

Inflation seriously affects the standard of living of the population

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Abstract. *In this article the authors aim to highlight the negative effect that the consumer price index, or inflation, has on people's incomes. In this context, the data provided by the National Institute of Statistics and Eurostat are used to highlight the fact that in 2022, from January until now, inflation has a galloping evolution, causing the reduction of the real incomes available to the population.*

Regardless of the index used, i.e. the consumer price index (CPI) or the Harmonized Index of Consumer Prices (HICP), the same thing is obvious. The reduction of economic activities, the impossibility of financing major investments and many others, have led to an alarming rate of inflation. This has a negative impact on the concrete results that the national economy is recording but, ultimately, on the incomes of the population, seriously affecting the standard of living.

In the context of the pandemic crisis, correlated with the economic-financial crisis and deepened by and gradually the food crisis, the population feels this difficulty, there being great difficulties, which will spill over and amplify during the winter period. At the same time, the incomes of the population, especially the salary income, are stagnating. The increases are minuscule, and the real wage incomes are reduced from one period of time to the next. The same is true of pensioners, who are most affected by this multiple crisis that the national economy is experiencing.

The methodology used is the logical one of comparing and interpreting correlated the evolution of inflation and the average gross and net wage in the economy. Also, the index method as well as the graphical or tabular representations are used, which highlight these aspects.

Keywords: crises, inflation, salaries, pensions, indices, economic evolution.

JEL Classification: C10, E20.

Introduction

In this article we started by analyzing the evolution of inflation at the end of August 2022, highlighting how from August 2021 to August 2022, both the consumer price index and the Harmonized Index of Consumer Prices, had a period of steady growth. From February 2022, until August this year, inflation passed 15%, being on this rather aggressive interval, with totally destructive effects on the real level of results obtained at the level of the national economy.

Structured on food, non-food goods and services, it is found that compared to August 2021, it increased in total by 15.32%, and the largest increases were recorded for food products - 18.22%, followed by non-food products -15.98% and lower, 8.26% for services. Here it should be made a clarification, namely that in the last period of time the consumption of services by the population has decreased quite a lot, there being in this respect a more attenuated pace of price growth. Of course, these consumer prices or harmonized prices are expected to increase even further in the coming period.

The consumer price index in August was particularly alarming in terms of milling and bakery production, meat production, sugary products. Non-food goods also showed different increases depending on the previous month as well as December 2021, or August 2021. There are total increases in this group of goods of 15.98%, the most active being fuels -31.48%, electricity -36.33%, natural gas -70.64%, thermal energy -22.98% or electricity at primary consumers.

It follows from this point of view that in the coming period an even more alarming increase is anticipated due to some Directives of the European Union, which require savings from the producing or non-producing countries, a context in which some expenditure is even made for the control of temperatures in housing and consumption by the population.

It is alarming that the so-called programs to stabilize prices, to control them, are in a perpetual level of discussion, without resulting in convincing results for the population.

The two crises, energy and food, influence the standard of living of the population, who will find themselves in the situation of suffering from hunger and cold, there being no possibilities to adjust this situation.

Compared to the situation of consumer prices, the average gross salary in the economy was in July 2022 of 6,405 lei and the net earnings of 3,970 lei. Of course, the gross salary decreased by 8 lei, and the net salary also decreased by 2 lei. These values, in fact, can be considered rocky but, comparing them with the price level, we find that the real net incomes of the population have decreased, as well as the incomes, let's call them, gross. From this point of view, we can appreciate that the real salary index was 97.5% in July 2022 compared to July 2021, so decreasing, and the salary index also decreased in July compared to June by 1 percent.

The graphic representation best expresses the evolution of the consumer price index and the index of average net earnings, in July compared to June 2022, but from the study of

some tables and series of data, made available by the National Institute of Statistics and Eurostat, it can be seen that this decrease is even greater. That is why we consider that inflation has a disastrous effect on the incomes, in general, of the population but, in particular, of the wages as well as on pensions.

