was found in the Northeast, the region that did not exceed the level of 69% compared to the national average in 2002, year which was followed by a downtrend of weights in productivity until the year 2009.

The economic crisis has generated in 2009 decreasing the level of labour productivity compared to the national average in the regions that

have achieved during 2002-2008 values above the national average. Unlike these, the regions of North-East, South, South-West, North-West and South-East have recorded rises in labour productivity ratios compared to the national average, the South region approaching the national average at just 8 percentage points. Bucharest-Ilfov region continues to be the region that holds the highest level: 188.16%.

After 2009, excepting regions of the Northeast, Northwest and Center, the level of labour productivity has increased, while the South and West regions have obtained weights over the national average, but at a distance of about 80 percentage points compared to the Bucharest-Ilfov region.

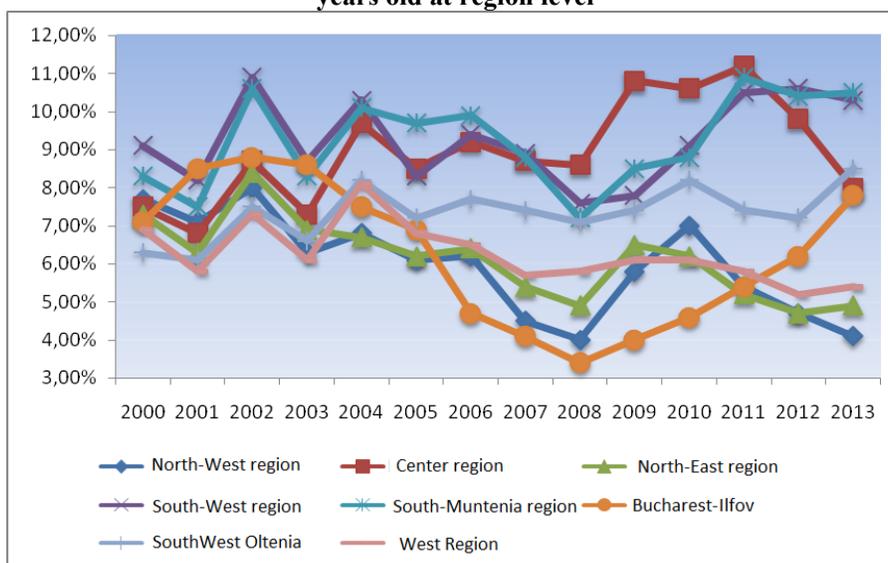
### **3. The evolution of unemployment at regional level during 2000 -2013**

At territorial level, in the year 2013, the number of unemployed increased in 25 counties. The biggest increase was recorded in the following counties: Brasov (with 1487 people), Alba (with 1286 people), Vaslui (with 1219 people), Calarasi (with 827 people), Bacau (with 687 people) and Sibiu (the 579 people). The number of unemployed fell in 16 counties, like in Mures (with 1,356 people), Bihor (with 1268 people), Prahova (with 420 people), Cluj (382 people), Braila (with 380 people) and Olt (with 371 people).

In territorial aspect, in 2013, the highest unemployment rates were registered in the counties of Teleorman (10.66%), Vaslui (10.53%) Alba (10.41%), Mehedinti (10.25%), Dolj (9.60%), Galați (9.22%) and Buzau (8.61%). There are also other counties with high rates of unemployment, but those listed above must be given priority in the rapid creation of new jobs, and where there are large industrial centres, the restructuring process of the reformation must be done with great attention. A low rate of unemployment between 1.86% and 3,21% was registered in Ilfov, Timis and Arad counties. In Bucharest the unemployment rate was 2.02%, but this figure is not 100% relevant, because in this city there are categories of persons who do not have neither jobs nor are registered with the Employment Office. In December 2013, Ilfov County has recorded the lowest rate of unemployment in the country, reaching 1.86 percent, according to the National Institute of Statistics, thus being the county with the least unemployed people. From the number of compensated and uncompensated unemployed persons registered with the agencies for employment, we can highlight the fact that the number of uncompensated unemployed persons has recorded high values throughout the whole year 2013.

The largest share of uncompensated unemployed persons in the total number of unemployed persons was registered in the following counties: Teleorman (77.96%), Dolj (75.55%), Galati (74%), Vaslui (73.90%), Iasi (73.42%), Buzau (72.08%), Alba (71.76%), Satu Mare (70.64%) and Covasna (69.86%) (see figure 3).

**Figure3. Evolution of ILO unemployment rate of the population aged 15-64 years old at region level**

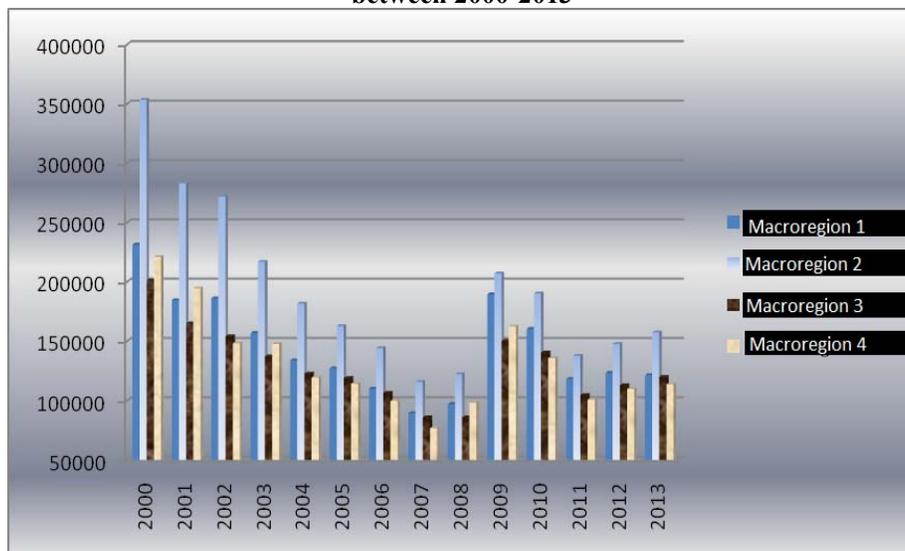


Source: [www.insse.ro](http://www.insse.ro)

The regional unemployment rate has recorded an unstable development between 2000 and 2013; the lowest unemployment rate was registered in the year 2008, in Bucharest-Ilfov region, at 3.40%, while the highest unemployment rate was registered in the year 2011 in the Center region, with a rate of 11.20%.

The unemployment rate in the Northwest region is situated on a growth trend in the period 2000-2006, and since 2007 it appeared to be stabilized this trend but in 2010 the unemployment rate increased 1.2 percentage points compared with the previous year. In 2011 the unemployment rate began decreasing, reaching in 2013 a level of 4.10% (see figure 4).

**Figure 4. Evolution of registered unemployed persons by macroregions between 2000-2013**



Source: [www.insse.ro](http://www.insse.ro)

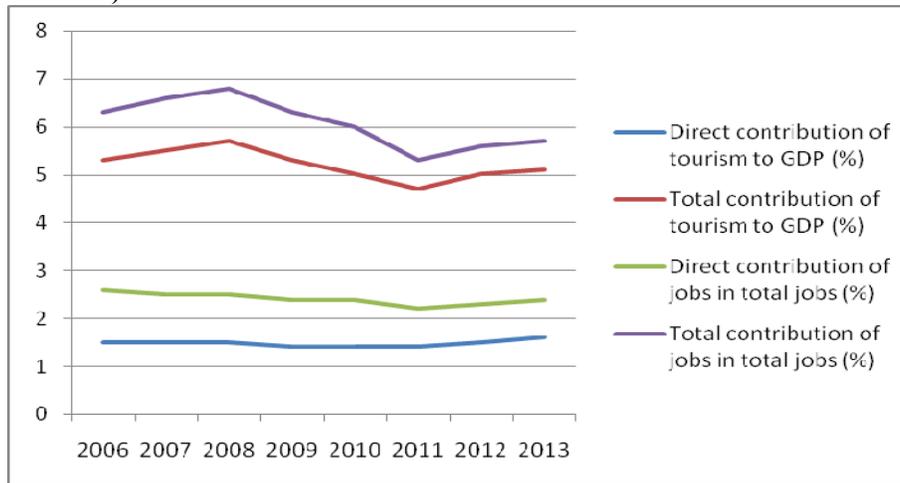
In Macroregion 1, which consists of the North-Western region and Central region, the number of registered unemployed has exceeded 230,000 only in year 2000, and that figure has been shrinking by the year 2007, a year in which the number of unemployed persons decreased in all 4 macroregions. In 2008 the number of jobless persons has started increasing, reaching a value of 121.242 registered unemployed in 2013 in Macroregion 1. In Macroregion 2, consisting of Northeast and the Southeast regions, in 2000 the number of unemployed reached an all-time record of 353.413 unemployed, this colossal number of registered unemployed in this macroregion starting to fall but so far it never made a number of unemployed under 100,000: in 2013 the number of unemployed was 157,381. In Macroregion 3, composed of South-Muntenia and București-Ilfov regions, since 2001 the number of unemployed persons decreased until 2007, after which it was again on the rise, registering in 2013 a number of 120.001 unemployed. Regarding the Macroregion 4 which consists of South-West Oltenia and West regions, in 2007 it has recorded the lowest number of unemployed compared to the other macroregions, 76.777 unemployed, and since 2008 their number started increasing, recording in 2013, 113,769 unemployed.

#### 4. The tourism activity

The importance of tourism in the national economy is reflected through a *direct contribution to GDP of 10.5 billion lei*, i.e. approximately US \$ 3.2 billion in 2013 and *1.6% of GDP*. According to World Trade and Tourist Council, it was estimated that in 2014 the amount of the contribution will increase by 3.7 percent, reaching a value of 10.9 billion lei. Tourism represents after trade the most important branch of the services sector.

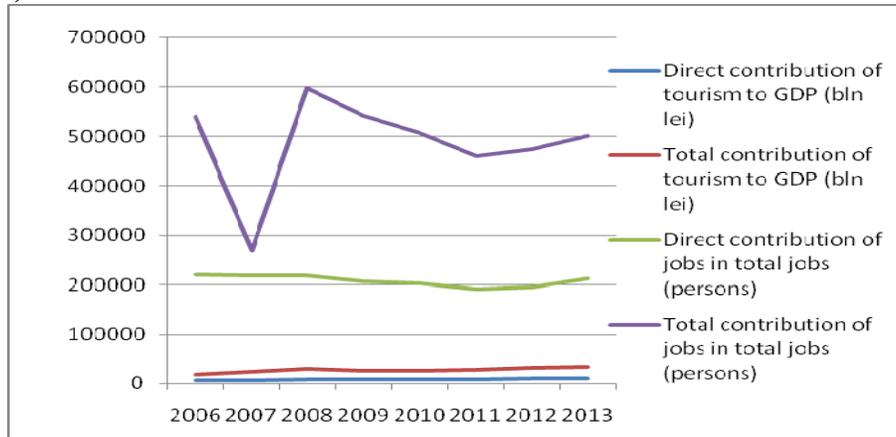
It can be observed that (see figure 5a-b) although the GDP contribution of tourism in value almost doubled in the year 2013, compared with 2006 (about 10.5 billion dollars in 2013, compared to 5.4 billion lei in 2006), its share has varied very little, the difference being only 0.1%. Indirect contribution to tourism in the period 2006-2013 amounts to an average of about 26.71 billion lei annually, meaning a total of approximately 5.2% annually in gross domestic product. At the same time, tourism contributes directly to an average of 208,525 thousands of jobs, taking a share of 2.4% in their yearly total. Total number of jobs (direct and indirect) resulting from tourism amount to approximately 524,460 jobs annually.

**Figure 5. Impact of tourism over economy and labour market**  
a)



Tourism contributes annually about 6% of all existing jobs. The total contribution of tourism to the GDP decreased by 0.2% in the last year compared with 2006, while the share of jobs created directly in the total tourism employment fell by 0.2% in 2011 compared to 2006. The share of tourism employment in total employment has decreased by 0.6%.

b)



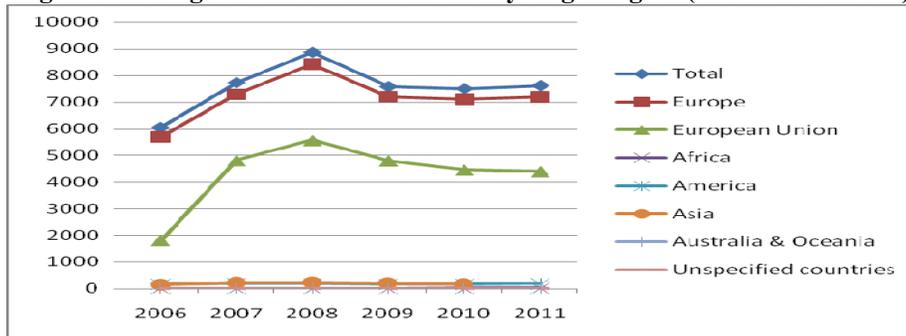
Source: www.eurostat.ro

Therefore, we note that in recent years there is a trend of slight decrease of the effect on the economy and in terms of jobs created.

A great influence on the impact of tourism on the social and economic level is the number of foreigners who come to our country. In Romania an average of 7.55 million non-nationals enter yearly, of which an average of 4.47 million are citizens of the European Union, 194 thousand coming from Asia, 179 thousand from America, 18 thousands in Africa, 13.5 thousand of Australia and Oceania, and one thousand come from unspecified countries. We can see the importance of Europe and the European Union in terms of the number of foreigners visiting the country.

If we look at the arrivals of foreigners in Romania by country of origin we can find that of the total foreign visitors almost 60% (59.20%) come from the European Union (see figure 6).

**Figure 6. Foreigner arrivals in Romania by origin region (thousand arrivals)**



Source: www.eurostat.ro

In 2006, the share of visitors from the EU was 46.43% and so far it has continued to grow. In last year's survey the percentage of visitors from Asia was 2.77% and from America 2,39%. The total number of visitors increased by 1.574 billions of visitors in 2011 compared to 2006 and in 2008, the year after Romania's accession to the European Union recorded the highest rate of foreign visitors, 8,862 billion. 2008 was the year in which tourism has had the greatest contribution to GDP (5.7%) and the best in terms of jobs created (6.8 percent).

