

THE INFLUENCE OF THE INTEGRATION PROCESS IN EU ON THE ROMANIAN INFLATION DYNAMICS

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The paper points out the tendencies in the dynamics of inflation from Romania in the context of the integration in the European Union. After the instruments and the computation methodology for the inflation have been presented, one has also to carry out a diagnosis of the evolution of this important macroeconomic indicator and of its components, in the pre-accession period. All these facts are analysed according to the existence of some annual targets regarding the inflation. There are elaborated some predictions for the post-accession period followed by an analysis of the real evolution of the dynamic of the indicator according to the predicted values. In this paper there were also used advanced computer programs for the processing and analysis of the statistical data.

Keywords: consumer price index, inflation, disinflation, trend.

1. Introduction

The economic evolution of Romania in the period 2000-2006 was under the influence of the accession to the European Union, a process which was accomplished on 1 January 2007. For this purpose, many economic programs have been elaborated, which had as an objective the sustainable development which on a long and medium term would be able to reduce the development disparity of our country as compared to the EU member countries.

All these activities were carried out in the context of fulfilling the general criteria of accession which are based on the conclusion of the European Council from Copenhagen (1993) and as a consequence of the criteria from the nominal convergence programs settled under the Maastricht Treaty which stipulate the inflation rate at a level of 1,5 percentage points above the average of the first three Member States with the best performances regarding the stability of the prices.

The inflation is still a complex macroeconomic analysis problem and one of the most important forms of the economic-social imbalance. Regarding the contemporary inflation, one can mention a series of essential characteristics: it is a depreciation process of the money both on a national level but also in relation with other currencies; it is a process of sustainable and generalized development of the prices and tariffs; it is the expression of a monetary and material imbalance, manifested both on the monetary market but also on the goods market; it is influenced by many psychological aspects.

The inflation as a complex phenomenon which affects the structures of the whole economic-social organism has some important consequences, some of the most significant being: the influence on the consumption and on savings and investments, effects of the distribution (redistribution) of the incomes, aggravates the unemployment phenomenon and diminished the purchasing power of the national currency in comparison with other currencies.

Taking into account the special importance of this above-mentioned macroeconomic indicator, we think that it is proper to present the evolving tendency of the dynamics of the inflation rate from the pre-going period of the EU accession but also the elaboration of predictions and analysis for the real evolution of the inflation in comparison with the predictions from the post-accession period.

In this paper, in order to implement the statistical-mathematical methods one will use the advances analysis and processing program MINITAB 14.1.

2. Methodological aspects regarding the calculation of the inflation rate

Being a really complex phenomenon, the inflation can be measured and illustrated by using many price indices, each of these pointing out a certain face of the inflation.

The main instrument of measuring the inflation is the Consumer Price Index (CPI). This was calculated up to 1990 as a Paasche index, because of the controlled way of the price evolution from the economy. After this year this method could not be applied any more, both because of the changes from its property

structure of the trade but also in the diversification of the prices from the sales unities. Presently CPI is calculated as a fixed base Laspèyres index [1]:

$$IPC = \frac{\sum I^p(p_0q_0)}{\sum(p_0q_0)} \quad (1)$$

where

$$\frac{(p_0q_0)}{\sum(p_0q_0)} = C_p - \text{weighting coefficient specific for the group of goods and services, and } I^p - \text{the}$$

price index of the aggregation level.

In spite of these, there are some differences in some countries regarding the way of defining and calculating the CPI which influence the results of the comparisons at an international level. For this reason, the EU member states have adopted a series of compulsory regulations regarding the calculation method of the harmonized consumer price index.(HCPI)

Taking into account the fact that under Romania's specific circumstances the difference between the two indices is under 0,1 percentage points, and we will still use as a measurement instrument for the inflation the CPI.

The inflation calculated as a CPI rhythm is a solution which is accepted as a way of statistical expression. Then when CPI is calculated as a coefficient, the inflation rate is [1]:

$$R_{inf} = CPI \times 100 - 100 \quad (2)$$

and when CPI is calculated in a percentage expression:

$$R_{inf} = CPI - 100 \quad (3)$$

The specific inflation indices are the following:

a) The monthly inflation rate or the price growth "t" in a month as compared to the previous month "t-1":

$$R_{t/(t-1)} = CPI_{t/(t-1)} \times 100 - 100 \quad (4)$$

b) The monthly average rate of the inflation or the geometric mean of the monthly growth for a certain period, expresses the monthly average growth of the prices:

$$\bar{R} = (\sqrt[n]{\prod CPI}) \times 100 - 100 \quad (5)$$

c) The inflation rate from the end of the period (the year) or the price growth for the goods from the month December of the present year, compared to the month December of the previous year:

$$R_{t/dec.} = CPI_{t/dec.} \times 100 - 100 \quad (6)$$

3. Tendencies in the inflation dynamics in the EU pre-accession period

The analysis of the dynamic of this important macroeconomic indicator will be carried out in the period 2000-2006 when Romania experienced important rhythms of economic growth, which have strengthened the belief that the economy is on the way to a sustainable development.