In the current context, over 2 million employees collect the minimum wage in the economy and, at about the same level of the number of pensioners, they have a pension around 1,000 lei per month. This is in the context of trying to accredit the idea that there are prospects for increase. These prospects for an increase are a year and a half long. Neither the minimum wages in the economy nor the derisory pensions have suffered a serious boost.

Given that the level of debt is more than EUR 140 billion, the issue of discussions is one that leads to practically nothing in the sense that they are not those sources necessary for increasing the population's salary and pension income.

It is difficult to predict what the situation will be and from this point of view the authors consider that too little is being done at the European Union to obtain some aid. Of course, the National Recovery and Resilience Program has begun somewhat, but quite timidly, and I think it would be necessary if not to rediscover and reallocate the amounts, at least to intensify the process of applying these aids to the population.

The net earnings at the level of NACE sections show that a series of activities are in great suffering, and the legislative-fiscal measures implemented in practice are not such as to stabilize the entire situation but, rather, to create a state of mind as adequate as possible.

We are not followers of those who consider that Romania is a colony, but we consider that from the data presented it is very clear that the standard of living of the Romanian population is particularly low, and the prospect of relaunching the production as a whole is deficient due to the limited resources available to our country.

Literature review

Both the theoretical spectacles on statistical indices and their practical use in measuring inflation are topics addressed by a number of researchers. Thus, Anghelache, C and others (2016) published an article on the correlation between the growth rate of GDP, the rate of inflation and unemployment. Anghelache, Anghel, Dumbravă and Ene (2018) analyzed the correlation between the employment rate of the population, unemployment and vacancies in the economy. Anghel, Mirea and Badiu (2018) studied fundamental elements of the price indices used in measuring inflation. Anghel (2015), as well as Anghelache, Niță and Badiu, A. (2016) conducted studies on the evolution of the consumer price index in Romania. Anghelache and Sacala (2015) presented a series of basic notions of inflation. Armantier and collaborators (2015) addressed a number of issues regarding inflation forecasts. Davis C.S. (2002) published a study on statistical methods for analyzing measurements. Karanassou and Snower (2007) addressed a similar topic in their research. Kim and Henderson (2005) addressed issues related to inflation and influence on nominal

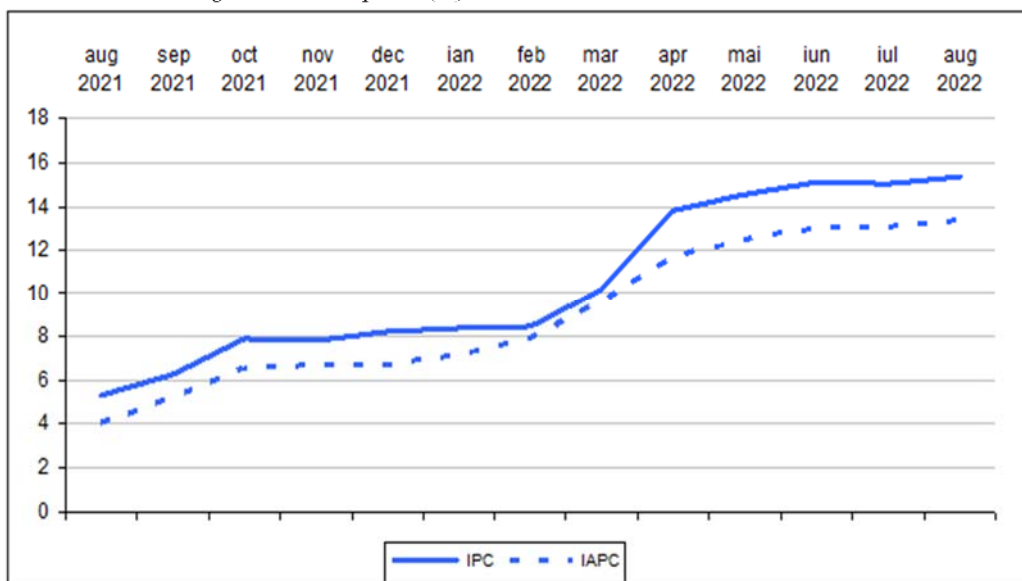
income growth. In the statistical dictionary published by Isaic-Maniu Alexandru in 2003, details are made about the statistical indices and their use in the measurement and analysis of inflation. Klein R.L. et al. (2003) extensively addresses the topic of indices in the study on the principles of economic modelling. Ten Raa T. (2004) publishes a paper on the aggregate productivity index. Schouten R., Cobben E. (2009) also conducted an extensive study on the indicators used to produce a representative synthesis.