The most important foreigners' access routes towards Romania are by road and by air. Of the total foreign arrivals in the country, over 76% came by road, 3.81% by rail, 17.75% by air and by sea 2.62%. The number of foreigners arriving in Romania by air increased in 2011 compared to 2006 with 387,000 arrivals, while the number of arrivals by rail fell by 56,000 arrivals. Here we can see the opportunity to invest in transport infrastructure in order to increase the number of foreign visitors, on some routes.

From the analysis of the number of units of accommodation as well as accommodation places in service, it can be observed that although the number of accommodation establishments grew up in 2011 with approximately 6.22% compared to 2006, the number of accommodation places decreased by 3.01% in the same period, and the number of accommodation places in service increased by approximately 21.09%, and of total accommodation places in 2011, 278,503 places, only 68,417 are in service, meaning a percentage of 24,56%. Share of accommodation places in service grew during the years of analysis, in 2006 reaching 19,67%.

From the analysis of the number of units of accommodation, accommodation and places to stay in operation, it is observed that although the number of accommodation establishments grew up in 2011 with approximately 6,22 percent compared to 2006, the number of places of accommodation decreased 3,01 per cent in the same period, and the number of accommodation places in service increased by approximately of total% and 21,09 jobs in 2011, 278.503 places, only 68.417 are in service, meaning a percentage of 24,56%. Share accommodation in service jobs grew in the years of analysis, in 2006 being 19,67%.

The situation by region on 31 July 2012 is presented as follows: in the North-Western region there are 604 accommodation units, of which 98 are hotels; the South-East has 974 accommodation establishments of which 374 are hotels; in South-Muntenia region there are 534 tourist accommodation establishments, of which 136 are hotels; Sud-Vest Oltenia has 377 tourist accommodation establishments, of which 95 are hotels; West region has 513 units of which 136 hotels; North-Western has 649 units, of which 163 are hotels; Central region has 1197 units, of which 208 hotels,

and Bucharest-Ilfov region holds 155 accommodation establishments, of which 108 are hotels.

We have noticed that although in the past there have been significant increases in terms of tourist accommodation establishments and tourism accommodation capacity, tourism has stagnated in terms of economic importance. For the harmonious and sustainable development of tourism is needed to act from several directions: increase in the number of establishments will not bring any benefit to the economy if in the tourist areas there is no necessary infrastructure facilitating access in those areas, Therefore, the development of tourism needs investment in infrastructure, a stable legal framework, appropriate and specific to the Romanian tourism and an increase in activities to promote areas with potential for tourist exploitation.

### **5. Conclusions**

The labour market in Romania faces problems such as high unemployment, low quality of work productivity and under-utilisation of the potential workforce. Due to the limited resources available to the employment services of the labour force, combined with the absence of a performance measurement system, we note that both employers and jobseekers are facing employment difficulties. To this there is also added the high percentage (17.3% in 2013) representing young people who do not follow any educational or training program and are not professionally engaged. Thus, it is needed special attention to measures in the field of labour market, establishing clear guidelines concerning the minimum wage, taking into account labor market conditions, but also economic ones and to ensure employability of aged workers.

In order to provide an economic development and increasing efficiency in the economy framework, Romania will have to act to combat long-term unemployment by providing allowances for unemployed workers falling before the expiry of the period of compensation, boosting mobility as well as by means of subsidies granted to workforce engaged in temporary employment programs.

We believe that the main objective of Romania regarding labour force should be investment in human capital, because there is a potential, and increasing the competitiveness of the labour market, through equal opportunities for learning.

In terms of tourist activity we can note that Romanian tourism is a dynamic sector with high potential for capitalization, which, however, does not enjoy sufficient service to generate the positive effects that it might have on the economy. Due to its advantageous geopolitical position, human resources and outstanding natural conditions, tourism could become for

Romania one of the sectors with great importance both economically and socially.

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## **OBJECTIVES AND RISKS OF SOP ENVIRONMENT WSS PROJECTS**

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### **Abstract**

*This paper aims to present some important findings of our recent research dedicated to the development of the water sector in Romania, namely of the Water Supply and Sanitation networks and services, as required by the objectives of the Sectoral Operational Programme Environment. After highlighting the necessity and importance of investments in the WSS infrastructure, we present the objectives of SOP Environment and the current high financing demand for investments in water supply and wastewater systems, under Priority Axis 1. Finally, the economic and financial risks to the SOP Environment regional water supply and sanitation projects are identified and exemplified by a qualitative analysis at a major regional (county) WSS project. There are also some brief conclusions and recommendations, as well as future research outlooks.*

**Keywords:** water supply and sanitation (WSS), SOP Environment, projects, economic risk, financial risk.

### **Introduction.**

Importance of WSS infrastructure and services development in Romania

In Romania, one of the most obvious characteristics of the general state of the environment concerns the striking deficiencies in environmental infrastructure, especially in the urban wastewater treatment and water supply and sanitation in rural areas. We can assert, based on a brief characterization of the water/wastewater sector, that Romania is still underdeveloped in terms of providing the infrastructure and distribution services of water supply and collection and treatment of wastewater.

The main current issues in the Water Supply and Sanitation (WSS) sector are: the relatively low public access to water supply network (only 65% of households and 56.5% of the Romanian population is connected to the public drinking water supply, in 2011); poor quality of drinking water; a low and unbalanced coverage of (urban or rural) areas in regions with public sewers (the total degree of sanitation coverage was, in 2011, of approximately 43.5% at the national level; the share of residents equivalents connected to public sewers is 78.45% in urban areas, as opposed to rural areas where it is of only 9.23%);

- the network of public sewerage is much less developed than the national public network water distribution, indicating an imbalance and lack of character generally integrated water services as a significant deficiency of this sector. The total number of localities with public sewerage is less than half (37.4% in 2011) of the total number of the localities supplied with drinking water network;
- a worrying aspect is that the sewerage system has developed at a considerably slower pace than the distribution network of drinking water;
- a lack of or insufficiency of wastewater treatment facilities (only 32.2% coverage with wastewater treatment facilities in 2011, so that treated wastewater represented only 35% of the total reversal);
- poor management of the water supply and sanitation systems.

All these issues have a negative impact on the prospects for a sustainable regional socio-economic and human development.

Since Romania has adopted the EU environmental acquis and aims to collect, by 2015, 60% of the wastewater discharged (doubling the capacity of 2004), the investment needs in the water supply and sanitation networks and services are a big challenge for the country, in economic, financial and administrative terms, especially given the global financial crisis. However, reducing the gap on environmental infrastructure, both quantitatively and qualitatively, between the European Union and Romania should result in more efficient public services, taking into account the principles of sustainable development, such as the "polluter pays" principle.

For environmental protection, the issues of surface and groundwater pollution derived mainly from the untreated wastewater discharged into watercourses. The extent of urban development in recent years in the absence or non-functioning of sewage treatment plants (even in Bucharest) led to a situation that over 50% of the quantities of pollutants discharged into the natural receivers come from large urban areas, which means that Romania will meet very high costs to implement Directive 91/271/EEC concerning urban waste water, over 10 billion euros.

Although the situation of localities with a population of less than 2000 population equivalent is not an emergency, of compliance with the obligations assumed by Romania's EU Accession Treaty in Chapter 22 (Environment) the fact that about two thirds of the rural population is not connected to the mains water supply and 80% of these residents do not benefit from sewer systems is, in our opinion, a major alarm signal regarding the prospects for balanced and sustainable development at the regional level in Romania.

Romania's capacity to provide efficient infrastructure and services in the environmental field, both nationally and locally, is also an important factor of economic development. Therefore, the public and/or private investments in water supply and sanitation WSS infrastructure, although extremely costly, are currently essential to ensure a balanced and sustainable development of the regions and districts of the country, a collective effort and an efficient test of Romania's integration in the European Union. However, through their drive, these investments in environmental infrastructure can be a viable and healthy way to revive the economic growth in Romania in the economic and financial crisis, a step to the desired smart and green recovery, recommended in the Europe 2020 strategy.

The importance of investment in environmental infrastructure, in a program of economic recovery is apparent from research devoted to the actual environmental infrastructure and its management, which shows that provision of infrastructure, can influence economic activity both in demand and in supply. The EU countries have undertaken numerous studies to determine whether the infrastructure stimulates economic growth. Evidence suggests that a more extensive infrastructure network is typically associated with higher economic activity. However, identifying and verifying the correlation between environmental infrastructure and green economic development at local, regional or national level is still a conceptual methodological challenge for economic research (Frone Simona, Frone D.F., 2014).

### **1.SOP Environment and the current financing demand for investments in WSS infrastructure**

As shown in our previous work, poor infrastructure is a real similarity between Romania and the country poor in developing Asia and Africa. Romania is underdeveloped in terms of infrastructure providing water supply services (distribution and potable water treatment) and, especially, in terms of sanitation services (collection and treatment) of wastewater.

The main reason is in the past underfunding of the water sector in Romania (Rojanschi V., Lust A., 2006), although the water supply and

sanitation (WSS) services generate substantial benefits for human health, the environment and economy as a whole (Frone Simona, Frone D.F., 2011).

In order to provide sustainable services WSS, the investment is necessary be carried out proper in both the upstream and the downstream; upstream investments in water management are critical to ensure sufficient resources constantly drinking water supplies from quality with the limiting the negative impact on other alternative uses of water. Investments to be carried downstream water supply activities are required for the collection of wastewater, sludges, safe treatment and disposal of wastewater in order to ensure adequate control of the environmental impact of these discharges of wastewater and maintaining the quality of natural water resources.

Hence water sector is an essential environmental sector which needs demanding investments in Romania: the overall objective of Sectoral Operational Program Environment (SOP Environment) is to protect and improve the environment and living standards in Romania, focusing in particular on meeting the environmental acquis. The aim is to reduce the environment infrastructure gap that exists between the European Union and Romania both in terms of quantity and quality. This should result in more effective and efficient services, while taking fully into account sustainable development and the polluter pays principle.

The first specific objective of the SOP Environment is the improvement of quality and access to water and wastewater infrastructure, by providing water supply and wastewater services in line with EU practices and policies, in most urban areas by 2015 and by setting efficient regionalised water and wastewater management structures.

Indeed, in Romania, as stated in the financial statement of the Sectoral Operational Programme Environment (SOP Environment, 2007), the total estimated required investment for the water sector in 2007-2013 are of about 12 billion Euro, out of which about €5.4 billion foreseen from the EU funds:

- €4.8 billion estimated in the period 2007-2013 for waste water collection and treatment investment. This investment is urged since up to 70% of the waste water are untreated or insufficiently treated and flow directly into natural receivers; less than 55% of Romania's population is connected both to water and sewage services; all territory of Romania declared sensitive area; advanced treatment (more expensive) will be required for agglomerations larger than 10,000 p.e. (population equivalent)
- €3.8 bn estimated in the period 2007-2013 for investment in drinking water provision, since only 65% of the population of Romania benefit from mains drinking water supply and indoor plumbing [SOP Environment, 2007].

That is, a total estimated investment requirement of €8.6 bn for the period 2007-2013, meaning an average annual investment of €1.72 bn , i.e. about **2.32 bn \$ / year** (average exchange rate employed 1 Euro € = 1,35 USD \$).

Also, by considering another rough previous estimation, the total investment needs for rehabilitation of public water and sewer as calculated in the sustainable development strategy of public water supply and sanitation in Romania (RWA, 2003) is:

- water supply and sanitation in urban areas: 6.3 billion Euro
- water supply and sanitation in rural areas: 6.2 billion Euro.

The total is 12.5 billion, representing an annual average of 625 million Euro/year, i.e. minimum **850 million \$/year** (but here a 20 years long-term is considered).

In line with the assessment of the environmental needs in Romania, the first most demanding field representing Priority Axis 1 "**Extension and modernization of water and wastewater systems**".The proposed total financial allocation for Priority Axis 1 is of about 3.2 billion Euro, taking into consideration also the risk of noncompliance with EU acquis which would lead to higher price to be paid in the medium term by Romanian authorities.

Currently, in implementing SOP Environment, Romania was quite successful in the signing and approval of major environmental infrastructure projects (43 major water projects approved for Priority Axis 1 (SOP Managing Authority, 2013). The signed projects are worth 5 billion euros, and in terms of the 2007-2013 calendar, the programme fitted the schedule agreed with the European Union more than forecasted, in terms of signing contracts.

However, the second phase of implementation and absorption, which are the responsibility of local authorities, is still poor. Water and sewerage networks projects present also a high financial risk of disengagement of EU funds, due to too low levels of implementation: the average rate of implementation of the 42 regional major WSS projects was of only 15 % in August 2012 (Frone Simona, 2013).

Still, as we shall further analyse, the Priority Axis 1 "Extension and modernization of water and wastewater systems" faces some problems, shortcomings and challenges for a higher absorption of EU structural and cohesion funds available for the effective development of the water/wastewater infrastructure, since the co-financing and implementation capacity of the Regional Operators has proved to be too limited.

## 2. **Economic and financial risks to the SOP Environment regional water supply and sanitation projects**

In order to outline and analyse the most important and specific detailed analysis on economic and financial risks associated with specific investment projects in water supply and sanitation infrastructure WSS.

The classification, analysis and assessment of risks related to WSS projects is not an easy task, although it is an issue that should always be well thought out and planned. The actual outcome of future specific risk is not predictable with certainty but different probabilistic outcomes are usually known, either from mathematical calculation or similar experiences.

Economic and financial risks of the WSS activity can be divided into two categories:

- 1) financial risks (investment related), which is the set of risks associated with investment in new infrastructure of water and wastewater: expansion of a distribution network, the creation and development of new sources of drinking water, or the construction of a new water wastewater treatment.
- 2) economic risks (of exploitation), which is the set of risks associated with the operation and maintenance of the water supply and sewage-sanitation service.

Next we may be able to perform more detailed analysis of these risks, with some own comments and particularities highlighted for the case of the water supply and sewerage sanitation (WSS) projects financed by the Priority Axis 1 of SOP Environment in Romania.

