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ANALYSIS OF THE ECONOMIC GROWTH TRENDS IN ROMANIA BETWEEN 2010-2012

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Abstract:
The question: "Why some countries are richer than others?" is a crucial problem that many economists have proposed to answer. Firstly, it should be noted the fact that the economic development is a quantitative and qualitative concept with a much broader area than growth. It is good that we have economic growth and stability but it is not enough to have economic development. Why? While economic growth is measured by a small number of indicators, among which the most important is the growth rate of GDP, the economic growth implies a long-term dynamic equilibrium, a sustainable growth trajectory based on optimal use of all available resources, the continued development of innovative potential and human capital and the development of strong institutions in order to support economic growth.

This study aims, by keeping the interdependence of the investigated aspects, to analyze and describe the following dimensions: GDP per capita and the average productivity per hour, the most important issues that have led to changes of GDP, where Romania is classified from the growth point of view.

The study includes the results of research, statistical series and arguments about the evolution of GDP based on National Institute of Statistics and Economic Studies and the Romanian National Bank over the last three years. Finally, the paper proposes a series of lines of action for further sustainable development of our country and reducing the disparities with the EU average.

Key words: economic growth, GDP, labor productivity, gross added value.

JEL classification: E1, E25, J24.

1.THEORY OF THE ECONOMIC GROWTH

For classics Adam Smith and David Ricardo economic growth is the result of capital accumulation (conversion of a part of the surplus product into capital) and the increasing of wealth by increasing productive capital per capita. In classical theory, growth factors are classical production factors: labor, nature and capital.

According to Keynesian conception, national income increase in response to changes of demand. The model developed by Keynes, income growth is a multiple of investment growth. At the aggregate level of national income, net investment, has as a funding source, savings, when the economy is in equilibrium.

Harrod-Domar model is based on the idea that households and businesses savings are the sources of investment, reinvested savings are increasing the capital and the effect is the economic growth. Harrod-Domar model uses three types of growth rates: the natural rate of growth, the guaranteed rate of growth and the effective rate of economic growth.

Goodwin model highlights the influence of the proportion in which the income is allocated to investments as a source of economic growth. In Goodwin's model the variables are: employment of labor resources, the rate of productivity growth, profits, investment, wage rate and consumption rate.

Arndt H.V. (1978) considers economic growth an increase of income as average per capita (normally measured by GDP to population).

Perroux Fr. (1981) considers growth as increasing the size of the national economy, expressed in total goods and services produced during a period, including amortization. However, in his opinion, only long-term quantitative growth represents economic growth, the short term representing expansion. According to classics, inputs are limited to land, labor and capital.

Kuznets S. (2001) regards the economic growth of a country as an increase in capacity to supply various economic goods, this ability being based on advanced technology, as well as institutional and ideological adjustments that they require.

Growth is defined as the process of increasing the size of the economic results, due to the combination and the use of factors of production and highlighted through macroeconomic indicators - gross domestic product, gross national product and national income in real terms, both on total and per capita.

Concepts such growth and economic development are associated with the economic progress. It highlights the signification of development for each stage, compared with the previous stages, being an optimistic view on the evolution of society in the future. Economic growth is important because it is the main quantitative factor of economic development.

2. RESEARCH METHODOLOGY

The objective of the research is to establish the link between GDP per capita and the average productivity per hour. For this purpose I have set as working hypotheses:

• There is a direct and linear shape between the average hourly productivity and GDP per capita;
• The intensity of the relationship between the variables analyzed is huge.

The analysis is realized for the European Union countries based on Eurostat data. Variables considered are GDP per capita in 2012 and the average productivity per hour, in 2012, the European Union countries, except Croatia, where indicators were unavailable. Data were entered and processed using SPSS statistical program.

The GDP expresses gross market value of goods produced by the internal economic agents in a period. The basis of calculation of these indicators is the added gross value of domestic economic agents or economic costs for final goods. (Capanu I. et all, 1994).

Study of the relationship between variables is accomplished by regression and correlation analysis involving the identification of the existence of the connection, the direction and shape establishment and as well as determining the connection strength. One of the methods by which one can determine the existence, meaning and form of the correlation is the graphic method. This method consists of plotting the pairs of values of the variables in a system of axes.

