

STUDY REGARDING THE IMPACT OF THE COVID-19 PANDEMIC ON INFLATION IN ROMANIA IN THE 2019 - 2020 PERIOD

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Abstract

The COVID-19 pandemic that hit the world economy at the end of 2019 had a strong impact on the significant economic issues at global and national level. This paper presents how this phenomenon has influenced price dynamics. This article proposes a comparative study between 2019 and 2020 regarding the change in the inflation rate in Romania, as well as the causes that led to it.

Keywords: *inflation, consumer price index, COVID-19, price dynamics.*

JEL classification: *E31, E50, E64*

1. Introduction

The COVID-19 pandemic has caused a deep recession all over the world, a recession that persists and seems to be difficult to control. While the governments' policies goals are aimed to control the virus, to get a full employment and to make the necessary investments for a more resilient and inclusive recovery, economic uncertainties and risks demand careful attention going forward. Not only the employment rate has suffered, fueling technical unemployment worldwide, but also the inflation rate got out of control. One important risk needed to be monitoring closely is inflation (Bernstein & Tedeschi, 2021).

The pandemic has significantly changed the need for consumption of goods and services, all over the world. Some experts assume that nowadays

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the real inflation worldwide might be higher than the traditionally measured inflation (Detmers et al., 2022).

From the economic point of view, inflation is defined as a major macroeconomic imbalance manifested by a general increase in the price level over a period of time, resulting in a sustained decline in the purchasing power of money. When there is a general increase in prices, each currency unit buys fewer goods and services. As a result, inflation reflects a reduction in the purchasing power of the money (Popescu, 2009).

A relative increase in the price of a particular good or service indicates that the demand for it exceeds the supply, encouraging in that way the production. The opposite of inflation is deflation, meaning a general decline in the prices of goods and services throughout the economy, or a general rise in the value of money. Deflation has a deeper impact on the economy than inflation (Băcescu, 1998).

In 2020, when the COVID-19 spread, because of the bad news regarding the global evolution of the pandemics, the demand for some goods categories becomes very high. That way, inflation followed a growing trend, tendency which are likely to keep going up in 2022, specialists sustain. At the same time, millions of people get unemployed, all over the world. The pandemic has produced, also, a restructuring of the basket of products that consumer's needs, for some of them higher prices being accepted, for others, consumption being lower.

To the effects of the pandemic listed above must be added the growing awareness among specialists about the challenges of measuring and interpreting inflation during the pandemic. A major concern is that consumption patterns are greatly impacted by the lockdowns and social-distancing behaviors, introducing significant bias into the measurement of CPI inflation (Diewert & Kevin, 2020). Policy-makers trying to respond to the crisis suggest that the cost of living for the average consumer is higher than implied by the official CPI. At the same time, individuals, generally, and consumers, especially, believe that inflation will increase in the future, making the socio-economic environment uncertainty (Detmers et al., 2022).

During the COVID-19 crisis, the Romanian economy followed a similar trend than other countries, but with some particularities.

The main purpose of the present study is to analyze the statistical evolution of inflation in Romania, and also the effects of the COVID-19 pandemic on price dynamics. In order to do that, we conducted a comparative analysis on the evolution of inflation in Romania in 2019 and 2020, presenting

values registered and published by the National Bank of Romania and the National Institute of Statistics. Finally, we identified some determinants which influence the pandemic – inflation relationship, which may be considered a novelty for the Romanian literature, in the above mentioned context.

2. Brief analysis of the evolution of world inflation in 2019 and 2020

Global inflation remained modest in 2019, reflecting the slow pace of global economic growth. In the OECD area, the annual rate of the Consumer Price Index (CPI is the most widely followed indicator, which reflects retail prices of goods and services, including housing costs, transportation, and healthcare) fell from almost 3% in the second half of 2018 to 2.1% in December 2019, due to the declining energy prices and slowing food price dynamics (ecb.europa.eu, 2019).

However, core inflation (excluding energy products and food) remained relatively flat at almost 2% during the year (OCDE, 2020).

Oil prices fluctuated during 2019 due to the dynamics of oil supply in the first half of the year and expectations of global demand in the second half of the year. The price of oil fluctuated between USD 53/barrel and USD 74/barrel in 2019.