The most significant financial risks of infrastructure and WSS utilities projects are:

- the **credit risk (capital - intensive profile)**: a typical WSS project involves large investments in early years, with a large negative cash flow, which eventually turns into a positive but modest cash flow. Precisely because of this risk, major environmental infrastructure projects for water supply and sanitation in Romania benefit in SOP Environment from European grant funding (Cohesion Fund), since they are virtually non-bankable due to the huge investment needs, to be achieved in a relatively short time (under terms negotiated in the accession treaty);

- the **risk of reduced profitability**: because the late obtaining of positive cash flow and resistance to tariff increases, financial rates of return of the water / wastewater are among the lowest (5-10%, as compared to 17-25% in the energy sector and 25 -30 % in the telecommunications sector ) (UNEP , 2006).

- the **risk of disengagement** (cessation) of European funding: in financing the SOP Environment WSS projects, this risk translates into specific risks of financial corrections or disengagement. Thus, any misuse of

EU funds will lead to financial corrections. These may consist of delayed disbursements, reduction in future payments or recovery of funds allocated.

- the **currency risk** : in the European SCF funding, such as the SOP Environment WSS projects, this risk is avoided by the fact that funds are either grants or co - financing contribution of budgets of the national and local government, which are in national currency;

- the **sub- sovereign risk**: in Romania there have issued problems in the financial capacity of municipalities and county councils, to contract and guarantee loans. According to the Ministry of Finance, a number of four county capital cities and eight county councils have exceeded the 2013 level of 30 % debt ratio which allows contracting or guaranteeing new repayable loans.

Economic risks of the WSS projects are determined by the uncertainty of economic development, namely of the market for this sector. The most important of these risks are:

- the **commercial risks**: risks related to the consumer demand, the microeconomic behavior of consumers (i.e. their reaction to increasing water consumption tariffs) , current and projected demographic changes in the operating model of water consumption, illegal connections , unbilled water and bad debts;

- the **risk of competition**: The demand for WSS infrastructure and services in Romania is reduced because of the risk of competition determined by quasi - free access of rural population to water from common wells and own boreholes;

- the **risk of inflation**: According to a recent report by the IMF in Romania, inflation is expected to decline further in the second half of 2013, down to 3.3 % at the end of the year (in the central bank 's target range) and will continue to decline in 2014 to 3%, and 2015, to 2.9%. Thus inflation risk is relatively low (moderate risk score in the risk matrix of the WSS projects);

- the **contractual risk** is inherent in the long-term contracts, since over long periods, the operating environment is likely to change due to changes in national policy, water quality standards, the availability of fresh water resources , etc. ;

- the **legal and regulatory risk**: typical risks which are taken into consideration here refer to the existing legal and regulatory framework for the provision of water and wastewater, the incoherence of national and regional legal method of resolving disputes, such as those related to the enforceability of legal provisions.

The fact that water is one of the local natural monopolies requires the important role regulatory authority for WSS services to ensure compliance with performance standards and for protection of consumer

interests. However, the regulatory framework for water and wastewater services may be insufficient, inadequate and unstable, being perceived as a significant risk to potential investors in this market.

There is significant uncertainty about future cash flows of the WSS operators as essential cost elements (determined, for instance, by the requirements of wastewater treatment), and income (e.g. tariffs) cannot be predicted accurately. This risk, together with low levels of implementation of contracts, are key reasons for low investment and relatively limited use of public-private partnerships in the water sector in many emerging market economies and developing countries (Platon V et al, 2014).

The table below (Table 1) summarizes the main economic and financial risks of water supply and sanitation projects and services:

**Table 1: Specific financial and economic risks and impacts in the WSS sector**

Crt.nr.	Risk category	Impacts
<i>Financial risks</i>		<i>Affect financing of investment projects in the sector of WSS</i>
1.	Credit risk	Major WSS projects are capital-intensive AAC and non-bankable (difficulty in attracting commercial loans)
2.	Risk of low profitability	Projects are less profitable and unattractive to investors (difficulty in attracting funds on the financial market)
3.	Risk of European funding disengagement	Ceasing funding for continuation or completion of the investment
4.	Currency risk	Devaluation of the investment debt service
5.	Sub-sovereign risk	Incapacity of local governments and municipalities to grant or borrow
6.	Macroeconomic risk	Macroeconomic instability will affect the price of capital raised from the financial market
<i>Economic risks</i>		<i>Affect the value of project costs and revenues in the WSS sector</i>
1.	Commercial demand risk	Payment default and lower revenue than forecast of the feasibility study
2.	Risk of competition	Incomes below projections in the feasibility study (reduced demand due to competition)
3.	Risk of inflation	Overcoming the cost of project implementation
4.	Contractual risk	Losses or additional costs by changing operating environment, under fixed contractual terms
5.	Legal (regulatory) risk	Investment or additional cost required by regulation amending the legislative framework
6.	Other risks	Increased investment and operating costs

*Source:* Own selection and comments

In order to better highlight the most important risks of the SOP Environment WSS Projects to be implemented in Romania, we shall take an example of such a major county project. The follow up provides a simulation of qualitative assessment of the economic and financial risks for the specific regional WSS project **Extension and rehabilitation of the water supply and sewerage systems in the Dambovita county**, by the method of risk scoring matrix.

Thus, for this case study, taking into account economic and financial risks associated with regional WSS projects in Romania, absorbing European Cohesion funding, as have been identified and analysed above, we perform a qualitative assessment of these risks, in the actual stage of the project. In the qualitative risk assessment we rely on information from the feasibility study and the investment implementation reports for SOP Environment Axis 1, completed with our own analysis on current developments in the WS (water supply) and WW(wastewater) tariffs and works, within the chosen regional project case study (ROC Dambovita - Targoviste Water Company).

First we analyse qualitatively the main economic risks of this major WSS project to identify the most important economic risk. This risk will be next explained and analysed in detail.

Risks are assessed in terms of their probability of occurrence and their impact, issues that can be assessed on a scale of 1-5, where 1 represents a very low impact and 5 is a very high impact. In addition, the probability of risk may be measured on a scale from A - a very high (80-100%) probability to E - the very low probability (10-20%), so as to order the main risks identified according to these criteria (Table 2).

**Table 2: Qualitative assessment of the economic risks for a European funded regional WSS project**

Risk	Impact (1-5)	Probability (A-E)	Scoring of risk
Risk of demand (non-payment)	4	B	High
Risk of competition	3	C	Moderate
Risk of inflation	3	D	Moderate
Contractual risk	2	C	Moderate
Legal and regulatory risk	2	E	Low
Other risks	2	D	Low

Source: Own analyses and assessments

Finally, we develop a risks matrix, showing better these risks in terms of their risk score:

Risk Score = Probability x Impact

An ordinal risk score matrix form is obtained considering the probability and impact levels in their qualitative expression, previously considered (in table 2). In this matrix (Table 3) for more relevance, the low

impact colour is green; yellow represents moderate values of risk score and red colour code, the higher levels of risk score.

**Table 3: Economic risk score matrix for a European funded regional WSS project**

RISK SCORE		Risk impact				
		1	2	3	4	5
Probability	A					
	B				High	
	C		Moderate	Moderate		
	D		Low	Moderate		
	E		Low			

Source: Own analyses and assessments

As resulting from our qualitative risk analysis, based on the matrix of scores, the most important economic risk of the studied WSS project is the commercial risk of falling demand hence a risk of non-payment of bills for water supply and sewer sanitation services, because of their high tariffs and low affordability of the population, especially in rural areas.

The feasibility study (ISPA TA, 2010) admitted that rates will exceed the limit of affordability of the poorest 10% of households from 2011 until 2018, but problems were not expected for income deciles 2 and 3, with higher affordability limits.

However, taking into account recent developments in the tariffs for WSS services (WS and WW) at ROC Dambovita, we found that there is a high probability of non-payment and demand reduction (probability of category B), which would have a great impact on the cash-flow of beneficiary and thus on the ability to implement the investment project.

Since the beginning of 2013, ROC Dambovita has adopted relatively high tariffs for both WSS services, tariffs that exceeded the levels projected in the feasibility study (Platon V et al., 2013). Current tariff for water supply and sewerage sanitation services at the Dambovita ROC (Targoviste Water Company) is 3.39 RON / m<sup>3</sup> of WS and 3.49 EUR / m<sup>3</sup> of WW, for both households and businesses as decided by (IDA "Water Dambovita", 2013).

In Figure 1 we showed that, since 2013, the level total charge for WSS services has exceeded the level projected in the feasibility study, a policy that presents a high risk of non-payment from water and sewerage consumers in the region ascribed to the ROC Dambovita.

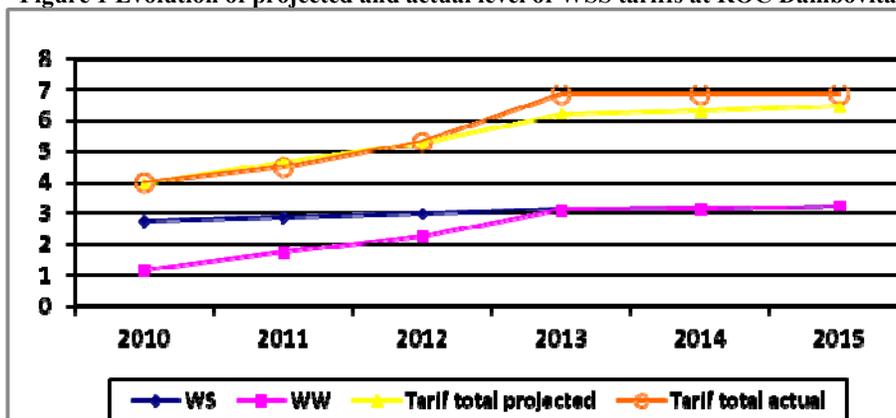
We consider that ROC Dambovita tends to abuse its natural monopoly position by dramatically increasing tariffs for water supply and sewerage sanitation services, in an attempt to recover as quickly as possible the investment costs of the project or, even worse, in order to cover some current unjustified expenses or losses.

A separate analysis on affordability for urban and rural areas show that the problems of consumers capacity to pay for WSS concern mainly rural areas. Thus special solutions should be found to reduce the problem of affordability of low-income households, in rural areas, which will cover about one third of the population served in 2013 if the present boundaries of the area served remain the same (ISPA TA, 2010).

This excessive charge overlapped with effects of economic crisis has already created discontent and frustration among local consumers (Exclusiv DB, 2013), effectively leading to tariff resilience and non-payment of services, or waiving connection, among the vulnerable population of the project area.

Given the fact that affordability problems are more common among rural households, the ROC should consider social tariff only in rural areas. This would maximize the desired effect on poor households' affordability while limiting the negative effects of implementing these measures on ROC's revenues and project cash-flow, since the water consumption in rural areas is anyway low.

**Figure 1 Evolution of projected and actual level of WSS tariffs at ROC Dambovita**



Source: Primary data and own calculations. Note: Prices are expressed in EUR / m<sup>3</sup>, exclude VAT and are valid for all localities in the area of water and sewer systems operated by the Water Company ROC Dambovita, starting with 01/01/2013. Legal basis: Hot.Nr.69 / 01/18/2013 Intercommunity Development Association "Water Dambovita" Notice Nr.4573683 / 20.12.2012 issued by ANRSC.

Another positive side effect of such measures is that they would give households in rural areas that are currently not connected to the system (or are connected illegally), an incentive to connect to water and sewage WSS system. A higher rate could reduce the willingness of connection or could encourage illegal connections.

Next, we shall briefly review and assess the financial risks of the WSS major project of ROC Dambovita. As we have analyzed more in detail above, investment related financial risks represent the set of risks associated with investment in new infrastructure of water supply and sanitation.

**Table 4: Qualitative assessment of the financial risks for a European funded regional WSS project**

Risk	Impact (1-5)	Probability (A-E)	Scoring of risk
Credit risk	3	D	Moderate
Risk of low profitability	3	C	Moderate
Risk of European funding disengagement	4	B	High
Currency risk	2	D	Low
Sub-sovereign risk	2	C	Moderate
Macroeconomic risk	1	C	Low

Source: Own analyses and assessments

**Table 5: Financial risk score matrix for a European funded regional WSS project**

RISK		Risk impact				
		1	2	3	4	5
Probability	A					
	B				High	
	C	Low	Moderate	Moderate		
	D		Low	Moderate		
	E					

Source: Own analyses and assessments

Unfortunately, the major project of **Extension and rehabilitation of the water supply and sewerage systems in the Dambovita County** is among those listed as projects and contracts with risk of failure at September 30, 2013 ([www.posmediu.ro/proiecte](http://www.posmediu.ro/proiecte)). Thus, as analysed in a previous extended research (Frone Simona, 2013), the implementation of investment for the project was only 10% at 29.09.2012, under the project deadline of 31 December 2013.

In addition, some of the project contracts for works have been suspended or terminated (such as the contract for Extension and rehabilitation of the water supply and sewerage systems Gaesti, which was terminated at 0.5% physical progress as well as the Extension and rehabilitation of the water supply and sewerage systems Titu) due to serious deviations in the public tendering and procurement.

Therefore, in the qualitative assessment of financial risks for this major WSS project, the probability of exceeding the term of contractual implementation is considered high (category B) and hence the risk of

disengagement of European funding (including also financial corrections here) is reasonably high (red code in the matrix of risk scores).

In this risk scoring matrix (Table 5) for more relevance, again the low impact colour is green; yellow represents moderate values of risk score and red colour code, the higher levels of risk score.

#### **4. Conclusions and recommendations**

As we must outline in our conclusions and recommendations, although the process of regionalization of operations and systems in the Romanian water supply and sanitation sector has had, among its objectives, the creation of an appropriate institutional framework for the development and implementation of large infrastructure investment projects, in some cases sufficient strengthening of financial and strategic management capacity was not achieved, to enable the effective management of financial and economic risks of the projects.

In the SOP Environment, the absorption of European funds (a current total rate of absorption of 35.47%, reported at 31.08.2014) is affected, in our opinion, by low administrative and managerial capacity, particularly at local authorities. Hence, a great risk of losing EU funds due to the very low implementation is represented by regional projects of water and sewerage networks. Some of them have values of over 100 million euros each, but their level of implementation may be still below 20%.

