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The Evolution of Inflation in the Context
of the COVID-19 Pandemic

Ioana Manuela MINDRICAN^{1*}, Elena-Florentina MATEI²

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Abstract

The starting point in the design of this article was the analysis of the evolution of inflation in Romania in the context of the existence and development of the COVID-19 pandemic. Inflation is considered in the current context as the most harmful phenomenon in contemporary economies. The concept of inflation has been strongly developed over time by various economists and specialists, who tried to outline a definition as concrete as possible, to explain the causes that determine this phenomenon and the impact it has on both population and economic agents. The topicality of the article and the motivation for choosing this topic is the analysis of the impact that the COVID-19 pandemic had on the main macroeconomic indicators, more precisely on inflation. At the same time, in this context, the aim of this paper was to reach and highlight the most important issues related to inflation, which were found in specialized economic, monetary and social studies. The effects of the inflationary phenomenon on the economic system are diverse and can have a positive as well as a negative impact depending on the context. The negative effects that can be identified from an economic point of view are the increase in the opportunity cost in terms of holding financial resources, the uncertainty of the level of future inflation that can lead to the discouragement of investments, but also savings. As for the positive effects, they can be represented by encouraging investment in various non-monetary capital projects, as well as ensuring that central banks have the opportunity to adjust real interest rates according to the inflation rate.

Keywords: inflation, real interest rates, COVID-19, savings, investments.

JEL Classification: E31, P24, P44, B22.

¹ Bucharest University of Economic Studies, Bucharest, Romania, mindrican.ioanamanuela@gmail.com.

* Corresponding author.

² Bucharest University of Economic Studies, Bucharest, Romania, matei.elena96@gmail.com.

1. Introduction

Inflation is considered one of the main instruments that ensure the proper functioning of market economies. At the same time, inflation is a complex phenomenon, because over the years it has been highlighted by various forms and causes, and with its emergence and expansion, that it has significant consequences for the entire economic system as a whole. Also, this growth is directly influenced by various categories of economic goods that are in circulation in the market, as they are in line with the services of the factors of production. The need to develop this concept was influenced by the fact that inflation represents, through its complexity, an economic and social phenomenon, which has various aspects. Specifically, there is no economic mechanism that inflation does not affect. Taking into account the aspects mentioned above, one can state the idea that over the years various economists and specialists in the field have developed statements and views on this phenomenon, some bearing in certain circumstances the imprint of ambiguity. Etymologically, the origin of the term comes from the Latin word "inflatio" (inflation), which is mainly swelling. But the side that is important for this research is the disease of an economic system.

The motivation for choosing this topic is the need to analyse the impact and evolution that the inflationary phenomenon has had in the context of the COVID-19 pandemic. The need to design a coherent and consistent price system arose and developed when inflation was considered a globalized phenomenon, which has devastating effects on the global economic system. Also, the central subject of this paper is a controversial one and topical due to its magnitude and evolution worldwide.

Regarding the structure of the article, mainly the concepts belonging to the economic doctrines related to the inflationary phenomenon will be presented, and later the research methodology and, last but not least, it proposes a series of solutions and recommendations in order to achieve national macroeconomic sustainability.

2. Literature Review

Inflation is the macroeconomic imbalance encountered at the level of any state at the global level, which has a monetary nature and occurs as the decrease of the purchasing power, simultaneously with the strong increase of prices, which has a negative effect on all. Regarding the age of inflation, it is considered to be as old as market economies, according to Samuelson and Nordhaus (2009).

Milton Friedman (1958), economist and Nobel laureate in economics, believed that "Inflation is a monetary phenomenon anytime, anywhere." Currently, the method of calculating inflation includes the use of price indices, such as the GDP deflator and CPI. The deflator is the total price of goods that are found in the gross domestic product, while the CPI analyses the price of a basket of goods that are related to the price of that basket according to a reference year.