Methodology, resources, results and discussions

Analyzing the data published by the National Institute of Statistics in August 2022, we find that the consumption balances in August 2022, compared to July 2022, increased by 0.6%. In terms of inflation at the beginning of the year (August 2022 compared to December 2021) it is 11.6%. Also, the annual inflation rate in August 2022 compared to the same month of 2021 is 15.3%.

Chart number 1 shows the annual modification of consumer prices.

Chart 1. Annual change in consumer prices (%)



Source: National Institute of Statistics.

We find that the annual modification of consumer prices has seen alarming levels between February and April 2022, then the growth was somewhat more moderate, but the upward trend is maintained.

The Harmonized Index of Consumer Prices in August 2022, compared to July 2022, is 100.44%, and the annual inflation rate in August 2022, compared to August 2021, calculated on the basis of the Harmonized Index of Consumer Prices (HICP) is 13.3%.

Table number 1 shows developments in consumer price trends and the monthly inflation rate in August 2022, compared to July 2022, December 2021, August 2021 and the period of the first eight months of 2022, respectively, compared to the same period of 2021.

Table 1. Consumer price index and average monthly inflation rate (%)

	August 2022 to:			Average monthly inflation rate, between 1 I – 31 VIII	
	July 2022	December 2021	August 2021	2022	2021
Food commodities	101,82	114,08	118,22	1,7	0,4
Non-food goods	99,81	111,80	115,98	1,4	0,8
Services	100,37	106,13	108,26	0,7	0,3
TOTAL	100,56	111,58	115,32	1,4	0,6

Source: National Institute of Statistics.

We note that in August 2022, compared to the month of July 2022, the change in consumer prices did not register significant values, these being in the category of food goods of 1.82%, services of 0.37% and for non-food goods of -0.19%, and on the total only of 0.56%, but if we compare with December 2021 we find significant increases in all groups, on the total increase being 11.58%. Also, in August 2022, compared to the month of August 2021, the increase in consumer prices is significant for all groups, in total reaching 15.32%. At the same time, the average monthly inflation rate in the first eight months of 2022 stood at 1.4%.

Table number 2 shows consumer price indices in August 2022 for the main goods and services.

Table 2. Consumer price indices in August 2022 for main goods and services

Weighting coefficient	Name of goods/services	August 2022 to:		
		July 2022 %	December 2021 %	August 2021 %
10000	TOTAL	100,56	111,58	115,32
3302	TOTAL FOOD GOODS	101,82	114,08	118,22
535	Milling and bakery products	101,08	117,32	124,02
342	Vegetables and canned vegetables	101,62	113,68	127,71
239	Fruit and canned fruit	101,38	111,56	108,62
78	Oil, bacon, fats	101,42	135,67	146,73
832	Meat, prepared and preserved meat	101,35	111,78	113,95
124	Fish and canned fish	101,77	113,95	117,23
509	Milk and milk products	104,05	117,70	120,64
57	Eggs	102,10	108,70	120,34
138	Sugar, sugary products and honey	102,93	111,20	114,63
86	Cocoa and coffee	101,13	112,02	114,16
127	Alcoholic	100,86	107,07	108,34
235	Other foodstuffs	101,29	108,27	110,06
4938	TOTAL NON-FOOD GOODS	99,81	111,80	115,98
482	Clothing, gallantry, trimmings and haberdashery	100,20	103,66	105,35
335	Footwear	100,20	103,65	106,33
352	Household products, furniture	100,34	103,72	104,98
272	Chemical articles	100,55	104,50	105,74
314	Cultural and sports products	100,52	104,47	105,91
784	Hygiene, cosmetic and medical articles	100,26	104,95	105,75
803	Fuel	97,72	120,44	131,48