These projects are run by local authorities, through specialized companies owned by them. Regional WSS projects are major investment projects, using European money through the Sectorial Operational Programme Environment, managed by the Ministry of Environment, as well as State budget funds and money from local budgets. The European Commission applies for Romania financial corrections of 10% of the SOP Environment program, due to problems or deviations in public procurement contracts signed before October 2011.

As based on the risk-analysis here and on subsequent research, one conclusion is that there are still important difficulties and lacks in the institutional, operational and managerial fields of the Romanian water (WSS) sector, that mostly increase the economic and financial risks to regional water supply and sanitation projects.

In order to outline these risk factors and according to a recent analysis the weak implementation of regional WSS projects (Cenacchi Valeria, 2013) we refer to:

- Difficulties and lacks of the beneficiaries (ROCs): inadequate expertise and experience; lack of proactive attitude for launching and managing tenders, implementing contracts, monitoring and validation of consultants;

○ Difficulties and lacks of the I.D.A.(Intercommunity Development Association): poor endorsement and stabilisation of strategic decisions on the investments plans and on the update of master plans, lack of reactivity for adjusting the tariff strategies when required, following the actual water demand ; weak governance in managing the ROCs.

The Management Authority of SOP Environment has made lately (last year) a number of changes needed to improve absorption. The Ministry of European Funds has acknowledged that beneficiaries of the projects implemented under the SOP Environment will be able to faster request the EU funding for works performed, provided that submitted should be not less than 150,000 euros. The measure was adopted to eliminate administrative bottlenecks in providing the necessary resources to implement projects and to create all the prerequisites for the execution of works to be completed within the period specified in the contracts (MEF, 2013).

There are still many economic and financial management aspects to be improved in the development of water supply and sanitation sector in Romania, to eventually conform to the heavy requirements of the Water Framework Directive (2000/60/EC) and our future research will resume analysis of these issues in light of the Romanian EU Partnership Agreement for the 2014-2020 programming period.

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## **INVESTIGATING FDI INFLOWS IN ROMANIA THROUGH AN ARMA MODEL**

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### **Abstract**

*In this paper, we study the relationship between GDP and FDI in Romania and we also assess the importance of GDP level for further attracting FDI. Using an ARMA model, we find that FDI in Romania is not explained by the value in the previous period, but is due to the evolution of the errors in the previous period. In the range 1990-2013 we obtain a valid relationship between FDI and real GDP growth. According to the variance decomposition of FDI, we can conclude that 1.06% of the variation of FDI is explained by the changes in real GDP rate in the first period. Then, the influence of GDP rate decreases in time, the variance of FDI explained by GDP rate having a value close to zero in the 10th lag.*

**Keywords:** foreign direct investments, gross domestic product, Romania, ARMA model

**JEL Classification:** F23, O1, C5

### **Introduction**

Foreign direct investments (FDI) are attractive for the host economy due to their association not only with capital inflows, but also with technology, know-how flows and managerial capacities, which generates positive impact on economic growth. Also, FDI are one of the sources for financing an economy, besides public investments and European funds. Therefore, attracting FDI should be one of the main concerns of public

decision makers. Bonciu (2009) emphasize eight economic aspects that influence the decision to invest abroad: the existence of natural resources, the geographical position of the country, the cost of labour relative to the skill level, the existence of suppliers, the corporate tax level, the infrastructure development, the institutional and legislative framework and the environmental issues. Except for the first two factors, each of the following ones relate to matters that can be regulated by public policy.

At the same time, for former transition countries, where Romania is included, Kinoshita and Campos (2003) make the difference between *traditional factors* for attracting FDI, such as the host country market size, low production costs and abundance of natural resources, *new factors*, such as the institutions' quality and *transition-specific factors*, such as the initial conditions that characterizes the countries.

For the former transition countries, the literature suggests that most TNCs entering the region aim to identify new market opportunities, quantified by the absolute level of GDP and market growth (Lankes and Venables, 1996). Lopez (2010) identifies that the market size is a significant variable for FDI both in the first period of the transition (1990-1998) and in the last one (1998-2003).

We assessed in previous studies the significant determinants for attracting FDI that can be directly influenced by public decision makers (Paul, Popovici, Calin 2014; Popovici and Calin 2012 a, 2012b, 2013a, 2013 b, 2014 a, 2014b).

In this paper, we are interested in finding if GDP can be considered a determinant for FDI in Romania. Furthermore, we will model FDI in Romania in order to assess future FDI inflows and we also check to what extend GDP can be considered a determinant of FDI. The rest of the paper is divided as follows. In the first and the second part, we will analyse the literature for assessing both the impact of FDI on economic growth and that of GDP on FDI. In the second part, we will use an ARMA model for assessing the relationship between GDP and FDI and for forecasting FDI.

### **1. The impact of FDI on economic growth**

A wider definition of FDI gives the main insights of the positive impact of foreign direct inflows on GDP. The foreign investment is seen as the transfer of an industrial package including capital, technologies, methods of industrial organization, managerial expertise, marketing knowledge, etc., that allows the investor to control the investment (Negritoiu, 1996). The same is expressed in Dunning and Lundan (2008), who assume that the foreign investment represent a transfer of both capital and intangible assets such as organizational practices, managerial skills, technological progress, which stimulate and generate economic growth.

Therefore, FDI positively impacts economic growth due to its contribution to capital formation, the technology transfer and the new technologies, as confirmed by Borensztein et al. (1995), Blomstrom et al. (1996), Borensztein and Kokko (1998) and Dunning (1993). Technology transfer is a main instrument for positive externalities for the economy of the host country. Multinational companies are responsible for important research-development activities, producing superior technologies that generate technological spillovers (Liu, 2002; Kohpaiboon, 2006).

There are also several other modalities that made from FDI an important tool for stimulating economic development. The literature point also to the increase of the knowledge of human resources, following the acquisition of new skills and training (de Mello, 1996, 1999) provided by multinational companies in the host country. Also, there are substantial changes in the management and corporate governance. In general, multinational companies impose their policies, internal reporting systems and organizational principles, usually of higher quality than those in the host country. In this way, corporate efficiency will be increased.

Studies that concern Romania generally also point to a strong impact of FDI on economic. Ulian et al. (2014) find a strong and direct impact of FDI on the economic growth rate in Romania and the Republic of Moldova during 2006-2012 by using a simple linear regression. Nistor (2012) analyzes Romanian regions and shows that there is a direct correlation between FDI stocks distribution and GDP per capita, namely the lowest FDI stock in North East region is also characterized by a low GDP per capita. Although using different methods, Roman and Padureanu (2011) also find a positive impact of FDI on Romanian economic growth. In this respect, the authors use a neoclassical model with Cobb-Douglas production functions. Pelinescu and Radulescu (2009) rather find a weak direct influence of FDI on economic growth during the first quarter of 2000 until the first quarter of 2009. Still, the authors signal that there are indirect effects of FDI on GDP, such as the increase in the labour productivity and its impact on economic growth.

Still, studies show that the impact of FDI on economic growth can be narrowed to the conditions in the host countries.

Ozturk (2007) signals that there are several barriers that can interfere in the direct relation between FDI and GDP. One of these barriers is the level of economic development. Practically, countries must have a certain level of development of the banking and financial system, of the physical infrastructure, in order to attract FDI with a positive influence on GDP. This is why is difficult to establish a straightforward result as regards the impact of FDI on economic growth for developing countries. The same is available for de Mello (1996) and OECD (2002).

## **2. GDP as a determinant for FDI**

GDP can be considered a traditional determinant of FDI, among low production costs and natural resources abundance (Johnson, 2006, p.17). FDI in transition countries is largely due to the dimension of the market or to its potential growth (Lankes and Venables, 1996; Lopez, 2010).

Still, the economic growth also encompasses the growth in terms of competitiveness, due to its method of calculation, based on added value.

In this respect, economic growth, economic potential and market dimension – all of them being expressed in relation to GDP – can be seen as determinants for market-seeking FDI, but also for efficiency-seeking FDI.

The GDP level is mainly expressing the dimension of the destination market. When looking at the GDP level, investors are assessing the country's potential for selling their products or for realising scale economies. For Kinoshita and Campos (2006), the impact of the GDP on FDI is inconclusive, as the authors cannot clearly distinguish between the motivations of FDI inflows realised in the 90s.

The GDP/capita is expressing not only the purchasing power of the local consumers and the dimension of the market (Mehic, 2009, p.157), but can be also assigned as expressing the labour force productivity (Benassy-Quere et al., 2007), the quality of the market demand (Mateev and Tsekov, 2012; Johnson, 2006) and so on, which assigns it an ambiguous character in relation to FDI. In this respect, GDP/capita can be seen as an indicator for efficiency-seeking FDI. Based on robustness tests, Chakrabarti (2001) finds that host market size, expressed as GDP/capita, is the most important determinant for FDI, followed by economic openness.

The GDP growth rate is a measure for the market potential. The status of transition for the countries in the Central and East Europe made from this variable one of the main indicators for foreign investors, as shown in Garibaldi et al. (2001), Tondel (2001), Addison and Heshmati (2003), Busse and Hefeker (2007), Dang (2009), Bockem and Tuschke (2010).

There is a scarce empirical evidence of economic growth impact on FDI in Romania; analyses take into account Romania when studying the attractiveness of transition countries for FDI. GDP is found as a significant factor for attracting FDI in Bevan and Estrin (2000), Garibaldi et al. (2002), Globerman and Shapiro (2002), Bevan et al. (2004), Bellak et al. (2007), Bénassy-Quéré et al. (2007), Hansson and Olofsdotter (2010).

As regards studies focused on Romania, Ludosean (2012) uses VAR model estimations and finds that FDI is not a cause for stimulating growth. Still, an important result points that economic growth is an important factor for attracting FDI in Romania. The same result as regards the relationship between GDP and FDI is mentioned in Carp and Popa (2013). Using a VAR

model with data over the period 1990 – 2011, the authors find that GDP is a significant variable for the FDI inflows in Romania and Bulgaria.

### 3. Modelling FDI in Romania

The data series is represented by the foreign domestic investment inward stock as percentage of gross domestic product in Romania during 1990-2013. The data are provided by UNCTAD. Moreover, for econometric purposes we also used the data for real GDP growth in Romania provided by Eurostat for the same period.

The stationary character of the data was checked using Augmented Dickey-Fuller (ADF) test.

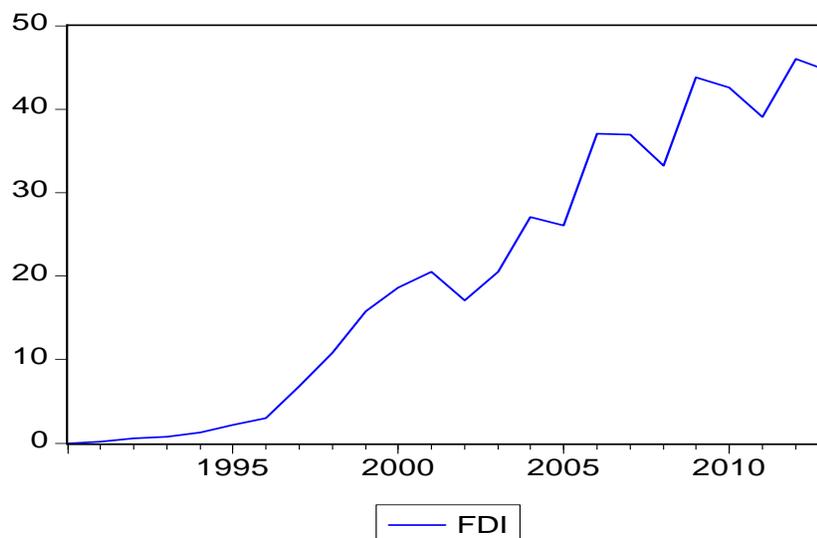
An autoregressive model was not valid. So, the evolution of FDI is not explained by the value in the previous period.

**Table 1: ADF test for FDI data in Romania (1990-2013)**

Type of data	Include in the equation	Computed statistic	Critical values (5% level of significance)	Conclusion
Data in level	Intercept	-0.039087	-3.0038	Non-Stationary data series
	Trend and intercept	-3.128839	-3.6330	Non-Stationary data series
	none	1.949035	-1.9574	Non-Stationary data series
Data in first difference	Intercept	-5.316282	-3.0114	Stationary data series
	Trend and intercept	-5.195802	-3.6454	Stationary data series
	none	-3.071851	-1.9583	Stationary data series

Source: authors' computations

According to the results of ADF test, the data in first difference is stationary. The ARMA model will be constructed using this stationary data. A moving average model of order 1 was estimated using least squares method.

**Figure 1: The evolution of FDI inflows in Romania (1990-2013)**

During 1990-2013, FDI have increased in average by 2,027 times. In 2009 FDI has increased with 31.8% compared to the value in 2008, but in the context of economic crisis in 2010 the variable decreased with almost 2.3%.

**Table 2: The moving average model of order 1 for FDI in Romania (1990-2013)**

Dependent Variable: D FDI				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.358028	0.109452	21.54389	0.0000
MA(1)	-0.953868	0.028360	-33.63429	0.0000
R-squared	0.334959	Mean dependent var		1.939316
Adjusted R-squared	0.303290	S.D. dependent var		4.054953
S.E. of regression	3.384634	Akaike info criterion		5.359310
Sum squared resid	240.5707	Schwarz criterion		5.458049
Log likelihood	-59.63207	F-statistic		10.57700
Durbin-Watson stat	1.573453	Prob(F-statistic)		0.003812
Inverted MA Roots	.95			

Source: authors' computations

After the study of the residuals' correlogram we can conclude that the errors are independent up to lag 12. Indeed, the probabilities associated to Q-stat are higher than 0.05 for all the lags.