Another well-known author in economics, Paul Samuelson, who received the John Bates Clark Medal in 1947 and the Nobel Prize in Economics in 1970, brings

to the fore in his book "Economics", together with William Nordhaus, their conception of inflation. The inflationary phenomenon occurs when there is an increase in the general level of prices in the economy. Their opinion is based on the idea that "Inflation is as old as market economies", so that over time it has affected each state in different proportions, manifested itself in various forms and led to new changes. Also, the two great economists claim that the impact of the inflationary phenomenon has been very well highlighted through the concept of John Maynard Keynes: all the permanent relations between debtors and creditors, which form the final fundamental of capitalism, become so disordered that they are almost meaningless. Regarding Keynesian thinking, the inflationary process is viewed through the prism of the evolution of macroeconomic indicators, as well as real macroeconomic flows, and the upward trend in market prices is associated with the use of labour. A defining idea in terms of the inflation rate is that it has the ability to persist for quite some time and at the same rate, especially in modern economies.

Also, the authors Lipsey and Chrystal (1999) consider that the inflationary phenomenon is harmful and dangerous, leaving its deep imprints on the global economies over time. In this context, inflation can be seen as a harmful process if not managed properly, from several points of view, including the difficulty of managing and eliminating the negative effects in a timely manner.

Samuelson claims that inflation appears like a disease, for several reasons, as it does not have a single source. Part of the inflation is due to demand and the other part is due to supply. Because it can be said that this phenomenon is so complex because it is influenced by several factors, it takes place internally, and with its occurrence, it leads to quite high costs. An example he set out in his book with Nordhaus was the resemblance between a dog and the inflationary process. Inflation is described in correlation with an old and lazy dog. If the dog is not "shocked" either by hitting or by a cat, it will still remain in its original place. But if it has been disturbed, the dog will drive away from the cat and will remain in that place until the next shock. Through this idea, the authors want to highlight the fact that inflation often occurs due to an impulse, Samuelson and Nordhaus (2009).

3. Research Questions/Aims of the Research

According to the perspectives of various economists, inflation is a complex, broad and multidimensional process that has represented over the years and will continue to be an integral part of global macroeconomic policies. Inflation and high unemployment are two of the problems developing countries are facing, including Romania. Therefore, the starting point in the design of this article was the analysis of the evolution of inflation in Romania in the context of the existence and development of the COVID-19 pandemic.

Through the research results, the hypotheses of the paper can be either confirmed or refuted, they are considered anticipations of the process, which aims at a direct connection with the central subject of the thesis. A fundamental aspect to be stated is represented by the fact that the hypotheses formulated resulted from the main objective, but also from the general issue of the research paper. The hypotheses in

this article focus on the impact that inflation has had in the context of the existence and spread of the COVID-19 pandemic. Therefore, the hypotheses of the paper are the following:

Table 1. Research questions

Hypotheses	Statements
1. How did the inflationary phenomenon evolve during the analysed period, 2000-2020?	Inflation in Romania fluctuated considerably, but mostly recorded negative values, as a result of the policies oriented towards the economic growth of the European Union.
2. What are the effects on inflation in both the 2008-2009 economic crisis and the 2020 health crisis?	Inflation has risen amid the onset of these crises.
3. How will inflation evolve after overcoming the COVID-19 pandemic?	The inflation rate will decrease after overcoming the health crisis as a result of the economic policies applied at the national level.

Source: Own processing of the authors.

4. Research Methods

In this paper, we used a mixed research methodology, including both a descriptive analysis used to describe the stage of knowledge, and a dynamic macroeconomic analysis used to depict the evolution of inflation in the period 2000-2020. Also, to carry out this work we used the database taken from the website of the National Institute of Statistics (INS) on the evolution of inflation, for the period analysed, 2000-2020.