Weighting coefficient	Name of goods/services	August 2022 to:		
		July 2022 %	December 2021 %	August 2021 %
705	Tobacco, cigarettes	100,00	104,13	106,21
826	Electricity, gas and central heating	100,53	128,43	136,33
471	- Electricity	100,77	124,70	116,37
302	- Gas	100,32	135,65	170,64
53	- Thermal energy	100,00	107,61	122,98
65	Other non-food goods	100,79	108,52	111,70
1760	TOTAL SERVICES	100,37	106,13	108,26
15	Made and repaired clothing and footwear	100,15	106,33	108,88
98	Rent	100,07	103,10	105,00
241	Water, sewerage, sanitation	101,26	118,09	121,00
90	Cinemas, theatres, museums, spending on education and tourism	100,12	103,50	105,30
24	Car repairs, electronics and photo works	100,59	107,06	108,99
143	Nursing	100,82	106,47	109,12
111	Hygiene and cosmetics	100,89	106,59	108,61
72	Transport urban	100,35	109,14	109,45
54	Interurban transport (other types of transport)	101,66	113,22	114,35
530	Post and telecommunications	99,44	99,24	99,77
103	Restaurants, cafes, canteens	100,75	108,94	111,14
77	Other services of an industrial nature	100,74	107,42	110,20
202	Other services	100,26	105,70	111,77

Source: National Institute of Statistics.

We note that the most significant price increases in August 2022 compared to August 2021 in the food commodity group were recorded in the group of food goods, bacon, fat, respectively 46.73%, followed by legume and canned vegetables with 27.71%. The smallest changes in this group were recorded by 8.34%.

Within the group of non-food goods, the most significant increases are in electricity, gas and central heating, respectively 36.33%, of which the highest momentum is recorded by the price of gas, respectively 70.64%.

Another important aspect correlated with the evolution of inflation and which practically determines the living standards of the population is the average gross or net earnings in the economy. From this point of view, we found based on the data provided by the National Institute of Statistics that in July 2022, the average gross earnings were 6.405 lei, by 8 lei (-0.1%) lower than in June 2022. Also, the average net salary was 3.975 lei, slightly down from the previous month, by 2 lei (-0.1%).

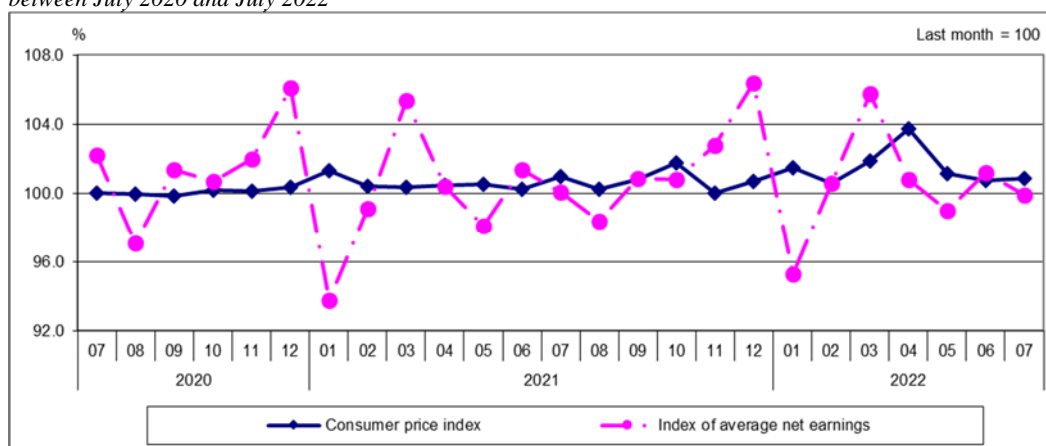
If we analyze from the point of view of the value or earnings, we find that the highest earnings in the case of the average net salary were recorded in information technology service activities (including information services activities), respectively 9.549 lei, and the smallest in hotels and restaurants, respectively 2.273 lei.