**Table 3: The residuals' correlogram for MA (1) model**

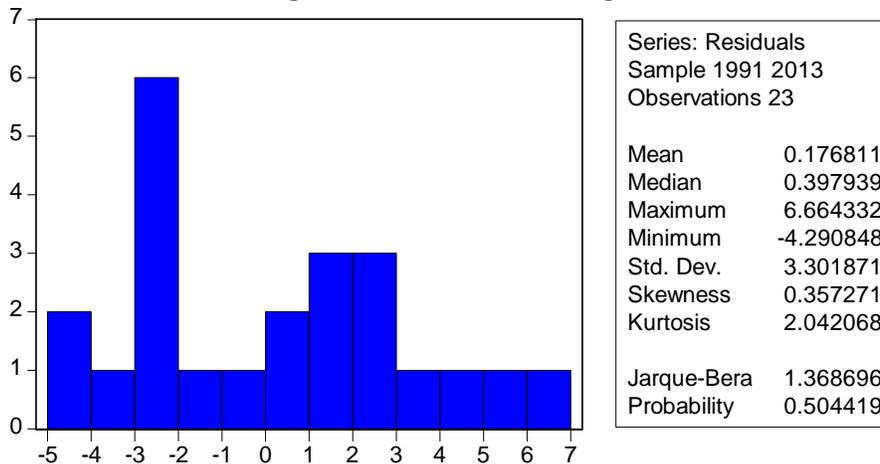
Q-statistic probabilities adjusted  
for 1 ARMA term(s)

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
.  * .	.  * .	1	0.146	0.146	0.5564	
.   .	.  * .	2	-0.040	-0.063	0.6009	0.438
.  * .	.  * .	3	0.076	0.094	0.7681	0.681
***  .	***  .	4	-0.510	-0.558	8.6287	0.035
.  * .	.   .	5	-0.179	0.042	9.6525	0.047
.  * .	.   .	6	0.073	0.010	9.8320	0.080
.  * .	.   .	7	-0.085	0.022	10.090	0.121
.  * .	.  * .	8	0.190	-0.062	11.480	0.119
.  * .	.   .	9	0.104	-0.055	11.922	0.155
.  * .	.   .	10	-0.097	-0.038	12.336	0.195
. **  .	. **  .	11	-0.207	-0.362	14.379	0.156
. **  .	.  * .	12	-0.211	-0.080	16.714	0.117

Source: authors' computations

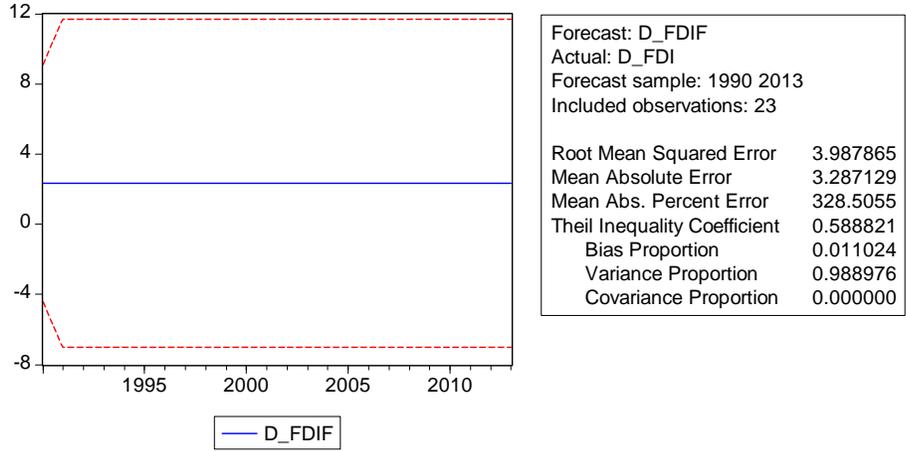
According to the histogram of the errors and to the Jarque-Bera test, we do not have enough evidence to reject the assumption of normal distribution for the errors.

**Figure 2: The errors' histogram**



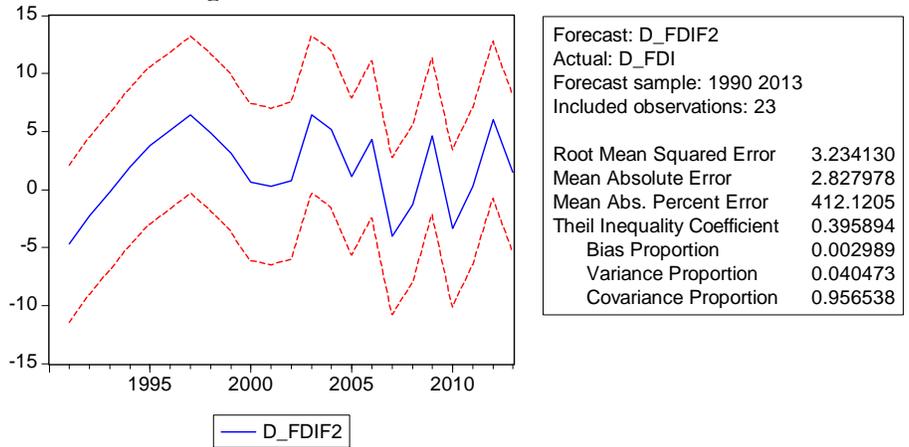
So, the validity of the MA (1) model was checked. This process will be used to construct static and dynamic forecasts. The evolution of FDI in Romania is explained by the evolution of the errors in the previous period. The static predictions suppose that we take into account only the registered values of FDI in constructing the forecasts.

**Figure 2: Dynamic forecasts of FDI in Romania**



For dynamic forecasts of FDI a null covariance proportion was registered, the Theil's coefficient suggesting a low degree of accuracy. The dynamic predictions do not have oscillations, suggesting an improbable evolution for this indicator.

**Figure 3: Static forecasts of FDI in Romania**



The static forecasts have a higher degree of accuracy (the Theil inequality coefficient is lower than in the case of dynamic forecasts). The biasness is small, but the covariance proportion is close to 1. For static forecasts we have consistent oscillations compared to the simplistic and constant evolution of dynamic predictions.

The real GDP rate data series is stationary, according to the results of ADF test. A vector-autoregressive model was estimated for real GDP growth and FDI.

**Table 4: ADF test for real GDP growth data in Romania (1990-2013)**

Type of data	Include in the equation	Computed statistic	Critical values (5% level of significance)	Conclusion
Data in level	Intercept	-3.965990	-3.0038	Stationary data series
	Trend and intercept	-3.542685	-3.2535	Stationary data series
	none	-3.469095	-1.9574	Stationary data series

Source: authors' computations

A VAR model of order 1 was estimated and the results of estimations are displayed in Appendix 1. The errors are independent and homoskedastic, following a normal distribution.

**Table 5: Variance decomposition of D FDI**

Period	Response of D FDI to GDP rate	Response of D FDI to D FDI
1	1.061218 (0.83928)	3.864367 (0.58258)
2	0.692825 (0.67751)	-1.411985 (0.85664)
3	0.133532 (0.27115)	0.575955 (0.63489)
4	0.112920 (0.17018)	-0.205598 (0.36411)
5	0.014724 (0.07514)	0.086233 (0.18609)
6	0.018973 (0.03881)	-0.029746 (0.08925)
7	0.001097 (0.01707)	0.012995 (0.04115)
8	0.003299 (0.00818)	-0.004262 (0.01843)
9	7.06E-05 (0.00361)	0.001976 (0.00810)
10	0.000595 (0.00168)	-0.000601 (0.00350)

Source: authors' computations

There is a valid relationship between FDI and real GDP growth. According to variance decomposition of FDI, we can conclude that 1.06% of the variation of D\_FDI is explained by the changes in real GDP rate in the first period. Then, the influence of GDP rate decreases in time, the variance of FDI explained by GDP rate having a value close to zero in the 10<sup>th</sup> lag.

#### **4. Conclusions**

During 1990-2013 the FDI have increased in average by 2,027 times. In 2009 the FDI has increased with 31.8% compared to the value in 2008, but the in the context of economic crisis in 2010 the variable decreased with almost 2.3%.

FDI in Romania is not explained by the value in the previous period. The FDI in Romania is due to the evolution of the errors in the previous period. For static forecasts we have consistent oscillations compared to the simplistic and constant evolution of dynamic predictions during 1990-2013. The static predictions suppose that we take into account only the registered values of FDI in constructing the forecasts.

There is a valid relationship between FDI and real GDP growth. According to variance decomposition of FDI, we can conclude that 1.06% of the variation of D\_FDI is explained by the changes in real GDP rate in the first period. Then, the influence of GDP rate decreases in time, the variance of FDI explained by GDP rate having a value close to zero in the 10th lag.

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**Appendices****Appendix 1**

The estimation of the VAR (1) model for differentiated FDI and real GDP rate

Lag length criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-126.2965	NA	398.4932	11.66332	11.76250	11.68668
1	-119.2593	12.15521*	303.3456*	11.38721*	11.68476*	11.45730*

**Appendix 2**

Vector Autoregression Estimates

Standard errors in ( ) & t-statistics in [ ]

	RGDP	D_FDI
RGDP(-1)	0.446137 (0.14162) [ 3.15030]	0.076918 (0.14309) [ 0.53755]
D_FDI(-1)	0.201979 (0.21251) [ 0.95043]	-0.365386 (0.21472) [-1.70166]
C	1.258137 (0.98217) [ 1.28097]	2.676696 (0.99239) [ 2.69723]
R-squared	0.355671	0.148554
Adj. R-squared	0.287847	0.058928
Sum sq. resids	298.8822	305.1308
S.E. equation	3.966187	4.007433
F-statistic	5.244025	1.657494
Log likelihood	-59.91572	-60.14333
Akaike AIC	5.719611	5.740302
Schwarz SC	5.868390	5.889081
Mean dependent	2.313636	2.020929
S.D. dependent	4.699878	4.130997
Determinant Residual Covariance		234.9109
Log Likelihood (d.f. adjusted)		-122.4846
Akaike Information Criteria		11.68041
Schwarz Criteria		11.97797

**Appendix 3**

Roots of Characteristic Polynomial

Endogenous variables: RGDP D\_FDI

Exogenous variables: C

Lag specification: 1 1

Root	Modulus
0.464849	0.464849
-0.384098	0.384098

No root lies outside the unit circle.

VAR satisfies the stability condition.

**Appendix 4**

VAR Residual Portmanteau Tests for Autocorrelations

H0: no residual autocorrelations up to lag h

Lags	Q-Stat	Prob.	Adj Q-Stat	Prob.	df
1	1.707974	NA*	1.789307	NA*	NA*
2	3.714947	0.4460	3.996976	0.4064	4
3	8.331757	0.4018	9.342757	0.3142	8
4	14.04348	0.2979	16.32375	0.1769	12
5	14.82670	0.5374	17.33733	0.3641	16
6	19.11616	0.5143	23.23534	0.2774	20
7	26.00937	0.3527	33.34538	0.0970	24
8	26.29892	0.5566	33.80038	0.2075	28
9	27.84060	0.6772	36.40939	0.2708	32
10	29.01671	0.7891	38.56559	0.3543	36
11	32.10664	0.8085	44.74545	0.2793	40
12	33.45243	0.8763	47.70618	0.3245	44

\*The test is valid only for lags larger than the VAR lag order.  
df is degrees of freedom for (approximate) chi-square distribution

VAR Residual Heteroskedasticity

Tests: No Cross Terms (only levels and squares)

Joint test:		
Chi-sq	df	Prob.
9.504413	12	0.6593

**Appendix 5**

VAR Residual Normality Tests

Orthogonalization: Cholesky (Lutkepohl)

H0: residuals are multivariate normal

Component Jarque-Bera df Prob.

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1	2.908215	2	0.2336
2	0.624499	2	0.7318

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Joint	3.532714	4	0.4729
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**DEBATES ON A SURVEY OF OPINION ON „THE  
PERCEPTION OF THE INDIVIDUAL IN THE  
KNOWLEDGE SOCIETY ON PROTECTING THE  
INTELLECTUAL PROPERTY RIGHTS”**

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**Abstract**

*Scientific and technological research, labour education, sophisticated software, advanced electronics, telecommunications, finance, and organization of knowledge itself, are considered key sources of tomorrow that must always be protected.*

*Because information and creativity held, films, music recordings, books, computer software and online services are always bought and sold.*

*The need for and the importance of protecting intellectual property rights has arisen because of changes in the contemporary society. Thanks to the digitalization or a technologies era, we are facing multiple changes, the priorities being changed at the same pace. Therefore the old ideas are instantly replaced with new ones; the development is so rapid that there may be a chance that the next day, everything that has been true so far to have a completely different value.*

*Intellectual property, together with her the two components: the industrial property, copyright and related rights, constitutes one of the main levers of development of economic, social and cultural needs of the nation.*

*The aim and its purpose are protecting human intelligence product and, at the same time, ensuring that consumers benefit from the use of the attributes of this product.*

*Intellectual property infringement causes major economic damage. At present, a significant number of products that violate these rights represent a real threat to the health and safety of consumers.*

*This is why it is imperative that public opinion and not only, to give particular importance to the idea of protecting intellectual property rights.*

**Keywords:** survey of opinion, perception, knowledge society, intellectual property rights (IPR), protection.

**JEL Codes: M31, M30, D83, O34, Z19.**

### **1. Conceptualizing intellectual property**

Intellectual property is considered an original creation, derived from creative ideas and has or may have a commercial value due to the contribution from obtaining legal gains for its owner.

It can be associated with the following attributes: possession, use and disposal.

Examples of intellectual property rights: the right to exploit an idea, the right to have a claim met, patents of invention (patent), entitled copyright, trademarks and products, trade secrets or the know-how (knowledge, skills, etc.).

These include the following rights: to use, to occupy, to sell, to rent, to test (the legacy), to donate, to choose or exercise any or none of these.

Copyright protects the form of original expressive works (literary, artistic or technical). The patent protects the invention or original ideas, and trademark protects the identity of a manufacturer or other sources of reputation.

Intellectual property rights are contained within copyright and related rights and industrial property rights.

### **2. Intellectual property: defining and identifying the role of the organization**

Intellectual property is a form of legal title holder to control the use of certain intangibles, such as ideas or expressions.

To define this concept can make direct reference to all the rights of human genius creations on literary, artistic, scientific inventions in all fields of scientific discoveries and related rights of intellectual activity in the industrial, scientific, literary and artistic. Aiming monopoly, intellectual property rights, provide the owner the exclusive right to use the subject of

protection and to prohibit its use by third parties without the consent of the person entitled [10].

Within the organization, intellectual property plays a very important role because it can offer many advantages [1]: reducing material costs, increase labor productivity, reduce the costs of transportation, handling, storage, disposal or reduce scrap, losses, increasing degree of recycle post-use, reducing fuel and energy consumption, eliminate or reduce environmental risks and adverse impacts on nature, creating a competitive advantage, growth, and maintaining a good market image and the list goes on.