At the same time, in order to identify the future evolution of inflation, we also made a forecast in excel program for the period 2021-2026. To this purpose, we used two series of data, namely a series on the period and a series of values corresponding to each interval analysed. All these series will contribute to the estimation of future inflation data, and to make this forecast we selected both data series, and the "data" tab in Excel, in the forecast group, we selected "forecast sheet". Later, in the "create forecast sheet" box in Excel, we selected the line diagram for the visual representation of the forecast, which can be seen in section 5 of this paper, more precisely in figure 2. To make the forecast by the year 2026 in the box end forecast we selected the year 2026, and then we used the create button.

5. Evolution and Inflation Forecast in Romania

Price stability is a nominal convergence criterion that must be met by countries wishing to join the Eurozone, as is the situation in Romania. This criterion assumes that the inflation rate during a year exceeds more than 1.5 pp. The inflation rate of the first three European countries recorded the best results on inflation. As for the responsible authority that can reduce the effects of inflation, this is the National Bank of Romania through the monetary policy instruments and strategies at its disposal.

Regarding the causes of inflation at the beginning of the analysed period in the post-communist period, they consist in the depreciation of the national currency, the increase of the wage level uncorrelated with labour productivity, the evolution of taxation and public utility tariffs provided under monopoly conditions. In addition to these causes, the higher level of inflation in the Romanian economy is also represented by the delay in the reform of the banking and the real sector, compared to other states.

5.1. Evolution of the Inflation Rate in the Period 2000-2020

According to the adjacent chart, we can observe the downward trend of the inflation rate in the analysed period, but the registered level is far from the one found in the concept of price stability. Through the monetary policy in the first years of the transition, restrictive measures were applied, which would allow the expansion of credit and money supply in the Romanian economy.

Thus, starting with 2000, a disinflation process started, which was created on the background of the resumption of the Romanian economy growth, the efficiency of coordination between macroeconomic policies, the decrease of economic uncertainty by economic agents, the imposition of policies aimed at structural adjustment and positive consolidation of macroeconomic developments. Also, a strong impact that led to lower inflation was given by the high control of liquidity, the limitation of the budget deficit, the appreciation of the national currency and the increase of the interest rate. The onset of the international financial crisis led to rising inflation, creating uncertainty about the global economy and its influence on the national economy through trade. At the same time, this year's inflationary pressures were generated by the discrepancy between labour productivity and the number of employees. The entry into recession since 2009 led to a decrease in the inflation rate due to the exchange rate, the reduction of wages and the demand deficit. After this year, there were various fluctuations in the inflation rate depending on the measures implemented by the authorities, which mainly aimed at improving the economic situation and reducing risks and uncertainty about the future evolution of the economy. The years 2015-2016 mark the registration of a negative inflation rate for the first time since the transition to the market economy due to the maintenance of low inflation expectations, the reduced VAT rate of 9% for food, soft drinks and food services, publications, the reduction of RCA policies from 2016, the reduction of the price of tobacco products and the VAT rate from 24% to 20%.

Subsequently, in the period 2017-2018, the inflation rate increased due to the improvement of the economic situation, the depreciation of the national currency and the increase of food and fuel prices, while in 2019 the inflation rate decreased due to the decrease of the prices of some volatile products and the price of natural gas for consumers from July 2019. This year's high level of inflation was also caused by rising public sector wages, rising prices for tobacco products and the negative effects of the swine fever virus, which led to the slaughter of about 500,000 pigs, which further led to a significant increase in the price of pork that generated pressures on CPI inflation. The effects of the pandemic triggered in 2020 on inflation were

significant, in the sense that they helped reduce this indicator by lowering energy prices and affecting the hotel and transport sector, reflecting the modest demand associated with the health crisis. A significant impact was generated by the sharp fall in oil prices amid a sharp drop in demand due to restrictions on travel and work from home. However, the risk of the negative evolution of the outlook for inflation and monetary policy remains persistent in the context of the significant depreciation of the national currency and the loss of investor confidence in Romania's ability to manage the health crisis generated by COVID-19.