Research involves analyzing the intensity of linkages through the correlation ratio (R), as well as determining the proportion of influence of independent variables in the variation of the dependent variables by the coefficient of determination (R square).

At the same time, the process involves testing the significance of the report of correlation using Fisher test (F). Interpretation of the F test result shows the existence of a significant report of correlation in the conditions in which the value of F test is greater than the table and critical probability value (sig. (F) is less than the value of the threshold of significance corresponding probability of 95% (0.05). It may also be noted that, a report of significant correlation leads to the confirmation of a link type linear unifactorial.

3. THE ANALYSIS OF THE ECONOMIC GROWTH PROCESS (2010-2012)

3.1. ASPECTS OF GDP BETWEEN 2010-2012

As it was mentioned, the economic development is assessed taking into account a complex system of indicators. One of the most significant is considered the gross domestic product per capita and its dynamics. The Table 1(Annex) presents estimates of GDP for 2010-2012.

In 2010 GDP decreased by 1.3% compared to 2009. In 2011 GDP value increased by 2.5% compared to 2010. In 2012 the trend was preserved from the previous year and therefore GDP recorded a 0.6% value addition Still will be explained the most important aspects that have led to changing GDP country for each year analyzed.

As we noticed in Table no. 1(Annex), 2010 GDP registered a negative trend, reaching only 98.7% of the value recorded in 2009. According to the National Statistics Institute report this result is attributed to reducing of the volume of added gross value in agriculture, hunting and forestry, fishing and fish (- 0.8%), construction (10.7%), trade, hotels and restaurants; communications (-4.0%) and other services (-2.8%). Increases in workload were recorded in industry (+5.1%) and financial activities, real estate, renting and business services (+0.8%).

In 2011, GDP grew by 2.3% in comparison with the previous year. This is due to the volume growth of added gross value in the following fields of activity: 14% in agriculture, hunting and forestry, fishing and fisheries, 0.4% in industry, 2.7% and 1.8% in trade, hotels and restaurants, transport and telecommunications. Construction recorded a severe decrease in the amount of 18.7%. Household consumption grew by 1.4% from the previous year and counterbalanced 3% of the government‘s expenditure.

As compared to 2011, in 2012 the GDP recorded an increase in real terms by 0.6% as a result of the increase in gross value added volume from the following areas of activity: 8.7 % in trade, 5.2% in information and communications, and 1.9 % in construction. The areas that have declined are agriculture, forestry and fishing -24.6 %, financial intermediation, insurance -1% and industry -1.2 %. Household consumption increased by 1.5 % over the previous year and government spending increased by 0.7%. (according to the data presented in Table 2 - Annex section)

The stars of the last year, industry and agriculture diminished the volume and this is reflected in the formation of GVA, industry decreasing from 32.94 % to 32.37 % and agriculture also decreases from 7.45 % to 5.59 %. Trade show signs of recovery with a greater contribution than the previous year, respectively 13,43 %, also in real estate activities which have contributed more, with 1.93 % .

Regarding 2013, according to prognosis data, the economic growth in 2013 is heading to 3% due to a good agricultural year and industry. To GDP growth in the period 1st of January to 30th of December 2013 compared to the same period in 2012, contributed the following sectors: industry (+1.4%), with a share of 30% to GDP and whose workload increased by 5.1%, agriculture, forestry, and fishing (1.0%) with a lower share in GDP (5.8%) and whose business volume increased by 17.9%, real estate transactions (0.2%) with a share of 7.8% to GDP and whose business volume increased by 2.2%.

A negative contribution recorded: gross fixed capital formation (-1.1%), accounting for 24% of GDP, whose volume decreased by 3.9%, final consumption of public administration (-0.3%), accounting for 15.7% of GDP, whose volume decreased by 2.4%, stocks variation (-1.5%) due to the reduction of stocks in the economy.

In terms of quality, economic growth in 2013 is not better than in 2012. Thus, if we exclude the contribution of agriculture, there is a deceleration of growth (from 2.2% in 2012 to +1.7% in 2013). Positive or negative contribution of agriculture in recent years was up 1.5 percentage points and growth becomes dependent on agriculture during periods in which there are low rates of economic growth. Massive investments in agriculture are necessary to transform this area from a circumstantial factor into a permanent factor in aggregate growth.