### **3. Romania and Intellectual property**

In Romania securing intellectual property rights is achieved mainly by two specialized institutions: the State Office for Inventions and Trademarks (OSIM) and Romanian Copyright Office (ORDA).

OSIM ensure protection of intellectual property rights in industrial property in accordance with national legislation and national treaties and conventions.

Among its tasks are:

- ✓ registration and examination of applications of industrial property;
- ✓ protection issue securities granting owners exclusive rights in Romania;
- ✓ certification and licensing industrial property advisors.

ORDA provides protection of intellectual property rights in the field of copyright and related rights.

Trade disputes on intellectual property can settle amicably the Commercial Dispute Mediation Center of the Chamber of Commerce and Industry.

To support the protection of IPRS, our country has concluded numerous agreements and multilateral treaties for this purpose and is a founding member of the World Intellectual Property Organization (WIPO) in cooperation with it on the basis of the cooperation Program between the Romanian Government and WIPO.

Property rights are paramount and it is imperative to protect it encourages investment in innovation and research.

Therefore, the efficiency of the fight against counterfeiting and piracy were concluded cooperation agreements between different national institutions. And so, OSIM and ORDA are working with the National Customs Authority to combat this phenomenon.

In Romania, the protection of intellectual property rights (in all its forms) is implemented in accordance with the Industrial Property Rights Strategy for Europe. It outlines the actions needed to achieve a system of

industrial property rights of high-able to allow Europe to benefit from its potential in addressing the challenges of economic globalization.

According to this strategy, such a system must:

- ✓ **have a high quality**, characterized by strict standards of review;
- ✓ **to be accessible**, balancing cost with quality and legal certainty;
- ✓ **to be consistent** with a common interpretation of laws;
- ✓ **to be able to strike a balance** between rewarding valuable intellectual creation and ensuring circulation of ideas and innovations.

Romanian State has adopted the strategy during 2003 - 2007 in that period were promoted principles of active companies, highly encouraging for performance based on work values, social cohesion, solidarity and responsibility and contributed to the establishment of a balance between the interests of creators and public interest in ensuring an environment of creativity in order to create benefits for all parties involved.

In 2010, further steps were taken for continuing the existence of the enlargement strategy until 2015.[2] The new strategy proposes specific targets in order to increase the level of creativity and innovation and develop strategic objectives that formed the basis of the national strategy 2003-2007 in the field of intellectual property, as well as the introduction of new objectives.

This strategy becomes responsible for creativity, innovation, in other words the connection between entities in the industry: creators, creative industries, the general public, users and institutions with attributions in the field.

The purpose of the Strategy is to coagulate institutions responsible efforts and involvement in the intellectual property system in Romania, so as to ensure protection of rights. Equally permanent strategy aims compatibility and harmonization of intellectual property system in our country with the EU.

#### **4. Case study on "The perception of the individual in the knowledge society on protecting IPR"**

For the survey to be a success, effective and efficient we ask you to check, for each question, the responses from your perspective, do you consider the most appropriate. Check one or more boxes for each question.

IDENTIFICATION

NAME .....

INSTITUTION .....

CONTACT .....

If you want to fill out anonymously, check the following statement:

- Yes I wish to convey my responses anonymously.

**RESPONDENT TYPE** (tick appropriate box):

- Public authority;
- Author / performer;
- Editor / Producer;
- Collecting societies;
- User;
- Schools (school, university, library, archives, etc.);
- Cultural entities (library, archive, museum, theater);
- Service Provider (online music, audiovisual services, gaming platforms etc.);
- Other (Please detail).

.....

1. Have you ever thought what is the legal value of things you encounter every day?

- a. Yes;
- b. No;
- c. Sometimes;
- d. Permanently;
- e. Never.

2. Choose from the list below at least 3 things with legal value which should be/are protected [5]:

- a. Copyright;
- b. Creating a discovery/invention;
- c. Intellectual Property;
- d. Archaeological Goods;
- e. Works of art;
- f. Religious objects;
- g. Finery;
- h. Furniture;
- i. Musical instruments;
- j. Objects and documents, philatelic, Numismatic Heraldry: coins, medals, badges, ponds, seals, postal patents, trademarks, banners and banners;
- k. Goods with ethnographic significance;
- l. Unique technical Works;
- m. Discoveries and inventions;
- n. Patenting an idea, a concept, a law etc.;
- o. Moulds compact discs, CD-ROM, DVD and the like.

3. Identify the option that gives the best definition of the term **"original"**:
- Authentic;
  - New;
  - Plagiarism;
  - Unpublished;
  - False.
4. Identify the option that gives the best definition of the term **"copyright"** [6]:
- All legal rules;
  - The legislative items that come and support the protection of a literary, artistic or scientific work;
  - The subjective rights of a non-personal and patrimonial nature recognized by law to authors of works of intellectual creation, literary, artistic, scientific, in order to safeguard the legitimate interests of creators;
  - Copyright;
  - The degree of originality of some goods or services.
5. How else is defined the concept of „copyright“:
- Trademark;
  - Copyright;
  - Own creation;
  - Plagiarism;
  - Original.
6. Which of the following items may not be legal property [3]:
- Official texts of a legislative, political, administrative, judicial and official translations thereof;
  - Official Symbols of the State, public authorities and organizations, such as: the coat of arms, seal, flag, coat of arms, emblem, badge, badge or Medal;
  - Means of payment;
  - Technical solutions or other creations that are contrary to ethics, morality or harmful to health;
  - Samples of prohibited substances;
  - Documents containing classified information or classifiable;
  - News and press information;
  - Bare facts and data, ideas, theories, concepts, discoveries, and inventions contained in a work, whatever may be the mode of acquisition, writing, explanation or expression.

7. From the list below choose three situations that you feel are most appropriate for certain works protected by copyright which can be copied [4]:

a. Reproduction of a work in judicial proceedings, administrative or parliamentary or public safety purposes;

b. The use of short excerpts of a work, in the end analysis, comment or critical times by way of example, to the extent that their use justified the pull quote;

c. The use of isolated articles or brief extracts from works in publications, in radio or television or in sound recordings or audiovisual works, designed exclusively for education, as well as reproduction for teaching in the institutions of education or social protection of isolated articles or brief extracts from works, to the extent justified by the aim pursued;

d. Reproduction for information and research of short extracts from works in the libraries, museums, film libraries, sound archives, archives of public cultural or scientific institutions, which operate non-profit; full reproduction of a work is permitted for replacing it, in case of serious damage, destruction or loss of the unique copy in the permanent collection of the library or archives in question;

e. Specific reproductions made by publicly accessible libraries, by educational institutions or museums, or by archives, which are not carried out in order to obtain economic or commercial advantage directly or indirectly;

f. The reproduction, to the exclusion of any means to come into direct contact with the work, distribution or communication to the public of the image of a work of fine art, architecture, photography or applied art located permanently in public places, except where the image of the work is the main subject of the reproduction, distribution, or communication, and if used for commercial purposes;

h. Use of works during religious or at official celebrations organized by a public authority;

i. Use, for advertising purposes, of images of works presented in the exhibition with public access, or sale, of fairs, invitations to tender for works of art, as a means to promote the event, excluding any commercial use.

8. Do you considered necessary to improve the national legal framework for the protection of property rights (property rights and related rights)?

a. Yes;

b. Maybe;

c. No.

9. What do you think should be the duties of the Romanian Office for copyright [8]:

- a. Draft normative acts in its field of activity;
- b. Participate in the elaboration and updating of the national strategy in the field of intellectual property;
- c. Organizes and administers the registration fee or membership to the national registers and other specific national registers, as provided by law;
- d. Releases surcharge, according to the law, holographic marks usable in the field of copyright and neighboring rights, the amount of the purchase price, which will add a Commission of Administration (consistent with legal norms this fee is 30%);
- c. Performs technical scientific findings on the original character of the goods bearing the copyright or neighboring rights, to request criminal investigation bodies;
- d. Carry out surveys upon request at an additional cost, at the expense of the parties concerned;
- e. Carry out information on relevant legislation, at its own expense and training activities at the expense of the interested;
- f. All previous versions are correct.

10. In your opinion, what would be the role of the law enforcement field ORDA?[6]

- a. Has a major role;
- b. To support clients, natural persons or legal entities who use the services of this organization;
- c. Do not believe that has any role;
- d. Monitoring, permitting, technical finding arbitration and science in the field of copyright and neighboring rights.

11. Consider appropriate forms of liability (criminal, civil, administrative) for breach of intellectual property rights (copyright and related rights), provided by national legislation?

- a. Yes;
- b. No.

12. Who do you think should have competence in respect of offenses and sanctions offenses? [9]

- a. The judge (Court);
- b. OSIM (State Office for Inventions and trademarks);
- c. General Inspectorate of the Romanian police;
- d. General Inspectorate of border police;
- e. Financial Guard;
- f. National Customs Authority;

- g. General Inspectorate of the Romanian Police;
- h. Any of the variants mentioned above.

13. Can you illustrate other problems in the field of the protection of intellectual property rights, which we have identified, or with whom you have dealt?

- a. Yes;
- b. No.

14. Due to the situations you've encountered or that you've heard, considered necessary in carrying out several campaigns aimed at informing and sensitizing public opinion on this topic?

- a. Yes;
- b. No.

15. If the previous question, you answered yes, please specify the defining factors of informing the public on IPR protection:

- a. Understanding and awareness of laws related to development of the knowledge society;
- b. Unconsciousness, neglect and disinterest for this phenomenon;
- c. Awareness of the benefits and protection that can be acquired through ownership of such rights;
- d. Upward Trend of trafficking of counterfeit and pirated products.

16. Considered necessary to organize public discussions on the subject of copyright and related rights?

- a. Yes;
- b. No.

17. Answering yes to the previous question, indicate what level of education you think is necessary to study the educational system of discipline "*Intellectual property*":

- a. Middle school;
- b. High school;
- c. Context;
- d. University;
- e. Doctoral;
- f. All choices listed above.

### **5. Conclusions (or future research proposals)**

Intellectual property refers to creations of the mind: inventions (patents), literary and artistic works, symbols, names, images and designs used in business. The holder of such "wealth" can control and be rewarded for its use, which leads to encouraging innovation and creativity aimed more benefits humanity.

With its two components, industrial property on the one hand and copyright and related rights on the other hand, is one of the basic mechanisms of economic, social and cultural needs of the nation. In this context we can say that the protection of intellectual property rights is of great importance. The aim and purpose are protecting human intelligence product and, at the same time, ensuring that consumers benefit from the use of the attributes of this product.

This survey of opinion it is desirable to have a point estimate of a sample of between 100 and 200 individuals-natural or legal persons, companies, etc., which aims to highlight the mode of thought, perception and awareness of the individual (the knowledge society) the existence of intellectual property rights, but most importantly the need for awareness or to protect such rights. Also from this perspective we can prioritize IPR and related rights and we can identify (for individuals in the knowledge society) that are most important DPI.

Dissemination of results and information discovered from the research will be made in a future journal article.

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## **SYNTHESIZING AND EXPOSURE OF THE ASSESSMENT METHODS OF THE INTANGIBLE ASSETS**

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### **Abstract**

*Intangible assets evaluation involves finding the optimal path for the estimation of the value of an intangible asset by using one or more of the assessment methods. The premise of the application of assessment methods is represented by the quantified economic benefit that is associated with an entity's assets as a whole.*

*The intangible assets have considerable implications for the financing of the knowledge society.*

*The evaluation of such assets in accordance with international standards of evaluation and international accounting transactions are based on correct and complete definition of the value of such items.*

*Intangible assets evaluations are required for various purposes, including acquisitions, mergers and sales of businesses or parts of undertakings, purchases and sales of intangible assets, reports to the tax authorities, procedures of litigation and insolvency and financial reporting.[5]*

*Intangible assets evaluation in Romania is very little practiced; this is due mostly because of the alliance of such assets and of their unique nature.*

*In fact intangible assets evaluation is done by an assessor undertaking, they formed part of the assets of a company.*

*Our country faces a number of problems in this area, causing a number of these issues in the application of each of the specific assessment methods. Although confirmed by the experience of assessors in developed economies, the automatic application of methods cannot constitute a valid solution for the Romanian companies, just in case they may have strong arguments.*

**Keywords:** Intangible assets, assessment methods, cost approach, income approach, method of the direct comparison market.

**JEL Codes:** M41, F47, D04, C52.

### **1. The purpose of evaluation**

Assessing the intangible assets is determined by the need for the following situations:

*a. Trading* - often this type of asset are traded in active employment. Trademarks and patents are most often sold by companies, thus requiring evaluation.

*b. Under accounting requirements* - after purchase, the buyer must emphasize intangible asset in the balance sheet.

*c. Pair businesses* - companies often associated with exploitation of an object of intellectual property.

*d. Licensing* - where the owner obtains a license, the license must be obtained, in order to determine the fee.

*e. Funding* - where the intangible asset means a share in the assets of a business or when applying for a loan, the bank is likely to require evaluation of patents, trademarks, copyrights, in order to guarantee the loan.

*f. Division performed after a divorce* - sometimes in such a situation, it is necessary to evaluate patents owned by one spouse.

*g. Compensation for counterfeiters* - actually is an increase in litigation due to violation of trademarks and patents, asking them to establish damages assessment.

*h. Transactions in the company* - through the transfer of patents and trademarks, between group entities require determining the fair value thereof.

*i. Taxation of property* - patent, trademark or copyright, considered parts of the property to be assessed and may be donated by the owner. Being carrying value must be identified to establish fees related donation.

*j. Bankruptcy* - in this case required intangible asset valuations through the forced sale, in order to determine the net asset liquidation.

## **2. Stages of assessment**

When assessing an intangible asset will go through the following steps:

- 1. Define the task assessor;**
- 2. Collection and analysis of information;**
- 3. Application of the three approaches to value;**
- 4. Presentation opinion of the assessor.**

The first stage must include the following elements:

- ✓ Identification of intangible assets subject to evaluation;
- ✓ Specify ownership, assessed with respect to intangible assets are subject to the assessment;
- ✓ Identification of the intangible asset owner;
- ✓ Delineation of the intangible asset characteristics, including analysis of the best use;
- ✓ Date of assessment;
- ✓ Assessing;
- ✓ Client and recipient evaluation report;
- ✓ Standard of value and valuation assumptions;
- ✓ Assumptions and limiting conditions.