The short analysis of this series of statistical data related to the inflation from table 1, point out the fact that the tendency of this indicator can be linear or parabolic. One can also notice that the series does not contain a cyclic or periodical component, which suggests that fact that the results of the analysis point out the usual trend.

The implementation of the models was done with the help of the Trend Analysis component from the statistical analysis program MINITAB 14.1 [2], and has led to the conclusion that the parabolic model, with a determination coefficient of 0.977 appreciates the best the evolutive tendency (figure 1).

percents; month/same month from the previous year

Year	Jan	Feb	Mar	Apr	Mai	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	39,9	40,0	40,3	37,5	37,4	35,7	31,8	32,4	31,2	30,8	30,7	30,3
2002	28,6	27	25	24	25	24	23	21	20	18,8	19	18
2003	16,6	16	17	16	14	14	15	14	16	15,8	15	14
2004	13,9	14	13	13	12	12	12	12	11	10,8	9,9	9,3
2005	8,9	8,9	8,7	10	10	9,7	9,3	8,9	8,5	8,1	8,7	8,6
2006	8,89	8,5	8,4	6,9	7,3	7,1	6,2	6	5,5	4,8	4,7	4,9

Table 1. The evolution of the Inflation Rate

On notices that for the total of inflation, the parabolic trend estimates quite well the incremental tendency. The regression coefficient which summarized the average growth from one year to another, has quite a small value (-1.03228) in relation to the levels of the dynamic series. The tendency of the indicator is descending taking into consideration the negative value of the regression coefficient.

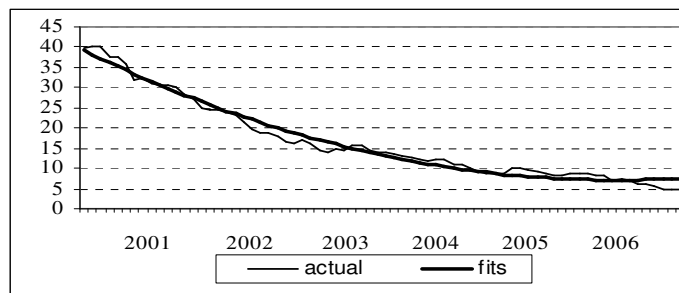


Fig. 1. The analysis of the total trend for inflation

The determination coefficient (R-Sq) has a very high value (0.977) which means that 97.7% from the total variation is explained with the help of the parabolic model, the unexplained difference –summarized by the initial trend being of 2.3%.

In an analogical sense, after consulting the series of statistical data from [6], the incremental tendency for the inflation regarding the food, the non-food goods and the services can be determined (figure 2).

The analysis of the results points out that in the analysed period Romania has registered a strong process of disinflation. This disinflation was higher in the first two years when there were some decreases of 10.4 percentage points in 2001 as compared to 2000 and 13.1 percentage points in 2002 as compared to 2001.

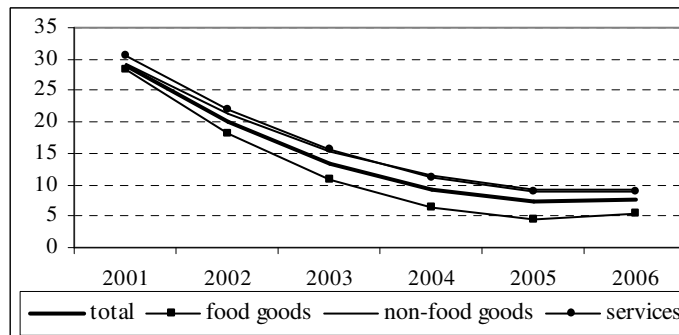


Fig. 2. The comparative analysis of the inflation rate trend

The descending trend of the inflation was possible due to a series of factors among which we mention: the relaxation of the pressures exerted by the prices of the food products; maintaining a low level for the budgetary deficit (almost 2,7%) and the careful NBR monetary policy.

Starting with August 2005, the National Bank of Romania (NBR) passed to a new strategy of monetary policy - aiming at the inflation, which is characterized by the public adoption of a quantitative target of inflation and assuming the stability of the prices as a primary objective. Taking into account that before 2005, NBR [6] has programmed some annual levels of inflation, one can see the annual evolution of the inflation as compared to the programmed values (table 2).

-percents-

	2000	2001	2002	2003	2004	2005	2006
Inflation(Dec/Dec)	40,7	30,3	17,8	14,1	9,3	8,6	4,87
Target	35	25	22	14	9	7,5	5

Table 2. Annual values of the inflation rate and the programmed targets

It is noticed that in the beginning of the period the inflation was higher than the programmed one. The year 2002 is a special case, when the annual inflation registered a lower level because of the action of some factors as: the decrease of the prices for food; the careful NBR monetary policy, the appreciation of the national currency in relation with the Euro and the Dollar etc.