The key events that have influenced the development of the economy in the period 2010-2012 were: State/public employee salaries decreased by 25%, by 15% pensions and the VAT rate was increased from 19% to 24%. These measures have created instability in the private environment certain investments after these measures of austerity budgets have not been carried out or have been banned. A study of the company of audit and consultancy KPMG showed that Romania has obtained by the end of 2010, actual payments of only 1.5 billion euros (7 %) of the total budget of 23.3 billion euros available during the period 2007-2013 through seven Operational programs, The European Regional Development Fund, the Cohesion Fund and European Social Fund, this fact denotes that Romania is not ready to develop their production capacities. In this direction it has to be considered the development of a society based on production in which dominates Romanian exports.

Another indicator of the economic development is the labor productivity, capital productivity, and their growth rates. And in terms of labor productivity, Romania is on the penultimate place in the EU and at a great distance from the EU average (about 50% of the EU average). Also, after labor productivity in agriculture, we are on the last place in the EU and about 30% of the EU average. The Romanian economy was marked in 2012 of two major economic events, namely entry into recession of the euro area and political instability. This has a negative impact on the economy, which increases the lack of confidence that Romania has internally and externally. These macroeconomic structural changes have had an effect on labour productivity.

3.2. INTERDEPENDENCE ANALYSIS OF GDP - AVERAGE PRODUCTIVITY PER HOUR

It can't talk about long-term economic growth without bringing into question the actual productivity per capita, making exception only if the country would discover an island with almost limitless resources to exploit very easily, and not know the inhabitants of other countries. Therefore keyword when we speak of economic growth is productivity. Labor productivity is an important economic indicator that helps in measuring effectiveness of activities or of an economy as a whole. (Blauchard et al. 2012)

Analysis of interlinkages between GDP and average hourly productivity starts with an overview of the situation of the average hourly productivity and then with the evolution of GDP, at the level of Europe in 2012.

Figure 1. Labor productivity per hour worked (euro per hour worked) in Europe in 2012

Graphic representation (Figure 1) shows that, in 2012, Romania and Bulgaria were the last in terms of labor productivity per hour, registering 5.4 euro / hour and 4.8 euro / hour worked. The highest labor productivity per hour worked was recorded by Luxembourg, 58.2 euro / hour, 10.7 times more than in Romania.

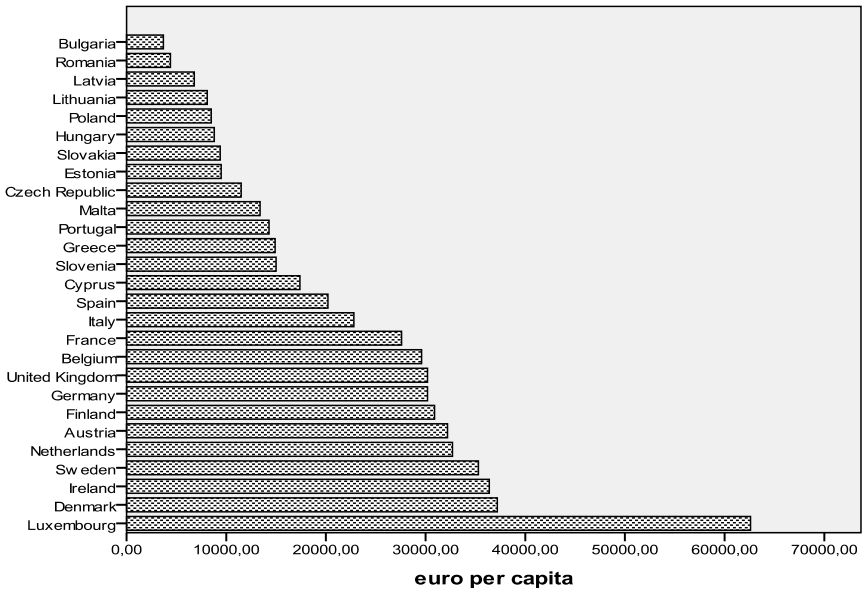

Figure 2. Real GDP per habitant (euro) in Europe, in 2012

In terms of GDP(Figure 2), in 2012, Romania was the penultimate with only 4400 euro / capita compared to an average of 23100 euro / capita in the European Union (See Table 4 section Annexs). The highest GDP / capita was registered in Luxembourg, of 62600 euro / capita, followed at a relatively large distance, of Denmark 37200 euro / inhabitant. There may be a distribution of EU countries by GDP / capita quite similar to the distribution by labor productivity per worked hour in 2012.