In the first half of the year, OPEC overestimated production as well as geopolitical tensions supported the upward trend in oil prices. In the second half of the year, oil prices fell amid concerns over trade tensions and the potential impact on the global economy.

The decrease in the average annual inflation rate in 2019 compared to the value in 2018 mainly reflected the evolution of energy product prices.

In 2020, inflation rates are different between the countries. Before the COVID-19 pandemic hit the world economy, the global average trend pointed to a historically low level of consumer inflation. Since the onset of the pandemic, the price level has increased. The upward trend persists nowadays, the annual inflation rate, for example in the US, unexpectedly accelerated to 8.6% in May of 2022, the highest since December of 1981 and compared to market forecasts of 8.3%. Energy prices rose 34.6%, the most since September of 2005, due to gasoline (48.7%), fuel oil (106.7%, the largest increase on record), electricity (12%, the largest 12-month increase since August 2006), and natural gas (30.2%, the most since July 2008) (tradingeconomics.com, 2022).

3. The evolution of the inflation in Romania in 2019 and 2020

Nowadays, Romania is among the top five countries in the European Union in terms of inflation. In order to analyze the evolution of the inflation in Romania, we decided to process the data from the NBR (The National Bank of Romania) inflation reports, posted on the official website of the NBR (<http://bnr.ro/>), Eurostat and the inflation statistics posted on the website of the National Institute of Statistics (<insse.ro/cms/>).

First of all we analyze **the evolution of inflation in 2019**.

According to a report published by the National Bank of Romania, before the Coronavirus crisis, in January 2020 inflation had fallen to a minimum. The annual inflation rate fell to 3.6% from 4% at the end of the previous year (2019). But consumer prices in January 2020, compared to December 2019, had increased by 0.4%. The inflation rate in January was at its lowest level compared to October 2019, when an inflation rate of 3.33% was recorded. The highest inflation rates for 2019 were recorded in April, May and July, when inflation was at 4.11%.

In the first quarter of the year, the annual inflation rate reached 3.83% (in February), and then in March it rose to 4.03%. All groups of goods and services in the consumer basket, except administrative prices, contributed to the increase in the inflation rate. This was due to the unfavorable shocks such as the rise in the price of vegetables, the increase in crude oil prices, the monetary depreciation of the national currency, and the increase in excise duty on tobacco.

In the second quarter, the inflation rate did not change significantly, being in June at the value of 3.84%, above the upper limit of the established range. This was largely determined by the dynamics of fuel prices, due to the correction of the oil price as well as the increase in excise duties on tobacco.

The average annual inflation rates are different. If the inflation rate is calculated on the basis of the Consumer Price Index, it followed a downward trajectory in April-June, and reached 4.11% at the end of the second quarter; if the used indicator is the Harmonized Index of Consumer Prices (HICP), the inflation remained at 4% in June.

The adjusted CORE2 inflation rate has been on an upward trajectory, especially in the case of food. In the third quarter, the inflation rate was 3.49%. The causes of this deflationary trend were the fall in the prices of vegetables.

Because of the influences from the tobacco market, the adjusted annual CORE2 inflation rate followed an upward trajectory and reached

3.41% in September the food commodity segment, especially against the background of the persistence of the consequences of the swine fever virus, globally.

On the other hand, when analyzing the inflationary trend it is visible the negative impact of the COVID-19 pandemic on the depreciation of the national currency.

Table 1: Evolution of the Consumer Price Index in 2019

Month	CPI	Average CPI	Adjusted CORE2	Lower limit	Target	Upper limit
January	3.33	4.51	2.51	1.5	2.5	3.5
February	3.83	4.51	2.71	1.5	2.5	3.5
March	4.03	4.42	2.71	1.5	2.5	3.5
April	4.12	4.31	3.02	1.5	2.5	3.5
May	4.10	4.21	3.21	1.5	2.5	3.5
June	3.84	4.11	3.32	1.5	2.5	3.5
July	4.11	4.01	3.32	1.5	2.5	3.5
August	3.89	3.91	3.41	1.5	2.5	3.5
September	3.49	3.81	3.41	1.5	2.5	3.5
October	3.40	3.72	3.41	1.5	2.5	3.5
November	3.78	3.81	3.51	1.5	2.5	3.5
December	4.05	3.81	3.71	1.5	2.5	3.5

Source: The National Bank of Romania, Annual Report (available on-line at <http://bnr.ro/>)

In the fourth quarter, the CPI inflation rate followed the upward trend to 4.05% at the end of the year. This was compounded by supply-side shocks of several agri-food products (such as fruit, pork, etc.), the impact on the final prices being influenced by a surplus in the aggregate demand.