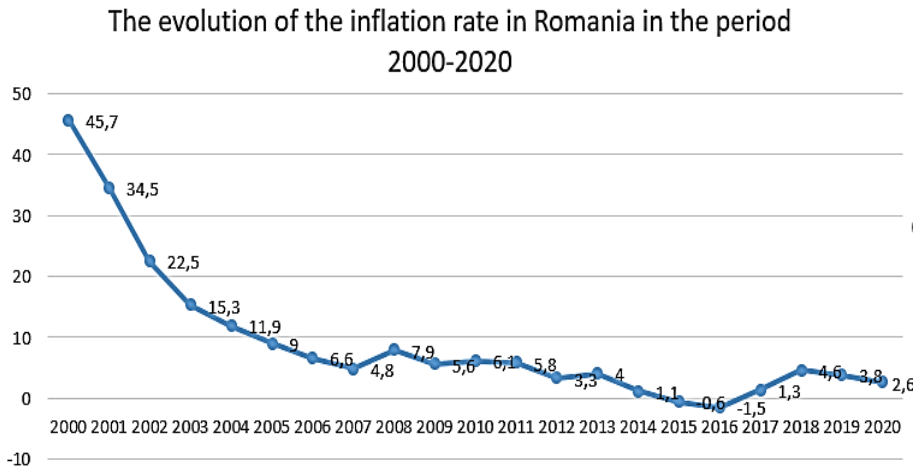


Figure 1. The evolution of the inflation rate in Romania in the period 2000-2020

Source: Own processing based on data taken from the INS,
<https://insse.ro/cms/ro/content/ipc%E2%80%93serie-de-date-anuala>.

5.2. Inflation Rate Forecast for 2021-2026

Forecasting is known in the economic literature as a technique by which future trends are projected using conclusive statistics. Also, the forecast is a very complex and important process, because it offers the possibility to obtain some probabilities, which, in the current context, would represent the best course of action.

In this article, a forecast was made using Excel, as it offers a wide range of tools in this area while having a high capacity to store calculations and view data. The evolution of the inflationary phenomenon both at the level of Romania and at the level of the member states of the European Union is an intensely debated issue, and has a significant impact on the decision-making process.

In order to obtain this prediction of the future evolution of the inflation rate, the quantitative method Exponential Smoothing was used, abbreviated ETS, which is based on an algorithm for identifying, but also for detecting seasonal patterns and confidence intervals.

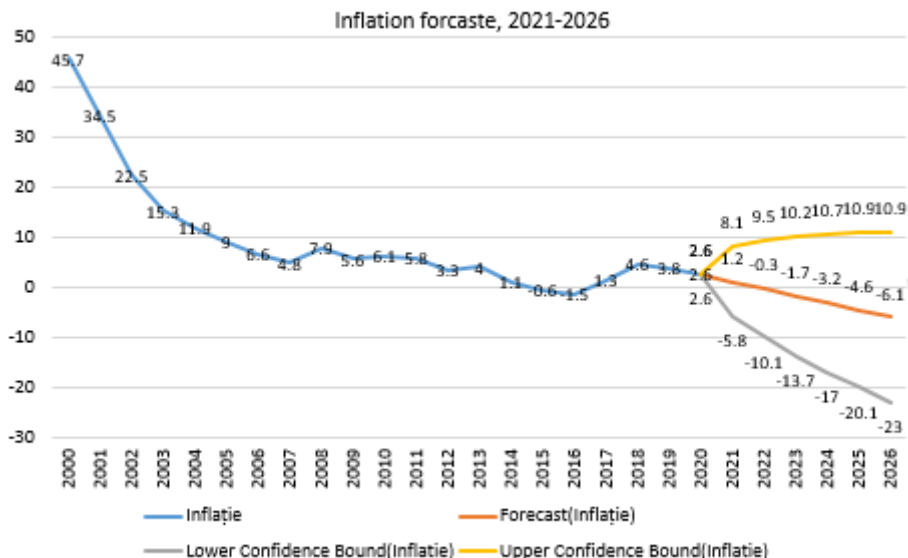


Figure 2. Forecast the inflation rate in Romania in the period 2021-2026

Source: Own processing based on data taken from the INS, website <https://insse.ro/cms/ro/content/ipc%E2%80%93serie-de-date-anuala>.