The first step in the demonstration of the phenomenon of interlinkages between GDP and average hourly productivity is graphic representation through the correlogram.

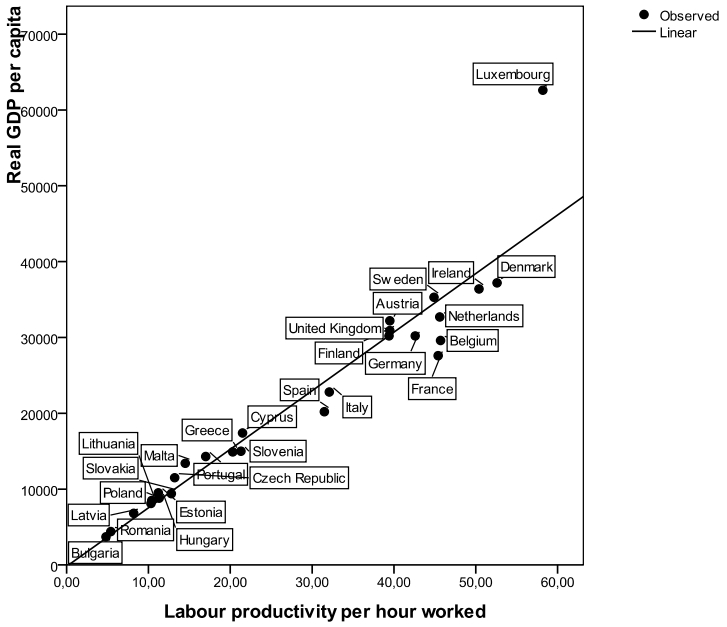

Figure 3. Correlation between labour productivity per hour and GDP / capita in Europe in 2012

The correlogram (Figure 3) shows a direct, linear relationship between labor productivity per hour and GDP per capita, items being placed in the direction of the first bisector and the clear

trend of linearity, which means that, for the EU countries a change in average hourly productivity resulting in a variation in the GDP in the same direction, at the level of 2012.

In the context in which the graphic representation of the connection only indicates existence, the direction and form of connection, for a deeper analysis of the interlinkages between labour productivity per hour and GDP per capita, the intensity of the relationship is established through the report of correlation (R) and of the proportion of influence of average hourly productivity in the change in GDP by the coefficient of determination (R Square).

Table 4 Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0,951	0,904	0,900	4324,708

The independent variable is Labour productivity per hour worked.

Through data entered in SPSS on hourly average productivity and gross domestic product (GDP) for the countries of the European Union in 2012 and the implementation of that program, shows that link between the two variables is very strong, which is confirmed by the report of correlation of 0.95 which is placed between 0.95 and 1. Also, the coefficient of correlation of 0,904 (R Square) submits that 90,40 % represents average hourly productivity influence in the change in GDP, with the rest of 9.6 percent influenced by other random factors.

Table 5 ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	4410349197,754	1	4410349197,754	235,808	,000
Residual	467577468,913	25	18703098,757		
Total	4877926666,667	26			

The independent variable is Labour productivity per hour worked.

The results presented in the ANOVA table (table 5) led to the establishment of the meaning of correlation report. So, in order of the fact that statistical test represented by F calculated (235,808) is significantly higher than the critical (tabular) 4,24, shows that the correlation report is statistically significant, and the trend of linearity between average productivity per hour and GDP per capita is obvious leading in the future to a inferential process. This result is confirmed by the critical probability (SIG. F) 0,00 which is significantly less than the significance threshold (0.05) corresponding to the probability of 95%.

