

## **MANAGEMENT MODEL OF THE CORRELATION BETWEEN THE RATE OF INFLATION AND THE GROWTH RATE OF THE GDP**

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**Abstract:** The lack of a horizon materialized in strategies of long-term macro-development, doubled by the inconsistency and incoherence of the monetary and fiscal policies, generally leads to the perpetuation of unbalances at macroeconomic level. Under these circumstances, measures of adequate macroeconomic management are required, and the use of statistic instruments is essential for the development of models of action based on a correlative approach of such phenomenon as the rate of inflation and the evolution of the GDP.

**JEL classification:** E1, E2

**Keywords:** economic growth, rate of inflation, evolution curves of the GDP, rate of growth, correlation.

The macroeconomic analysis requires taking into consideration the economic environment as a whole, with its periods of boom or recession, with the total level of production and of the services offered on the market, without excluding the price level and the cyclicity of their modifications – generating inflation most of the times and, unfortunately, quite rarely deflation, the level of labor which ensures the accomplishment of a certain level of production and, implicitly, the actual level of occupation. The purpose of all these is basically to provide on a long term a certain level of economic growth which, after all is ensured by actions carried out on a short term – actions materialized in fluctuations which generate production cycles (business cycles).

The rather chaotic evolution of the main indicators of Romania during the period after 1990, considered as synthetic results of the economy's condition, can be explained first of all by the inconsistency and the incoherence of the monetary and fiscal policies run by Romanian authorities (until the end of 2000), which are due to the lack of a horizon materialized in strategies of long-term macro-development. The economic leadership has been reactive and not programmatic, meaning that generally short-term solutions have been sought (with a great effect on the electorate) to suppress certain conflictual conditions in the economic or social area.

In addition, the transition required for Romania to reach two major objectives, which directly influenced the life standard potential of increase:

*firstly*, to develop the market economy system, to continuously generate the incentives for innovation, incurring business risks, the increase of productivity and competitiveness. This system must include the legislative frame, the institutions, as well

as the capacity to provide for the application of new regulations concerning private property, free initiative and the new role of the state in economy and the social life;

*secondly*, to restructure the former state enterprises in such a way as to become competitive, simultaneously with encouraging private initiative and foreign investors.

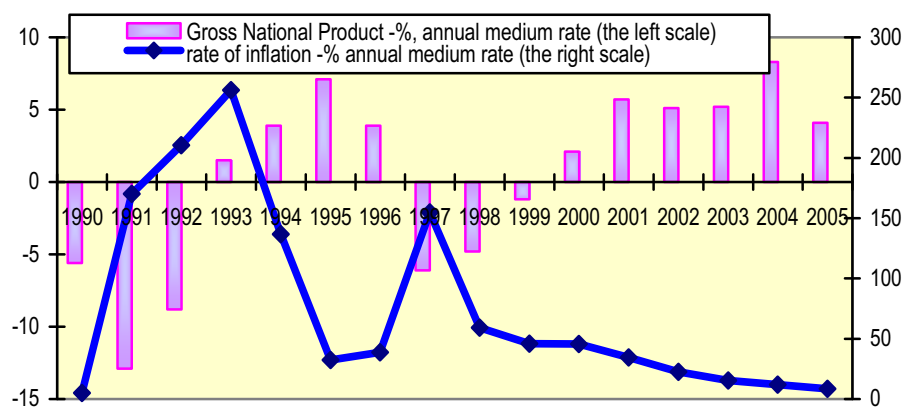
The experts appreciated that the processes of the Romanian economic transition have been “intensely mystified“, which only diverted the attention from the real causes of the Romanians’ low life standard.

A first example is represented by the evolution of the rate of inflation in our country. Another illusion, caused more or less deliberately (an illusion based on the reality confirmed in the developed countries, according to which, economic growth is necessary to provide a high life standard), was represented by the increase of life standard of the population simultaneously with a sustained economic growth.

In reality however, paradoxically, the economic growth in Romania is achieved in conditions which maintain or even aggravate the phenomenon of population’s poverty, such as: corruption, the tendency to generalize tax evasion, the distorted allocation of value for Romanian economy, between the different economic fields which participate in the realization of economic circuits (for example, it is least arguable the fact that the highest salaries in economy are encountered in the bank and the insurance fields, while the fields contributing the most to Romanian exports – textiles, ready-made clothes, furniture – have the lowest distributions).