Table 2: The evolution of fuel prices in 2019

Date	Fuel Prices
January	-3.2
February	2.1
March	4.7
April	5.3

May	2.8
June	-1.7
July	-0.6
August	-0.7
September	-2.5
October	-3.6
November	1.8
December	8.1

Source: The National Bank of Romania, Annual Report (available on-line at <http://bnr.ro/>)

In Romania in 2019, the consumer goods price index was 103.83%, meaning an inflation rate of 3.83%, comparing with 104.63% in 2018, and an inflation rate of 4.6% (insse.ro, 2021).

Table 3: Inflation components in 2019

Data	Adjusted CORE2 foodstuffs	Adjusted CORE2 non-food goods	Adjusted CORE2 services
Quarter 1	1.11	0.80	0.81
Quarter 2	1.42	0.80	1.11
Quarter 3	1.51	0.80	1.11
Quarter 4	1.81	0.80	1.11

Source: The National Bank of Romania, Annual Report (available on-line at <http://bnr.ro/>)

The evolution of the inflation in 2020 mirrors the impact of the pandemic on the prices. In the first quarter of 2020, the annual CPI inflation rate in January was 3.61%, and in the next two months it followed a downward trajectory, reaching 3.05% at the end of the quarter. This deflationary trend was caused by cheaper fuel prices (due to the reduction of excise duty and significant decompression of the oil market).

At the same time, the COVID-19 pandemic has led to some disruptions in supply and distribution chains, as well as a temporary increase in demand for the much-needed goods. In this context, the largest food groups in the consumer basket contributed more to the annual inflation rate. On the other hand, the non-food goods and market services sector has reduced its inflationary contribution. Although it declined slightly in the first four months of the year, the average annual HICP inflation rate was the highest in the

European Union. It is important to note that in the context of the pandemic, the calculation of the consumer price index has undergone some changes, such as some imputations.

In Romania, the main categories of goods and services in the CPI structure for which the imputation measure was taken in April 2020 were: clothing and footwear products, household products, furniture products, dental interventions, medical procedures, cultural activities entertainment activities, restaurants, air transport.

In the second quarter, the CPI inflation rate continued to fall to 2.58%, compared to 3.05% in March. This was the result of a sharp fall in fuel prices amid a correction in international oil prices, driven by a significant decline in the aggregate demand caused by the health crisis.

At the same time, the overlap of supply and demand shocks caused by the measures taken to flatten the epidemic curve led to some stability in the adjusted CORE2 inflation rate, which was 3.70% at the end of the quarter.

Table 4: The evolution of fuel prices in the first two quarters of 2020

Date	Fuel price
January	2.11
February	-4.42
March	-12.41
April	-20.30
May	-24.60
June	-20.41

Source: National Institute of Statistics (<https://insse.ro/cms/>)

The fact that there were significant disinflationary pressures due to the contraction of the economic activity determined the annual rate of CPI inflation to reach a downward trajectory.

Table 5: Average annual HICP evolution in the first two quarters of 2020

Month	Romania	European Union Average
January	4.0	1.4
February	3.9	1.4
March	3.7	1.4
Aprilie	3.6	1.3

May	3.3	1.2
June	3.2	1.2

Source: ec.europa.eu/eurostat (accessed at 24 November 2021)

In the third quarter of 2020, the annual CPI inflation rate followed a downward trend, reaching 2.46% in September, compared to 2.58% in June. This decrease was due to the favorable effects of the fruit and vegetable harvest, and as a result of the overlapping shocks of the nature of supply and demand (which were associated with the measures needed to control the pandemic). All this led to a trend of stability in terms of the adjusted annual CORE2 inflation rate, which was 3.7%. It had maintained its high momentum during the third quarter, being at a similar level as it was in June.

The fact that the consumer demand returned significantly in the third quarter led to the easing of the disinflationary pressures, due to the fact that the GDP gap had strong negative values in the previous quarter.

This development was also caused by the financial support provided by the state in the case of employment after June 1, which acted as a shock absorber in the case of consumer demand.