If we compare with July of the previous year, we find that the average net earnings increased by 12.1%.

Analyzing the earnings in relation to the evolution of consumer prices, we find that the ratio of the real earnings was 97.5% in July 2022 compared to July 2021. Also, the incidence of the real earnings was 99.0% in July 2022 compared to June 2022. Comparing with October 1990, the index of the real salary was 221,6%, with 2,1 percentage points lower than that recorded in June 2022.

Chart number 2 shows the evolution of consumer price indices and net average earnings indices between July 2020 and July 2022.

Chart 2. Evolution of consumer price indices and net average earnings indices, between July 2020 and July 2022



Source: National Institute of Statistics.

It should be noted that in the budgetary sector there were decreases in the average net earnings compared to the previous month in education, respectively -6.6%, mainly due to the reduction of the amounts representing the hourly payment of teachers during the school holidays, in the public administration by -1.5%, respectively in health and social assistance by -1.0%.

The most significant increases in the average net earnings at the level of NACE Rev.2 sections/divisions were recorded in storage and auxiliary activities for transport, respectively 6.6%, in service activities related to the extraction, production and supply of electricity and heat, gas, hot water and air conditioning, manufacture of clothing, repair, maintenance and installation of machinery and equipment, agriculture, hunting and related services, air transport, other extractive activities, respectively between 4 and 6% and in forestry and forestry, research and development, extraction of crude oil and natural gas, tanning and finishing of hides, printing and reproduction of records on media, beverage manufacturing, manufacture of textile products, financial intermediation, information technology service activities, construction industry metal and metal products, respectively between 2 and 4%.

As regards the most significant decreases in the average net earnings, these were recorded in publishing activities, respectively 14.2%, in the manufacture of machinery, machinery

and equipment n.e.c., the manufacture of computers and electronic and optical products, the manufacture of coke oven products and products obtained from crude oil processing, the capture, treatment and distribution of water, the extraction of upper and lower coal, manufacture of tobacco products, respectively between 4.0% and 7.0% and in the extraction of metal ores, auxiliary activities for financial intermediation, insurance and pension funds activities, entertainment, cultural and recreational activities, waste water collection and treatment, respectively between 1.5% and 4.0%.

Of course, there is a correlation between the increase in inflation and the real income of the population. Also, a growing inflation negatively influences the unemployment rate and considering these three variables correlated with each other, we will next do a VAR (Vector Autoregression Estimates) analysis, which will highlight the intensity of the link between the three considered variables, respectively the consumer price index (CPI), the average net salary earnings index (CS) and the unemployment rate (S), and through the parameters calculated on the basis of this econometric model, estimates of the evolution of these indicators can be made. Thus, the equations resulting from the analysis have the following form:

$$CS = -0.3562*CS_{t-1} - 0.54121*CS_{t-2} - 0.0455*IPC_{t-1} + 0.8799*IPC_{t-2} + 3.4172*S_{t-1} - 2.2840*S_{t-2} + 100.8848$$

$$IPC = 0.1406*CS_{t-1} - 0.03496*CS_{t-2} + 0.3723*IPC_{t-1} + 0.0009*IPC_{t-2} - 1.34158*S_{t-1} + 1.0683*S_{t-2} + 54.0740$$

$$S = -0.0001*CS_{t-1} - 0.0017*CS_{t-2} + 0.0018*IPC_{t-1} - 0.0334*IPC_{t-2} + 0.8197*S_{t-1} + 0.0130*S_{t-2} + 4.2889$$

Using the above equations, we resorted to making the forecast for the next year and found that the consumer price index (CPI) will register moderate oscillations with maximums of 1.02% and minimums of 0.81%. Net average salaries (CS) will fluctuate somewhat more pronounced, varying between 0.03% and 1.44%. At the same time, the unemployment rate (S) will have an upward evolution in the next year, reaching 5.46%. The results are presented in table number 3.