The analysis of Romania’s macroeconomic indicators reveals an increase of the *gross national product* from one year to another, in current prices, an increase due however up to 2000 to a great depreciation of the national currency. Thus, during the period from 1993 to 2005, the gross national product has evolved oscillating, while the rate of inflation (except for the interval 2000-2005) was constantly at high levels, the industrial production continuously dropped, and the trade balance was marked by deficits each year, as a natural consequence of production reduction.

For this, a significant proof is the evolution curve of the Gross National Product comparatively to the rate of inflation (figure no. 1.)



**Figure no. 1. The evolution of the GDP and of inflation for the period 1990-2005**

*Source: Romanian National Bank, Annual report, 2005*

Analyzing the graphic figure presented above, it can be noticed that the periods marked by negative economic growth (1990-1993) correspond to the periods of

increase of inflation, which is the most sensible indicator of the balanced condition and, inversely, the revigoration of the gross national product has announced a slight revigoration of the economy, characterized by the reduction of the rate of inflation (1995-1996 and 2000-2005). Unfortunately however the trend of these indicators was not maintained for the year 1997, when they marked the negative evolutions of previous years. Furthermore, the period of the years 1998-1999 was characterized by an obvious contradiction of the two indicators: the reduction of the Gross National Product, simultaneously with the reduction of the rate of inflation (an effect of a restrictive monetary policy). The re-establishing of the macroeconomic balance was achieved only after the year 2000.

**The gross national product** is a macroeconomic indicator which is being calculated both in current prices and in comparable prices, depending on which we can mention a normal evaluation and a real one.

The real evaluation requires the re-calculation in comparable prices (of the basic period) of the Gross National Product in the current period, with the deflator of the gross national product (D). This can be expressed by the relation:

$$GNP_1^{comp} = \frac{GNP_1^{crt}}{D}$$

(4.75)

The analysis we intend to carry out is developed for the period 1999 – 2005 and it targets evidencing a comparison between the rated evolution of the gross national product and the real evolution. For the mentioned period, the data concerning the gross national product and the deflator are presented in table no. 1.

**Table no. 1. The evolution of the GDP and of the GDP deflator for the period 1999-2005**

<b>Indicators Years</b>	<b>GDP -billion Lei-</b>	<b>Deflator</b>
1999	54,5730	-
2000	80,3773	1,443
2001	116,7687	1,374
2002	151,4751	1,234
2003	197,5648	1,194
2004	246,3717	1,158
2005	287,1863	1,114

*Source: Romania's Statistic Annual, 2005*

Analyzing the data in table no.1., it may be ascertained that for the period 1999-2005 there was an increase of the GDP, an increase which represents 232,6133 billion Lei as absolute value, which corresponds to a growth index of 5,262.

If we wish to carry out an analysis of the GDP expressed in current prices by reference to the previous period, we determine great fluctuations from one year to another at the level of absolute and relative modifications.

**Table no. 2. The relative and absolute modifications of the GDP**

Years	GDP	Relative modifications	
		$I_{n/n-1}$	$\Delta_{n/n-1}$ (billion Lei)
1999	54,5730	X	X
2000	80,3773	1,4728	25,8043
2001	116,7687	1,4528	36,3914
2002	151,4751	1,2972	34,7064
2003	197,5648	1,3043	46,0897
2004	246,3717	1,2470	48,8068
2005	287,1863	1,1657	40,8146

*Source: calculated based on the data from Romania's statistic Annual, 2005*

Analyzing the rated evolution of the indicators (by reference to the previous period), we ascertain an extremely high economic growth, if not even impossible from one period to another. For example, in 2000, as opposed to 1999, there is a growth rate of 47,28% (the equivalent of an absolute growth of 25,8043 billion Lei), in 2001, as opposed to 2000, the rate of growth was of 45,28%, which represents a 36,3914 billion Lei growth as absolute value. In 2002 there is a 29,72% growth, in 2003, a 30,43% growth and in 2004 a 24,70% growth, in a descending trend as opposed to the previous period, the decrease culminating at the level of year 2005 when there is a 16,57% growth. If we carry out the analysis by referring to the reference year 1999 without considering the influence of inflation, the obtained results will result in the unreal characterization of the economy.

From this point of view, it is necessary to recalculate the GDP values in comparable prices (the prices of the basic period = the year 1999), by using the GDP deflator. Practically we intend to determine the real economic growth by eliminating the most significant part of the inflation.