Taking into consideration that GDP is calculated as the product between the number of worked hours and productivity per hour, if productivity remains constant then it should increase the number of worked hours. Demographic changes recorded in Romania shows that the population decreases, which will determine the long-term decline of active population and therefore the number of worked hours. Romania has lost in the last 17 years 10 percentage points, the employment has downed from 73% in 1997 to 63.8% in 2013, which puts us at the indicator on one of the last places in the EU. (Tabel 4 - annex)

4. CONCLUSIONS

The analysis carried out at the level of the European Union countries for 2012 revealed the existence of a very strong link, direct and linear, with a significant influence of the average hourly

productivity on GDP, resulting in that a change in average hourly productivity leads to a significant change in GDP in the same direction.

Hourly labor productivity growth in the national economy depends on the levels recorded in national economy branches. Due to the fact that in Romania, the low productivity is in agriculture, the achieving of an intensive agriculture could reduce disparities.

Romania's priorities for the next years are the acceleration of economic growth in terms of financial stability, because a medium average advance of 2-3% per year is too small to reduce the gaps between Romania and the euro area. Net exports, Dacia Automobile in 2013 maintains its position as the largest exporter in Romania, according to estimates of the National Institute of Statistics, followed by RRC SA, which in 2012 ranked third in the ranking of the largest exporters of the country and Ford Romania, which in 2012 was the only ranked 11, are those that have supported economic activity in 2013, while investments were declining and consumption has shown signs of recovery.

On the formation of the GDP, the engines were industry and agriculture, while construction and retail trade continued to disappoint. The first three semesters of 2013 amounted, besides good news from exports, industrial production and agriculture, insolvencies and pessimism in business. Consumption shows no signs of recovery while maintaining real wage growth near zero and unemployment rise. It requires investment in technology and people to ensure the modernization of technical capital and specialization of human capital so as to achieve a continuous increase of the competitiveness in the Romanian economy. Decreased employment and investment and low productivity are the main factors that have reduced the growth rate of potential GDP in the long term from about 5 % (averaged for 2002-2008) , about 1.4 % (average 2009-2013) .

To record a continuous and sustainable economic development it is necessary to balance qualitative growth of the model for high productivity activities, which produce goods and services with high added value, to increase its share in GDP structure at the expense of large sectors consuming resources and producing goods and services with added value. The productivity per worked hour as a result in GDP mainly depends on:

- the technology used;
- the distribution of added gross value by manufacturing sectors;
- the ability to sell in the domestic and global market the obtained products.

Bringing solutions to improve productivity are dependent on the particularities of the national economy. Economic growth and development require continuous engines and a balanced structure, focused on the qualitative side of the production factors.

ANNEX

Table 1. GDP growth in Romania for 2010-2012

Year	GDP volume (million) at current prices	Development index (in real terms)
2010	513640,8	- 1,3%
2011	557348,9	+ 2,3%
2012	586749,9	+ 0,6%

Source: National Institute of Statistics and Economic Studies, 2012

Table 2. Gross Domestic Product – types of resources and use in 2012

	Achievements- million current prices	Volume indices - in% compared to 2011 -	Price indices - in% compared to 2011 -
Agriculture, forestry, fishing	28638,1	75,4	104,5
Industry	165747,0	98,8	104,4
Construction	50292,5	101,9	109,8
Trade	68757,6	108,7	103,3
Information and communication	20821,9	105,2	104,3
Financial intermediation and insurance	14390,6	99,0	103,7
Real estate	48057,4	100,1	102,4
Professional, scientific and technical activities; administrative and support service activities	36239,5	112,4	103,8
Public administration and defense, social security insurance, education, health and social assistance	61473,0	100,4	109,4
Arts, entertainment and recreation	17694,6	104,5	106,1
Gross added value – total	512112,2	100,3	104,7
Net taxes on products	74637,7	102,6	104,5
Gross Domestic Product	586749,9	100,6	104,7

Source: www.insse.ro

Table 3. Contribution of the used categories to the formation and growth of GDP during the period 1.I - 30.IX 2013

	Contribution to GDP %		Contribution to GDP growth %	
	Temporary (1)	Temporary (2)	Temporary (1)	Temporary (2)
Total final consumption	77,0	77,1	0,1	-0,2
Actual final consumption of population's households	70,4	70,6	0,2	0,0
Final consumption expenditure of population's households	60,4	60,8	0,4	0,4
Final consumption expenditure of non-profit institutions serving population's households	0,9	0,8	0,0	0,0
Individual final consumption expenditure of public administration	9,1	9,0	-0,2	-0,4
Actual final consumption of public administration	6,6	6,5	-0,1	-0,2
Gross fixed capital formation	24,0	24,2	-1,1	-1,1
Stocks variation	-0,7	-0,7	-1,5	-1,1
Net exports of goods and services	-0,3	-0,6	5,2	5,1
Exports of goods and services	43,8	44,3	6,0	6,4

Imports of goods and services	44,1	44,9	0,8	1,3
Gross domestic product	100,0	100,0	2,7	2,7

Table 4.