The second stage, namely the collection and analysis of data, requires:

- ✓ To identify characteristics of intangible assets;
- ✓ Historian and the situation of the asset at the date of the assessment report;
- ✓ Identification of relevant financial information;
- ✓ Economic factors that may affect the value of the asset subject to the assessment;
- ✓ Supply and demand;
- ✓ Identification and analysis of previous transactions with similar intangible assets.

In the third stage you will need to choose the best approach to the value of intangible assets, choosing the best use obtained either via the approach, or the cost approach.

The last stage attaches great importance to the opinion of the assessor. It summarizes the results of the assessment, out and explains the differences noted in the evaluation. At the same time presenting and debating the effect of assumptions and limiting conditions.

In closing, the assessor shall submit its final opinion and argues.

## **3. The assessment methods of the intangible assets**

In the business evaluation, in accordance with the international standards and European assessment for the evaluation of intangible assets are proposed the following three categories of approaches to evaluation, as follows:

**3.1. Market approach (comparison approach);**

**3.2. The income approach (considering the advantage of keeping these items in terms of the benefit brought to company earnings, profit);**

**3.3. The cost approach.**

Adopting an approach or another related method will be based on the nature of intangible assets that are subject to evaluation with accuracy and nature of income and will always depend on the circumstances.

The necessity of application of several evaluation methods is due to verifying the results.

**3.1. Market comparison approach**

Market comparison approach is applied in the comparison of the subject with similar intangible assets or partial rights over intangible assets, which were sold on the free market. [6]

The market approach presents the following comparison:

✓ Legal elements: property rights over intangible assets, an attestation by the granting of patents for invention, trade mark, design certification, works of art, works by under the auspices of copyright;

✓ The field or the economic activity in which intangible assets will be used;

✓ The physical characteristics, functional, technical and technological assets resulting from the use of intangible assets;

✓ Economic features of these assets;

✓ Economic conditions of all the markets in which they operate;

✓ The existence of favorable financing conditions;

✓ The number of trading similar intangible assets;

✓ Comparable rates similar assets;

✓ Inclusion or omission of the other assets in trading.

**a. The method of purchase cost**

An intangible asset can be bought in the market at a price equivalent to its value. Recommended test methods are cost savings, or cost per lead profit direct market comparison method. Therefore the cost of the purchase may be useful for testing the value of licenses and franchises. We are aware that the market sell and buy such assets, but the essence lies in obtaining information refer to each intangible asset separately.

**b. The assimilation method**

The assessor will consider the basis of reliable information, the transactions concluded in similar circumstances specific case that we analyzed, taking into account all corrections, positive and negative, gained from their expertise, as compared with cases where transactions were completed used as the basis for comparison.

### **3.2. The income approach**

This approach tests the ability of intangible assets to produce future benefits due to the calculation of the expected gains desired. It consists in evaluating an intangible asset by converting one form of income associated value.

The value of an intangible asset or property rights thereof can be obtained by determining the present value of projected benefits.

The most common methods are included in the **income approach**, **direct capitalization of income** and **discounted cash flow method (Discounted Cash - Flow - DCF)**.

#### **a. The method of profit advantage**

It applies to a situation in which it can be estimated roughly that possession and use of intangible assets; the advantage can be expressed through the synthetic net profit.

This method is based on the profit made directly by these property elements.

#### **b. The method of variation profit contribution**

This method is used where the benefit cannot be determined unit price due to lack of information, unable to make estimates for the holding of such an advantage.

However, in practice, we can meet those active variant causes a profit for the whole enterprise. This cannot be attributed to a particular intangible asset, being unique and identifiable.

In such a situation it is better that the assessment be based on profit contribution resulting from sales in addition.

These two methods have difficulty in exposing the final value as subjective assumptions are more frequent and difficult to sustain, especially since the result must always be realistic, believable and justified.

#### **c. The royalty savings method**

It is a very useful method for evaluation of patents and licenses.

The holder of an intellectual property right may allow other users to use such assets, in return for payment of a fee, which is usually represented by a percentage applied to the volume of sales generated by the use of intellectual property. The percentage varies between 3% and 7%, the most common being the sales level of 5%. It varies based on volume flows generated by the use of intangible assets.

Royalty rates can be done by several methods: [4]

- ✓ Profitability comparison method (PCM);
- ✓ Hybrid method of comparing with transactions (HMCT);
- ✓ Profit distribution method (PDM);
- ✓ The residual method (RM);
- ✓ Analysis DCF (Discounted Cash Flow Analysis).

#### **d. The cost economy method**

In practice, we encounter situations where intangible assets are those that generate measurable cost savings. Thus, these elements are an asset to any economic entity and contribute directly to the production of additional profit.

Such an advantage can be obtained by:

- ✓ Owning or a contract with benefits for buying raw materials (contracts for the supply of diesel);
- ✓ The existence of a process or a method that can reduce workload and reduces material costs;
- ✓ The existence of a contract of employment with very good staff with extensive experience.

#### **3.3. The cost approach**

It includes several methods of estimating the cost of reconstruction required an intangible asset with an identical utility with the asset being valued. Methods in question applies only irrelevant in the situation of a limited number of such assets being used as additional methods for supervising the correctness of the results obtained by the other methods.

These methods refer to **historical cost inflation**, reduced by **depreciation** and refer to **the cost method of recreation**.

This includes new inventions, a research and development, working practices and procedures of a company, owned labor etc. [2]

#### **The cost method of recreation**

The applicability of the method is limited by insufficient information required to carry identification or even estimating the effects of possession of such items. Most often it is used to verify and test the conclusions obtained from the application of other valuation methods.

However, if it is imperative to apply, it must be made carefully, based on the idea that most times, cost is not a significant indicator for identifying the value of intangible assets.

#### **4. Study case: The most significant exposure assessment methods for intangible assets [1]**

##### **➤ The direct market comparison method**

**Example (fictional):** Newspaper brand evaluation „Ring”, with available information on two other similar transactions (Newspaper „Click” and „Libertatea” Newspaper)

Specification	NEWSPAPER RING	SIMILAR TRANSACTIONS	
		NEWSPAPER CLICK	NEWSPAPER LIBERTATEA
1. The transaction value	? → <b>11.500 ron</b>	8.000 ron	10.000 ron
2. Special condition of transaction	Includes non-competition agreement	Includes non-competition agreement	Includes non-competition agreement
3. Circulation environment	100.000 pieces / day	80.000 pieces / day	90.000 pieces / day
4. The average percentage return	6%	5%	4%
5. Annual turnover	400.000 ron	250.000 ron	350.000 ron
6. % of total advertising revenue	9%	7,5%	6,5%
7. % Total subscriptions in circulation	5%	6%	7%

With this example will demonstrate the need ability and experience of an assessor.

The key element considered for this evaluation will be the relationship between the brand and the annual turnover. So I'll set some corrections set the following parameters: average percentage return, % total subscriptions in circulation, total advertising revenue etc. .

- a. Determination of the relationship between the brand and the annual turnover: Newspaper Click: 3.2%, Newspaper Libertatea: 2.9%.

Therefore we consider as a basis for the Newspaper Ring a 2.9% level.

- b. Correction applied to the basic amount:

+ 2.5% for % of total advertising revenue;  
- 1% for % total subscriptions in circulation.

- c. The calculation of Newspaper Ring value

$$\text{Basic} \pm \text{Corrections} = 2.5\% \text{Turnover}_{\text{annual}} + 1.5\% \times 2.5\% \text{Turnover}_{\text{annual}} \\ = 2.875\% \text{Turnover}_{\text{annual}} = 2.875\% \times 400.000 = \mathbf{11.500 \text{ ron}}$$

#### ➤ The royalty savings method

Under evaluation is a patent for a new product used, the owner of the patent, is a joint stock company named IKAR which is acquired by another joint stock company – PILOT.

The assessment aims to review the registration of the patent by applying the purchase method, i.e. after following the acquisition by PILOT enterprise of IKAR joint stock Company, in its entirety.

The standard value is the fair value.

Assessment date: July 31, 2014.

The remaining useful life of the patent was estimated to be 5 years.

The assessment method used is *The royalty savings method*.

The turnover in respect of products manufactured on the basis of the patent of invention was estimated as follows:

- 3.400 thousands € in 2014

- 3.840 thousands € in 2015

- 4.227 thousands € in 2016

- 4.541 thousands € in 2017

- 4.818 thousands € in 2018.

The fair value of the patent is 521,5 thousands €.

The fee rate in turnover, in this matter, was set at 4%.

The company profit tax rate is 16%.

The economic discount rate (exemption) of net royalty was set at 16%.

The updated total fee is 456,4 thousands €.

The tax benefit of depreciation: 53,4 thousands €.

The discount rate is 16%.

The profit tax is 16%.

The depreciation period is 5 years.

Formula for calculating net profit updated useful life obtained due to the deductibility of depreciation of an asset that is:

$$BFA = RTA \times [n / (n - (FVPA \times s) - 1)]$$

where:

RTA = The updated total fee;

BFA = The tax benefit of depreciation;

n = number of years of patent pays;

FVPA = The factor present value of an annuity suite (capitalization factor);

s = the corporate tax rate.

The updated total fee = 456,4 thousands €.

FVPA 16% and n = 5 years is 3,274294.

$$[1 / (1 + 0,16)] + [1 / (1 + 0,16)^2] + [1 / (1 + 0,16)^3] + [1 / (1 + 0,16)^4] + [1 / (1 + 0,16)^5] = 3,274294.$$

So,

$$BFA = 456,4 \times \{5 / [5 - (3,2742294 \times 0,16)] - 1\} = 456,4 \times 0,117 = 53,4 \text{ thousands €}.$$

**Tabel no. 1:** The evolution of the indicators necessary for the evaluation of the patent for invention (2014 - 2018)

Crt. No.	Indicators	2014	2015	2016	2017	2018
1	The turnover	3.400	3.840	4.227	4.541	4.818
2	The gross annual royalty 4% (1 * 4%)	136	153,6	169,1	181,64	192,72
3	The annual tax 16 % (2 * 16%)	21,8	24,6	27,1	29,1	30,84
4	The annual net royalty (2 - 3)	114,2	129	142	153	162
5	The factor update 16%	0,862	0,743	0,641	0,552	0,476
6	The annual net updated fee (4 * 5)	98,44	95,84	91,02	84,45	77,11

**Source:** Data processed by author

From the recorded data dissemination we can say that IKAR Company made a good deal by buying PILOT enterprise.

By merging the two companies and with new patent acquiring company – IKAR, becomes an emerging entity.

Concluding the study I recommend the acquire a longer cut of the selling price of the product obtained by the use of the patent and to take care of maintaining and even improving the quality of it because there is always the risk that the market appears a similar product but at a more advantageous price.

#### ➤ The method of variation profit contribution

*Suppose that this summer our restaurant where you stayed has higher sales than € 100.000 annually compared to the other two existing hostels nearby. To obtain the final value of intangible assets, we assume that the three restaurants have a similar profit margin of 25%.*

*What will be the value of intangible assets?*

1. Additional restaurant's annual sales pension "Bio Rock" 100.000 euros.

2. Profit margin 25%.

3. Additional annual income 3 (1 \* 2) 25.000 euro

4. Factor 12% discount for 3 years 1,64 →  $[1/(1+0,12)] + [1/(1+0,12)^2] + [1/(1+0,12)^3]$

5. **The value of the intangible assets (3\*4) 41.000 euro**

Looking at the specific site restaurant "Bio Rock", the evaluator noted that the only difference existing sales impact is the skilled labor force. The value of intangible assets was estimated at 41.000 euro. (The value of the training revolves around the amount of 8.000 euros, representing an index of the cost or investment in training staff, but no indication of the final value of these economic factors).

### ➤ The creating cost method

On July 31, 2014, an appraiser has the burden to establish the cost of implementing a new software program that will be implemented over two years.

After analysis, it has established the following costs:

Materials	20.000 thousands ron
Payroll	100.000 thousands ron
Services provided by third-party	10.000 thousands ron
Market research	30.000 thousands ron
<b>Total costs</b>	<b>160.000 thousands ron</b>
<b>Return on investment (10%)</b>	<b>16.000 thousands ron</b>
(Average 10% return on investment, i.e. 80,000 * 2 years * 0.1)	
<b>The cost of creating total</b>	<b>176.000 thousands ron</b>

### Conclusions (proposals or future research)

During the research I discovered multiple convergence, complex and intriguing notions that stir up and maintain reference list with regard to the evaluation of intangible assets.

Through analysis of economic value of intangible assets should take into account the following principles [3]:

1. *Evaluation of an intangible asset or the intangible asset package is usually done at the same time, business valuation using them or controlling benefits from this asset class.*

2. *Specification defining the corresponding assessment base, i.e. either market value or other values other than market value.*

3. *Specify the valuation premise.*

Adoption of certain approaches (assessment) or another related method will be made depending on the nature of intangible assets which are subject to assessment with fairness and revenue nature and will always depend on the circumstances.

It should be noted that the idea always correct evaluation results must justify evaluator activity of intangible assets in accordance with the requirements of International Standard Evaluation IVS 3 - Valuation Reporting.

From my point of view, valuation of intangible assets is one of the most complex problems that lay the assessor. The difficulty of such assets assessment approach corresponding to an enterprise scale shown in the assessment process and can be measured reliably only after being assessed enterprise as a whole by means of cash flow (cash - flow) updated after evaluation market value or fair value of all tangible assets, current and total debts.