4. Appreciations regarding the prediction of the inflation Rate in the EU post-accession period

For the period 2007-2010 it is expected a fast economic growth with no inflationist effects. The prediction of the annual evolution of the inflation in the post-accession period can be made by consulting the series of statistical data from [6] and [7], where the annual rates are presented under different forms.

The analysis of the data referring to inflation (dec./dec.) suggest us the fact that the tendency can be linear, parabolic or exponential. The implementation of the models with the component Trend Analysis from the statistical analysis program MINITAB 14.1 points out that the exponential model having an determination coefficient of 0.981 can estimate very good the real tendency of the indicator (figure 3).

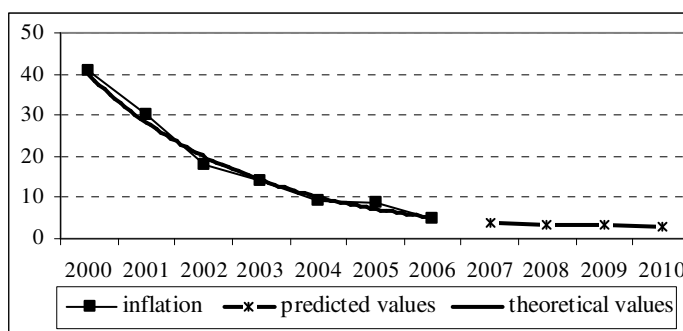


Fig. 3. The incremental tendency of the inflation (dec./dec.)

The above mentioned information point out a continuation of the descending tendency of the inflation rate in the period after the EU accession, but taking into account the fact that the long term prognosis may quit inaccurate because of the different types of determining factors of the inflation [4], a short term analysis has to be carried out. So, table 3 presents the prognosis, the real values and the target (4%) for 2007 regarding the inflation rate.

percents; month/dec. from the previous year

	Jan	Feb	Mar	Apr	Mai	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Prognosis	0,2	0,5	0,8	1,21	1,41	1,61	2,27	2,27	2,48	2,99	3,81	4,3
Real values	0,20	0,24	0,31	0,83	1,48	1,62	1,91	2,79	3,9	4,91	5,89	6,57

Source: National Statistics Institute, National Prognosis Commission

Table 3. The inflation rate in 2007 (prognosis and real values)

As it is notices from table 3, in the first half of the year 2007, the rhythm of growth of the inflation was under the predicted one. The main contribution to the decrease of the inflation rate in the first trimester was the disinflation registered by the products having administered prices, and their rhythm of growth went down from 10,2% in December 2006 to 6,87% in March 2007. In the second trimester the annual inflation rate registered an ascending tendency, determined exclusively by the movements of the administered prices and volatile prices.

This tendency was the same for May and June and starting with the second half of the year, the inflation growth level was above the predicted one, mainly due to a difficult agricultural year, due to the draught but also because of the significantly increased wages.

As a conclusion, during 2007, the annual inflation rate registered a deviation from the descending trend which corresponded to the target 4% +/-1 percentage point, reaching 6.57% at the end of the year.

The prognosis for 2008 and 2009 are shown in table 4. According to the information from the table the inflation will continue to grow in the first semester of the present year, after which the disinflation process will come back.

Exceeding the inflation target for the next period is also due to the perpetuation of the negative effects of the reduce agricultural production but also of the growth of the import prices as a consequence of the depreciation of the leu from the last time but also of the significant increase of the administered prices, especially for energetic products.

	T1	T2	T3	T4	T1	T2	T3	T4
Period	2008	2008	2008	2008	2009	2009	2009	2009
Target				3,8				3,5
Prognosis	8,3	8,1	7,7	5,9	5,1	4,3	3,8	3,9

Table 4. Prognosis of the inflation rate

5. Conclusions

The economic evolution of Romania in the last seven years was under the influence of the integration in the European Union, and was conditioned by the fulfilment of the criteria stipulated under the Maastricht Treaty.

In the pre-accession period the inflation had a strong descending trend, from 40,7% in 2000 to 4,87% in 2006. The tendency for the food products was permanently under the level of the inflationist tendency while for the non-food products and services was situated above the general level of inflation.

The strong disinflation process was carried out according to some programmed levels for each year. At the beginning of this period these levels were exceeded but as long as the moment of accession was getting close, the differences between the real rate of the inflation and the programmed one have been significantly reduces.

The prognoses for the period after the accession but also the real values show a stagnation of the descending tendency of the inflation rate. So, for 2007, although there was a 4% target, the Romanian economy registered an inflation rhythm of 6,57% exceeding even the variation interval of +/-1 percentage point.

It is predicted the comeback of the disinflation process for the period 2008-2009, although at the beginning of the year 2008 there will still be an ascending tendency for the inflation rhythm.

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