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АНАЛІЗ ІНФЛЯЦІЙНИХ ПРОЦЕСІВ В УКРАЇНІ ЗА 2012–2017 РР. ТА ЇХ ВПЛИВ НА ЕКОНОМІЧНЕ ЗРОСТАННЯ

Анотація. В статті нами було узагальнено попередні дослідження впливу інфляції на економічне зростання у довгострокову та короткостроковому періодах. Проведений аналіз економічної та інфляційної динаміки 2012–2017 рр. Проаналізовано причинно-наслідковий зв'язок між інфляцією та економічним зростанням за аналізований період. Встановлено тісноту та достовірність зв'язку між зазначеними категоріями у 2012–2017 рр.

Ключові слова: інфляція, дефляція, економічне зростання, індекс споживчих цін, валовий внутрішній продукт, коефіцієнт кореляції, коефіцієнт детермінації, ціна, споживчий кошик, динаміка виробництва.

Формул: 1; рис.: 2; табл.: 1; бібл.: 17.

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ANALYSIS OF INFLATION PROCESSES IN UKRAINE FOR 2012–2017 AND THEIR IMPACT ON ECONOMIC GROWTH

Abstract. There were generalized the theoretical positions about the essence of the concept “economic growth” in the article and it is proposed its subsequent interpretation. It is a stable positive dynamics of the main economic indicators of the national economy (increase of gross domestic product, gross national income, national income), which ensures the social progress. It is generalized the previous researches on the inflation’s impact on the economic growth in the long and short-term periods. It was conducted an analysis of the economic and inflation dynamics of 2012–2017. It was the causal relationship between inflation and economic growth for the analyzed period. It is established the closeness and reliability of connection between the analyzed categories. It has been proved that in 2012–2017 the inflation growth by 1% reduced the economic growth by 0,86%.

Keywords: inflation, deflation, economic growth, consumer price index, gross domestic product, correlation coefficient, determination coefficient, price, consumer basket, production dynamics.

JEL Classification: E31, E65

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АНАЛИЗ ИНФЛЯЦИОННЫХ ПРОЦЕССОВ В УКРАИНЕ В 2012–2017 ГГ. И ИХ ВЛИЯНИЕ НА ЭКОНОМИЧЕСКИЙ РОСТ

Аннотация. В статье нами были обобщены предыдущие исследования влияния инфляции на экономический рост в долгосрочной и краткосрочном периодах. Проведенный анализ экономической и инфляционной динамики 2011–2017 гг. Проанализированы причинно-следственная связь между инфляцией и экономическим ростом за анализируемый период. Установлено тесноту и плотность связи между указанными категориями в 2011–2017 гг.

Ключевые слова: инфляция, дефляция, экономический рост, индекс потребительских цен, валовой внутренний продукт, коэффициент корреляции, коэффициент детерминации, цена, потребительская корзина, динамика производства.

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Introduction. In the conditions of emergence of post-industrial economy, the role of state regulation of macroeconomic processes is radically changing. The multi-vectority and diversity of interaction of the inflation and economic growth are caused by the multifactoriality of inflationary process and the structural complexity of economic growth. That is why the deepening of the theoretical and empirical basics of relationship between economic growth and inflation becomes the particular importance for Ukraine.

Analysis of research and problem statement. Both domestic and foreign scientists pay attention to the researches of the essence of inflation, economic growth, analysis of the dynamics of these phenomena. Also, it was paid the considerable attention by foreign prominent researchers such as A. Smith, J. Locke, J. Mill, J. Keynes, M. Friedman, J. Schumpeter, R. Saul, to the issue of determining the causal relationships between inflation and economic growth.

The significant contribution to the research of this problem was made by leading domestic economists as A. Alekseyev, A. Ilarionov, O. Melnyk, P. Nikiforov, I. Rozgon, S. Chernichenko, V. Heyets, A. Galchinsky, A. Danylenko, Y. Zhalilo, etc.

However, despite the significant results of scientific research in the field of inflation theory, the issues related to the definition of relationship between economic growth and inflation taking into account the current trends of the domestic economy, have not yet been adequately handled.