According to the graph resulting from the forecast, the average level of the inflation rate in the following years will be 2021- 1.15%, 2022 -0.28%, 2023 -1.72 & 2024 -3.16%, 2025 -4.60. It can be seen that during the analysed period, the level of the indicator was around the average value of -2.18%. With 95% confidence, the expected result will be between upper and lower 10.90% and -23%. Taking into account the forecasts, we can state the idea that the level of inflation in Romania will be within an appropriate and normal range in terms of price stability, according to macroeconomic policies developed by the National Bank of Romania.

In the context of the existence and development of the COVID-19 pandemic, more precisely in 2020, the conduct of monetary policy continued to be prudent from the perspective of economic activity following the severe contraction due to the pandemic shock, in order to bring and strengthen the annual inflation rate in the medium term, in line with the 2.5% inflation target, in the context of protecting financial stability. The evolution of the inflation rate in the coming years is influenced by a multitude of interconnected sources of risks, especially uncertainties that are mainly associated with developments in public health, which also gained more prominence with the onset of the second pandemic wave in the fall of the year 2020. In this context, until the normalization of the situation at the level of the medical system, in relation to the perspectives of evolution of the economic activity, it is expected that the downward risks will continue indisputably.

6. Conclusions

One of the fundamental objectives of economic policy in the current context is to combat or limit the inflation rate. The most important aspects of this phenomenon are the definition, measurement and establishment of the necessary means to reduce the spread of inflation globally. In accordance with the present research, it can be stated the idea according to which the analysis of the evolution of the inflationary phenomenon represents a primordial action at the level of a state's economy. Therefore, specialists in this field need to know in-depth the process and foresee the main factors that could lead to an increase in the inflation rate, as well as how to manage it in order to achieve medium and long-term macroeconomic stability.

As a result of the statistical data specified by the National Institute of Statistics, the inflation rate in Romania is in a continuous decrease, and the trend will be maintained in the coming years, which is highlighted through economic forecast. In order to improve the overall economic context, it is important to adopt economic measures that adapt much more quickly to the magnitude of deficits.

Considering the complexity of the elaboration, but also of the use of a mixed methodology, qualitative and quantitative, respectively, inevitably there are some limits, while it is also difficult to overcome them in this research. The following will briefly present a series of limitations that have been encountered both methodologically and empirically, such as the existence of a small number of researches on the chosen topic, the limitation of selection only of scientific journals with a major impact factor, the relatively small amount of data on the annual growth of the gross domestic product.

In line with the previously identified limitations, as well as with the dynamics of international research on the use of research methods in economic studies, a number of future directions will be proposed by this paper.

Future research on the evolution of the inflation rate is very useful to provide a perspective on the macroeconomic stability of the Romanian economy, which has a strong impact among investors because if they consider the existence of high risks in Romania, they will unquestionably focus on other markets that allow them to evolve accordingly. This analysis is very relevant considering the very unpredictable economic environment in Romania. An eloquent example can be represented by the fiscal measures adopted by the authorities in recent years, which led to an increase in GDP to around 7.3% in 2017 compared to 4.7% in 2016, which determined the increase in inflationary pressure. The latter reached the level of 4.6% in 2018. However, the macroeconomic developments that have been recorded in recent years have led to the reduction of GDP, which reached the level of 4.1% in 2019 and inflationary pressures have decreased to the value of 2.6% in 2020, according to data provided by the World Bank.

In conclusion, also from the perspective of research development, we need to use other strategies aimed at mixed research to evaluate the use of research methods in the economic field.

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