	Labour productivity per hour worked Euro per hour worked	**Real GDP per capita, growth rate and totals Euro per inhabitant**
EU (28 countries)	32	23100
EU (27 countries)	32,1	23200
Euro area (17 countries)	37,2	25700
Belgium	45,7	29600
Bulgaria	4,8	3700
Czech Republic	13,2	11500
Denmark	52,6	37200
Germany	42,6	30200
Estonia	11,2	9500
Ireland	50,4	36400
Greece	20,3	14900
Spain	31,5	20200
France	45,4	27600
Italy	32,1	22800
Cyprus	21,5	17400
Latvia	8,2	6800
Lithuania	10,3	8100
Luxembourg	58,2	62600
Hungary	11,3	8800
Malta	14,5	13400
Netherlands	45,6	32700
Austria	39,5	32200
Poland	10,4	8500
Portugal	17	14300
Romania	5,4	4400
Slovenia	21,3	15000
Slovakia	12,8	9400
Finland	39,5	30900
Sweden	44,9	35300
United Kingdom	39,4	30200

REFERENCES

1. Arndt, H. W., (1978) *The Rise and Fall of Growth*, H. Study in ”Contemporary Thought”, Longman Cheshire Pty Limited, Melbourne
2. Barro R. J. & Sala-i-Martin X., (1995) *Economic Growth*, *New York: McGraw-Hill.*
3. Capanu I., Wagner, P., Mitruţ. C. (1994) *System of National Accounts and macroeconomic aggregates*. ALL Publishing House, Bucharest.
4. Capanu, I. (1998), *The macroeconomic indicators. Content and functions*, Economic Publishing House, Bucharest.
5. Hapenciuc Cristian-Valentin, Tcaciuc Lorraine Elisabeth. (2010), *Dynamics European Influence on World Crisis*. Annals of The "Ştefan cel Mare" University of Suceava.â

6. Hapenciuc Cristian-Valentin, Gabriela Ciobanu, Condratov Iulian Stanciu Paul. (2008), *Selective Research: Case Studies, Projects*. Didactic and Pedagogic Publishing House, Bucharest.
7. Jaba Elizabeth Grama Anna, (2004) *Statistical Analysis with SPSS Windows*, Polirom, Iasi, pp.256.
8. Jaba Elisabeta, (2002) *Statistics*. 3rd Edition, Publishing House, Bucharest.
9. Kuznets, S. (2001), *Economic Growth and Structure*. *Selected Essay*s, Hainemann Educational Books Ltd, London
10. Marinescu, Cosmin. (2011), *Institutional Foundations of Economic Performance. Study of synthesis.* ftp://www.ipe.ro/RePEc/ror/ror_pdf/seince111208.pdf
11. Perroux, Fr., (1981) *Pour une philosophie du nouveau developpement*, Les Presses d'UNESCO, Paris
12. Solow, RM (1956), *A Contribution to the Theory of Economic Growth*, Quarterly Journal of Economics
13. Solow, Robert. (1956), *A Contribution to the Theory of Economic Growth.*
14. Stephen Alexander, Pânzaru, Stelian. (2008), *Economical Growth and Development in the European and World Context*, Bloomfield College, New Jersey, USA
15. *** Http://www.zf.ro/ - BBC
16. *** Http://www.insse.ro/ - National Institute of Statistics
17. *** Http://www.business24.ro/ - Business 24
18. *** Http://economie.hotnews.ro/ - Hotnews
19. *** Http://www.bnr.ro) - National Bank of Romania
20. *** Http://www.ecb.europa.eu/home/html/index.en.html- European Central Bank

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