Table 6: Evolution of CPI in the first three quarters of 2020

Month	CPI	Average CPI	Adjusted CORE2	Lower limit	Target	Upper Limit
January	3.61	3.80	3.70	1.50	2.50	3.50
February	3.05	3.80	3.70	1.50	2.50	3.50
March	3.05	3.70	3.90	1.50	2.50	3.50
April	2.68	3.60	3.70	1.50	2.50	3.50
May	2.26	3.40	3.60	1.50	2.50	3.50
June	2.58	3.30	3.70	1.50	2.50	3.50
July	2.8	3.20	3.70	1.50	2.50	3.50
August	2.68	3.10	3.70	1.50	2.50	3.50
September	2.46	3.00	3.70	1.50	2.50	3.50

Source: The National Bank of Romania, Annual Report (available on-line at <http://bnr.ro/>)

Also relevant are the specific inflationary pressures in the management of the health crisis (such as the costs of sanitary materials,

disinfectants), which were felt more strongly in the fields with the most direct human exposure (restaurants, cultural and recreational services, passenger transport).

Table 7: Inflation components in the first three quarters of 2020

Data	Adjusted CORE2 - foodstuffs	Adjusted CORE2 – non-food goods	Adjusted CORE2-services
Quarter 1	2.11	0.81	0.91
Quarter 2	2.21	0.90	0.70
Quarter 3	2.12	0.80	0.80

Source: The National Bank of Romania, Annual Report (available on-line at <http://bnr.ro/>)

Table 8: Inflation rate dynamics between 2019 and 2020

Data	Inflation rate in 2019	Inflation rate in 2020	Relative size change	Change in absolute size
January	3.32	3.6	8.4	0.28
February	3.83	3.05	-20.3	-0.78
March	4.03	3.05	-24.3	-0.98
April	4.11	2.68	-34.7	-1.43
May	4.10	2.26	-44.8	-1.84
June	3.84	2.58	-32.8	-1.26
July	4.12	2.8	-32.03	-1.32
August	3.89	2.68	-31.10	-1.21
September	3.49	2.45	-29.7	-1.04

Source: The National Bank of Romania (available on-line at <http://bnr.ro/>)

National Institute of Statistics (available on-line at <https://insse.ro/cms/>)

The annual inflation rate remained at 2.1% in December 2020 as food prices rose by 3.24%, services by 2.69% and non-food goods by 1.01%, according to the data published by the National Institute of Statistics. The annual rate calculated on the basis of the Harmonized Index of Consumer Prices (HICP) was 1.8%.

Table 9: Evolution of the inflation rate from January 2019 to September 2020

Data	Inflation rate	Relative size change	Change in absolute size
January 19	3.33		
February 19	3.83	15.02	0.5
March 19	4.03	5.22	0.2
April 19	4.12	2.23	0.09
May 19	4.1	-0.49	-0.02
June 19	3.84	-6.34	-0.26
July 19	4.11	7.03	0.27
August 19	3.89	-5.35	-0.22
September 19	3.49	-10.28	-0.4
October 19	3.4	-2.58	-0.09
November 19	3.78	11.18	0.38
December 19	4.04	6.88	0.26
January 20	3.6	-10.89	-0.44
February 20	3.05	-15.28	-0.55
March 20	3.05		0
April 20	2.68	-12.13	-0.37
May 20	2.26	-15.67	-0.42
June 20	2.58	14.16	0.32
July 20	2.8	8.53	0.22
August 20	2.68	-4.29	-0.12
September 20	2.45	-8.58	-0.23