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## **ANALYSIS OF UNEMPLOYMENT AMONG YOUNG INDIVIDUALS FROM ROMANIA BY ECONOMETRIC METHODS**

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### **Abstract**

*Even if the issue of young individual's inclusion on the labour market was always and important issue on political agendas, in the last two decades this issue this issue gained particular prominence. During the last years, unemployment among youths with ages under 25 years of age has increased significantly and being of 23.5% in the year 2013 at EU-28 level and of 23.6 in Romania. Modern societies provide to young individuals unprecedented opportunities, yet they are faced with major challenges related to the educational and vocational training systems and to the access on the labour market.*

*The reduction, during the times of crisis, in the number of permanent jobs affected disproportionately the young individuals, this group being over-represented in the category of temporary contracts. Even though, under normal conditions, temporary contracts represent the first step towards more stable employment forms, this fact can create segmented labour force markets, the young individuals being blocked at the level of their inferior segments, and hence benefitting from less training on the job, and being placed in the lower range of remuneration levels; thus, they have much worse perspectives with respect to employment and long-term career. In this context, achieving the objective of 75% employment of labour force for the population aged between 20 to 64 years of age as provided for in the Strategy “Europe 2020” requires new approaches regarding the measures and ways of transition of the youths to the labour market. The low participation of youths on the labour market determined that the considerations about the issue of youths' integration on the labour market were regarded as a challenge and priority action in the National Strategy regarding Social Protection and Social Inclusion 2008-2010 and in the National Development Plan 2007-2013.*

*The paper presents a brief analysis of youths' unemployment development in Romania, and an estimate about the evolution of this phenomenon by econometric techniques.*

**Key-words:** youths' unemployment rate; econometric model; statistical tests

**JEL Classification:** C52; E24; E27; J64

### **Introduction**

In the current context of economic instability, youths are faced with the emergence of a feeling of uncertainty with respect to their own chances of having a good debut on the labour market. The world crisis, the social reality that all societies are faced with brought again up to the forefront the idea of young individuals' fragility on the labour market.

The unemployment rate among young individuals was of 23.5% at EU-28 level in the year 2013. Informal employment among youths remains omnipresent and the transition to decent jobs is slow and very difficult to achieve.

Youths' unemployment, as well as the situations in which the youths are forced to give up seeking a job, or to work in inadequate conditions have a strong impact on the economy of a society, on the families of these youths, and on their personal and career development, and on the society at large, as well. The lack of a decent job, in particular if it occurs at a short-time after graduating some educational form, can compromise the future of an individual, his/her career perspectives, and very often it can lead to social exclusion.

Unemployment among youths is very high. In this context, achieving the objective of 75% labour force employment for the population aged between 20 and 64 years of age, as provided for by the Strategy "Europe 2020" requires improving the measures/ways of transition of the youths to the labour force market.

The current economic crisis generated several challenges that the youths must face. Also, for the future, the transition from school to work will be difficult for the new generation that will enter the labour market, because they shall be faced with the competition with an increased number of individuals who are already seeking for a job, for a permanently decreasing number of jobs, at least on the short-term.

Less skilled youths were already facing obstacles on their way to labour market integration also before the outbreak of the world crisis. The crisis has impact on the highly-educated youths who, after graduating a higher-education institution, prepare to enter the labour force market. During the periods of economic "boom" they are faced with fewer issues on the job. But, during the periods of economic recession they are facing both the issue of long-term unemployment, and the one of low wages, along with taking on jobs in fields for which they are over-skilled. When there are signs of a period of economic turnaround, another issue emerges and with which the youths are faced: employers will be tempted to employ young graduates to the detriment of those who graduated some years earlier, thus the latter are again hit by unemployment or long-term inactivity. Due to this perspective, the generations of youths who are fresh graduates at the time

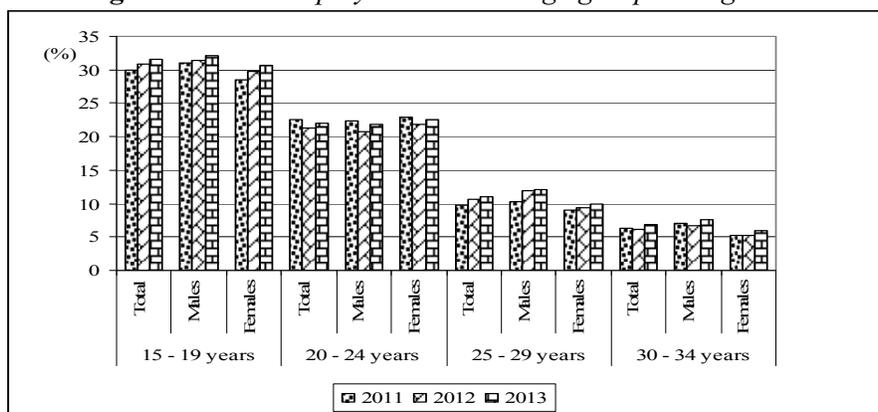
when a crisis period begins are designated in some specialised studies as *the lost generation*.

### 1. Youths' unemployment in Romania

Unemployment is a contemporary complex and over-reaching phenomenon that includes in its sphere economic, social, political, psychological and moral aspects. It is a negative state of affairs for the economy which consists in failure to put to good use a part of the employed labour force.

In accordance with the data provided by the National Institute of Statistics from Romania, the unemployment rate in Romania for individuals aged between 15 to 19 years of age, and 20 to 24 years of age in the year 2013 was of 31.5%, respectively 22.1% (Figure 1).

**Figure 1** ILO unemployment rate on age groups and genders



Data source: TEMPO-Online – time series, National Institute of Statistics from Romania

The evolution of the main macroeconomic indicators reflecting the situation of youths on the Romanian labour market during transition does not highlight any positive developments for the persons comprised in the age group 15 to 24 years of age. Nevertheless, the few jobs available in the country were completely put to good use, a fact that cannot be said about several member countries of the European Union.

One of the issues with which Romania is faced is the continuing ageing of the population which puts pressure on the social security system, on the pension funds, but also on the educational system.

The highest values of unemployment among youths is registered for those with upper-secondary and vocational education.

The data provided by the National Employment Agency (ANOFM) indicate that the unemployment structure on age groups by the end of 2013

was the following: 90.151 unemployed with ages under 25 years of age, 38.086 unemployed with ages between 25 and 29 years of age, 110.955 unemployed between 30 and 39 years of age; 137.337 unemployed between 40 and 49 years of age; 61.352 unemployed between 50 and 55 years of age; 74.452 unemployed with ages over 55 years of age.

The analysis of the statistics regarding the evolution of unemployed indicates that the structure of the number of unemployed registered on age groups maintained the same evolution in the period 2008-2013, with periodical peaks, the crisis period having no influence on this structure. The year 2013 is characterised by the diminishment in the number of available jobs as effect of the constriction in various economic activities and of the limited jobs' supply of the employers on labour market due to economic recession.

With respect to the unemployment structure according to the educational level, 64.49% out of the unemployed are graduates of primary, secondary and vocational education, 23.39% are graduates of upper-secondary, and post-upper-secondary education, and With respect to long-term unemployment, by the end of December 2013, with ANOFM were registered 18.169 youths under the age of 25 years who were unemployed for more than 6 months (representing 20.15% from total unemployed with ages under 25 years of age).

Within the conjecture of socio-economic changes from Romania, youths' unemployment prevention and stimulating the employment of graduates represents one of the main concerns of the agencies for labour force employment, and at the same time is one of the challenges.

The conclusion of labour force contracts on undetermined periods of time for 67.17% from total young employed graduates (13.624 graduates employed without subventions for the job) constitutes a substantial factor for diminishing the expenditures with passive measures from which they should have benefitted otherwise, and also for reducing the risk of their return, in a relatively short period of time, on the labour market.

In the year 2013, the risk of return on the labour market of young employed graduates was diminished due to the fact that employers can benefit from subventions only if they maintain the graduates in activity for a period of minimum 3 years. In the year 2013 were granted employment bonuses for graduates for a number of 3.760 individuals.

One of the reasons that contribute to the increase of the unemployment rate among young individuals in Romania is the mismatch between education and the requirements of the labour force market. Otherwise said, the educational system in Romania on one hand fails to train the workforce according to the required skills demanded by the market, and

on the other hand there is an over-abundance of students for specialties that have no labour force demand on the labour market.

There are still remains of the economic crisis which affect the development in the numbers of unemployed, especially among youths with ages between 15 and 25 years of age who, though in a rather small number, are faced with serious issues in finding a job, due to the employers' requirement for a minimum of experience. As result of this fact, a number of youths take on jobs that are either under their skills-level, or in another field than the one of expertise, where they have easier access; still most youths remain unemployed.

## **2. Econometric analysis of the unemployment evolution among young individuals in Romania**

The evolution of the unemployment rate is influenced by very many factors: identifying the role of each factor on the development of unemployment can be realised with the assistance of the multifactorial econometric model.

The variables considered in the multifactorial modelling are: the unemployment rate among youths, the gross domestic product, the average monthly gross nominal earnings. The data regarding these variables were taken over from the TEMPO-online databank of the National Institute of Statistics from Romania.

As independent (exogenous) variables were considered the gross domestic product and the gross average earnings and the multiple regression models were developed by which was analysed the influence of these two variables on the unemployment rate, representing the dependent variable of the model:

The form of the regression model is:

$$rs_t = a + b \cdot pib_t + c \cdot cms_t + u_t \quad (1)$$

where:

$rs$  is the unemployment rate;

$pib$  is the gross domestic product;

$cms$  is the gross average monthly earnings.

For the estimation of the model was used the specialised E-views soft, by using the method of the least squares and the validity of the model was tested, the solidity degree, as well as the statistical significance of the model's parameters. Finally, the model was corrected for fulfilling all the hypotheses of the multiple linear regression models.

During the first stage were *analysed the data series with the aid of statistical methods* for being able to describe the intensity and the sense of the correlation between the dependent variable and each of the two

explanatory variables. The intensity of the correlation is given by the Pearson linear correlation coefficient, and the sense of the correlation is suggested by the sign of the coefficient corresponding to the respective variable.

In the case of the correlation between GDP and the unemployment rate, the Pearson correlation coefficient is equal to 0.7, which shows that there is a moderate direct correlation as intensity. With respect to the correlation between the unemployment rate and the net average earnings it can be stated that the same thing occurs based on a correlation coefficient of 0.71. Thus, both variables can be included in the model, because both have influence on the unemployment rate.

The multifactorial linear regression model, by using the method of the ordinary least squares (OLS), is:

$$rs = 19.01 - 2.654e^{0.6} \cdot pib + 6.21e^{0.5} \cdot cms \quad (2)$$

Based on the equation the coefficients of the regression model can be analysed. Thus, a reverse relationship results between the evolution of the unemployment rate and the GDP evolution and a direct correlation between this and the average earnings. From the economic perspective, this correlation is the one observed, in general, at the level of an economy, the increase of the gross domestic product indicated an increase in the economic state of affairs, which would lead to a diminishment in the level of unemployment during the respective period of recession, decreasing together with the recession. Yet, the coefficients of the two variables result as being insignificantly different from null, an aspect confirmed also by the p-values which exceed the significance degree of 5%.

The determination coefficient shows that to a share of 52% the evolution of the unemployment rate is influenced simultaneously by the two variables included in the model, the rest of 49% being due to some other factors.

Applying the *t-student test* the significance of the linear regression model's parameters can be checked based on the following hypotheses:

$$\begin{cases} H_0 : a = b = c = 0 \\ H_1 : a \neq b \neq c \neq 0 \end{cases}$$

*The validity of the model* was checked based on the Fisher test which considers the following hypotheses:

$$\begin{cases} H_0 : \text{statistically non-valid model (MSR = MSE)} \\ H_1 : \text{statistically valid model (MSR > MSE)} \end{cases}$$

Having an F-statistic equal to 7.47 higher than the value of F-critic of 4.49, we can state that the model is valid from the statistical perspective,

the value p (F-statistic) of 0.006 which is lower than the significance threshold of 5% strengthening this fact.

*Testing the errors' normality* was realised with the aid of the Jarke Bera test. Based on the obtained results the conclusion was drawn that the errors have a distribution close to the normal one, this indicating a probability close to 1 and an average that tends to 0. This fact indicates that the unemployment rate is determined to the largest extent by the two variables, the influence degree of other possible factors being very low, and that the data are correctly taken over and processed. Thus, the estimated values of the unemployment rate do not differ significantly from the real ones.

For verifying the *homoscedasticity of errors* was used the test White and Glesjeri.

*The White test* is based on residual squares regression in relationship with all exogeneous variables, with their squares and their cross-products. According to this test, for the analysed model was obtained a very low F-static as value (0.49) which shows that the errors are homoscedastic as there are no significant differences between them, a result strengthened also by the probability which exceeds the threshold of 5%, respectively 7.7% which shows a high risk of errors in rejecting the null-hypothesis.

The same results were obtained also by applying the *Glesjer test* that has as hypotheses:

$$\begin{cases} H_0 : b = c = 0 \text{ (errors are heteroskedastic)} \\ H_1 : b \neq c \neq 0 \text{ (errors are not heteroskedastic)} \end{cases}$$

The analysis of the results for this test shows that there is homoscedasticity of errors.

*Durbin – Watson test* starts from the null-hypothesis ( $H_0$ ) according to which we have non-self-correlation of errors and the alternative hypothesis ( $H_1$ ). Applying this test led to a value DW=2.29 which is comprised between the critical value  $d_L=1.13$  and 2.62 (resulted by subtracting from 4 the critical value  $d_U = 1.38$ ), fact which determines us to accept the null-hypothesis which confirms the non-self-correlation of errors.

With respect to the *non-co-linearity of the explanatory variables* the determination coefficient between GDP and the average wage earnings was analysed and thus the fact was highlighted that it is visibly higher than the determination coefficient between these two and the unemployment rate ( $0.98 > 0.51$ ) which shows that the two variables are co-linear.

### **Conclusions**

The unemployment rate among youths with ages between 15 and 25 years of age is very high in Romania.

The analysis of the unemployment rate by econometric methods indicates that even though these are not the only factors of influence, the unemployment rate in Romania is influenced by the net average wage earnings, in the same sense as with the increase of the latter, and in reverse to the increase in the gross domestic product. The developed model is valid from the statistical viewpoint. Nevertheless, considering that GDP and average wage earnings are dependent between themselves more than the unemployment rate on the two, the model should be simplified or other exogenous variables should be considered.

The use of econometric methods allows for identifying the factors with strong influences on the unemployment rate among youths and for realising some short- and medium-term forecasts about this phenomenon, information of particular usefulness in adopting policies and measures for increasing the absorption degree of youths on the labour market.

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