Thus there will be a GDP expressed in comparable prices for the analyzed 7 years (table no. 3).

**Table no. 3. The evolution of the GDP expressed in comparable prices**

Year	Compared GDP -billion Lei-
1999	54,5730
2000	55,7015
2001	58,8943
2002	61,9117
2003	67,6296
2004	72,8299
2005	76,2074

*Source: calculated based on the data from Romania's statistic Annual, 2005*

The real evolution expressed as relative and absolute values by re-calculating the GDP in comparable prices (*the reference year 2000*) records the following values:

Table no. 4 The real evolution expressed in relative and absolute values by recalculating the GDP in comparable prices

Years	GDP -billion Lei-	Indicators		
		$I_{n/n-1}$	$R_{n/n-1}$	$\Delta_{n/n-1}$ -billion Lei-
1999	54,5730	X	X	X
2000	55,7015	1,0207	2,07	1,1285
2001	58,8943	1,0573	5,73	3,1928
2002	61,9117	1,0512	5,12	3,0174
2003	67,6296	1,0924	9,24	5,7179
2004	72,8299	1,0769	7,69	5,2003
2005	76,2074	1,0464	4,64	3,3776

Source: calculated based on the data from Romania's statistic Annual, 2005

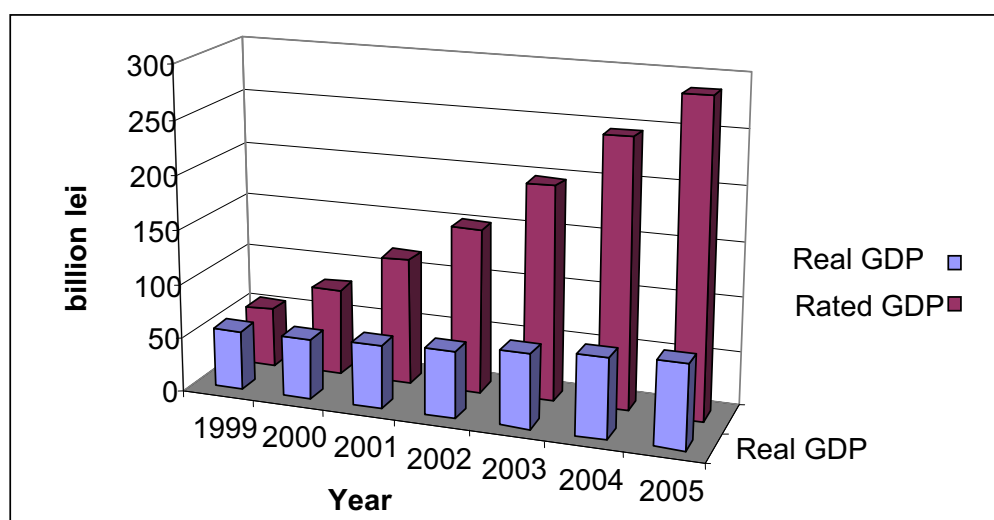


Figure no. 2. The evolution of the real and rated GDP in the interval 1999-2005

In the analyzed period we ascertain a maximum growth level of 9,24% accomplished at the level of year 2003 as opposed to the previous one, which corresponds to a value of 5,7179 billion Lei. During the period 1999-2005 a medium rate of growth of 5,72% was recorded ( $\bar{R} = (\sqrt[n]{I_{n/1}} - 1) \cdot 100$ ) which as absolute values corresponds to a medium increase of 3,6057 billion Lei ( $\bar{\Delta} = \frac{\Delta_{n/1}}{n-1}$ ).

The relation between the rated GDP, the real GDP and the rate of inflation is:

$$I_{GNPn} = I_{GNPr} \cdot D, \quad (4.76)$$

a relation which will have the following form if it will be transferred in rates:

$$R_{GNPn} = R_{GNPr} + RI + R_{GNPr} \cdot RI \quad (4.77)$$

where: *RI* represents the rate of inflation calculated based on the deflator;

If a reduced inflation is being recorded, it is possible to exclude the last product with an insignificant value, and the rate of growth of the rated gross national product will depend on the rate of growth of the real gross product and of the rate of inflation. Analyzing the period of 1999-2005 we ascertain a constant growth of the GDP from 54,5730 billion Lei to 76,2074 billion Lei simultaneously with a reduction of the rate of inflation from 45,8% at the level of the year 1999, to 9% for the year 2005.

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