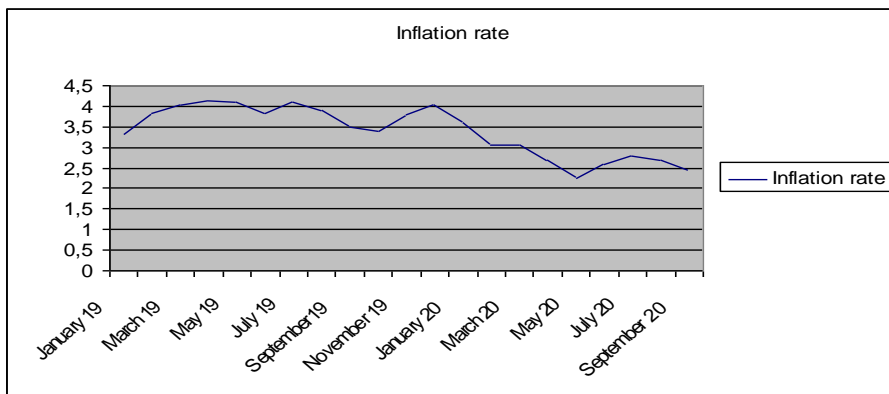
Source: Authors own contribution

Regarding the dynamics of the inflation rate between 2019-2020 it can be seen periods of increase and decrease during the COVID-19 pandemic.

According to table no. 9 the inflation rate in January 2019 was 3.33%, following a gradual increase until April 2019 when it reached 4.12%. In the following months, the inflation rate registered both decreases and slight increases, until December 2019 when it reached 4.04%.

From January 2020 to September 2020, the inflation rate followed a downward trend, with some fluctuations. From January 2020 to May 2020 (the period in which the COVID-19 pandemic began to manifest in Romania) the inflation rate decreased from 3.6% to 2.26%, followed by some insignificant increases until July when the inflation rate reached 2.8%. Since August, the inflation rate has started to decline again, reaching 2.45% in September 2020 (fig. no. 1).

Figure 1: Evolution of the inflation rate from January 2019 to September 2020



Source: Authors own contribution

In Romania in 2020, the consumer goods price index was 102.63%, meaning an inflation rate of 2.6% (insse.ro, 2021).

Concluding the above mentioned aspects, we can identify a few factors which highlight how the evolution of the pandemics influences the inflation. The main determinants of the above mentioned trend are:

- the geopolitical tensions;
- the fluctuation of the oil prices;
- the dynamics of fuel prices;

- disruptions in the distribution chains as well the temporary increase of the demand for the much needed goods;
- the expectations of the food global demand;
- the pressures put on the management of health crisis, during the pandemic;
- the rising energy prices;
- the increase in excise duties on tobacco;
- prices of all the goods and services in the consumer basket, excepting the administrative prices;
- the currency depreciation and the declining purchasing power;
- the rising level of unemployment, which led to a decrease in demand;
- postponement of investment plans due to mistrust.

4. Conclusions and projections

Although inflationary risks are exacerbated by generally weak monetary policies, monetary policy in Romania is based on targeting inflation in the range of $2.5\% \pm 1$ percent. It is important to note that in the context of the pandemic, the calculation of the consumer price index has undergone some changes, such as some imputations. Regarding the dynamics of the inflation rate in the 2019-2020 period it can be seen that there was intervals of decrease (at the beginning of 2020), and increase during the COVID-19 pandemic.

The COVID-19 crisis has significantly affected Romania's economy, which in 2020 recorded a contraction of minus 3.9% through various channels - disruptions to the supply chain in industry (especially the automotive sector), decrease in external demand, border closures and internal restrictions.

Furthermore, The National Institute of Statistics (INS) reported that the annual inflation rate rose to 6.3% in September 2021, as non-food prices rose by 8.71 %, food by 4.26%, and services by 3.75%. According to the INS, consumer prices in September 2021 compared to August 2021 increased by 0.8%. The inflation rate at the beginning of the year (September 2021 compared to December 2020) is 5.6%. Prices of goods and services increased at 5.2% in September 2021, compared with the previous year.

According to the NBR's March 2021 inflation report, after an increase in January due to the rising electricity tariffs and fuel prices, experts predict that the annual CPI inflation rate will continue its upward trend until the end

of 2021, when it will reach around 3.4%. This increase is mainly due to the evolution of the exogenous components of the consumer basket.

Against the background of the recovery and rising energy prices, inflation rose to almost 5% in the middle of this year, being well above the target range. To halt this growth, it's expected the NBR to begin a gradual tightening of monetary policy by stopping quantitative easing and raising the reference interest rate. However, the inflation forecast remains high, at over 4% by the end of 2021 and gradually falling below 3.5% during 2022.

COVID-19 pandemic has not yet been defeated, and its recovery is largely dependent on its evolution, both inside and outside the EU. Given the recent increase in the number of cases in many countries, the reintroduction of restrictions with a negative impact on the economic activity cannot be ruled out.

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