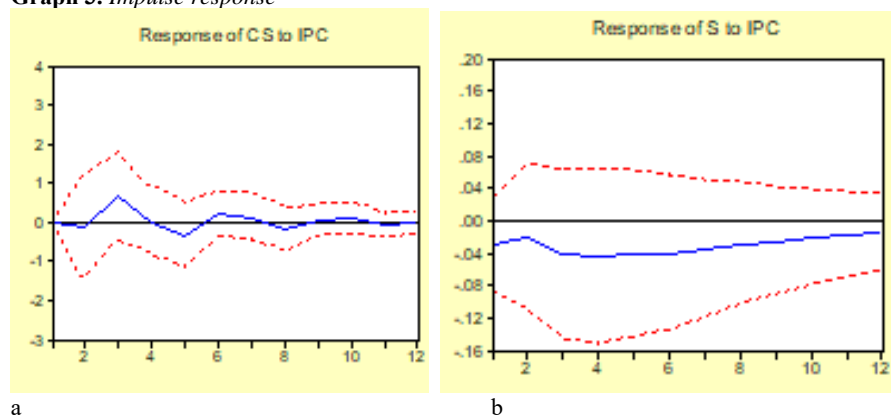
Table 2. Forecast for 12 months

Year	Month	IPC	CS	S
2022	07	100.89	99.90	5.20
2022	08	101.03	100.03	5.26
2022	09	100.85	101.45	5.30
2022	10	100.99	101.01	5.33
2022	11	100.93	100.25	5.35
2022	12	100.81	100.91	5.37
2023	01	100.89	101.04	5.39
2023	02	100.91	100.55	5.41
2023	03	100.84	100.74	5.43
2023	04	100.86	100.96	5.44
2023	05	100.89	100.73	5.45
2023	06	100.86	100.72	5.46
2023	07	100.85	100.88	5.46

Source: National Institute of Statistics. Data processed by the authors.

It is interesting to see what will be the evolution of the analyzed indicators when some shocks occur. Thus, graph number 3 shows the responses to shocks for the variables under analysis.

Graph 3. *Impulse response*



They find that the application of a shock with one standard deviation on the consumer price index (CPI) will have an immediate effect on the evolution of average net wages (CS), which will decrease in intensity 6 months after the trigger (Chart 3 a). Also, a shock on the consumer price index (CPI) will influence the unemployment rate (S) reaching maximums after 4 months and then slightly losing intensity (Chart 3 b).

Conclusions

From the study of this article it is very clear that inflation will increase at least until December 31, 2022, but it is obvious that even in 2023, even if it will stagnate somewhat, it will remain at a very high level compared to the level of 2019 when the pandemic crisis started, followed by the economic and financial crisis, then deepened by the energy crisis and the food crisis and, henceforth, the crisis of resources and many other crises.

From the study carried out on the basis of data recorded by the Member States of the European Union as well as by other countries in the world, it follows that we are on the verge of a global economic recession and even the most developed countries will suffer.

For Romania, we must understand that it is necessary to rethink the use of funds allocated from the European Union budget, especially in the deficit areas. In no way, should the support to be given to agriculture and tourism, which can be recovered and re-enter the system of producing affordable income, taking into account, in particular, the natural conditions available to Romania, must not be circumvented.

Another conclusion is that recovery and resilience need to be implemented as a matter of urgency, so that some activities within the national economy can be recovered and, in this way, that macroeconomic stability, which is now particularly affected, can be restored as much as possible.

And, as a final conclusion, it is that Romania is facing one of the most difficult periods since 1990, imposing programs and strategies, especially in the short term, precise, so as to succeed in a recovery of the economy as a whole, to the repositioning of macroeconomic correlations and proportions, which give meaning and perspective to an evolution of economic growth in real terms.

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