The purpose of the article is to study the causal relationships between economic growth and inflation in 2012–2017.

Research results. In the process of researching the evolution of views on the category of “economic growth” [1–4], we formulated the following definition of the above-mentioned category: economic growth – is a stable positive dynamics of the main economic indicators of national economy (increase of gross domestic product, gross national income, and national income of the country), which ensures the social progress. In the terms of transition to a post-industrial society, a volume increase of social production should occur on the basis of the principles: a) humanization and socialization of production relations, b) ecological orientation of production development, c) counting of national interests, d) the innovative nature of technological changes that gives the

economic growth the signs of sustainable development.

During the conducted theoretical and methodological research of scientific views [5–7] on the theories of inflation emergence, we have identified certain shortcomings, which are primarily connected with the unilateralism of estimates of inflation factors. In our opinion, the inflation – is a process of breaking the macroeconomic equilibrium between aggregate demand and aggregate supply, that leads to an oversaturation of channels of money circulation over the real needs of the economy in them. It was established that the preconditions for the inflation emergence are: the growth of money supply at a rate higher than the growth of the national product; deficit of the state budget; growth of internal and external debt; militarization and bureaucratization of the economy; peculiarities of the structure of national economy, imbalances in the country's foreign economic relations, dollarization and barterization of the economy, and increasing inflationary expectations.

In the previous researches of the inflation impact on economic growth in the conditions of Ukrainian economy, we made the following conclusions:

- in the long-term period for the transformational economy of Ukraine it is confirmed the presence of direct connection between them only with 1 year – time lag.

- in the short term period, (on the basis of the study of macroeconomic indicators of Ukraine's economic development in 1991–2011 (quarterly)), GDP has reached its maximum growth rate with the existence of inflation corridor in the range of 3,5% to 5,5%.

Taking into account 2012–2017 the following issues to crisis phenomena in the economy alongside with inflationary impact were also contributed: political crisis, the crisis of international relations, military events, and so on. That is why it is worthwhile to continue the research of cause-effect relationship between researched categories during this period.

So, 2012–2013 is characterized by decrease in consumer prices, and almost zero monthly inflation -0.3% ... 0.3% and -0.8 ... 0.5%, respectively. The main reason for the fall of CPI is the price reduction in food products (2.9% at the end of the year) because of the high yield of almost all fruit and vegetable crops, as well as the improvement of storage conditions. In 2012 it was price reduction in vast majority of food categories, and in 2013, the dynamics was not homogeneous. In general, in 2012, the prices have dropped by 35,5% (from 335) of components from the consumer basket (for the past five years the average share of the basket components that have dropped in price, was 8.8%). In addition to the above, the stabilizing factor was the strengthening of the national currency, low inflation in the countries, which are trade partners of Ukraine, as well as the lack of significant adjustment of tariffs for housing and communal services [8].

In spite of lowering inflation and even deflation, economic growth in the country was uneven and mostly negative. This was directly related to the dynamics of production - the rate of growth of the index of industrial production in 2012 was -1,8% compared to 2011, and in 2013 it decreased by 4,7% compared to 2012. In particular, volumes of metallurgy production dropped by 5,2%, machine building – by 6,0% [8, 9].

After a two-year trend of keeping consumer inflation low, in 2014 there was a rapid development of inflationary processes, which was accompanied by the beginning of economic reforms. As a result of the year, the consumer prices grew by 24,9% as a result of Hryvnia devaluation, an increase in administered prices and a sharp rise in inflation expectations.

The decrease of the Hryvnia exchange rate primarily affected the dynamics of the basic CPI, which increased by 22,8% during the year. The growth of base inflation in 2014 was under influence of rising food prices with a high degree of processing and rising prices for non-food products, a large part of which were imported.

Significant influence on the general inflationary background in Ukraine was the increase in prices for goods and services that are administratively regulated. During 2014, they increased by 30,4% mainly because of the increase of tariffs in utilities sector in order to bring them to an economically justified level [10].

For the first time in the past four years, it was price increase of raw food products (by 22,3%), in particular due to the rising cost of their imports, as well as cost increase for domestic production.

Despite a significant decrease in dollar prices for oil on world markets, the main impact on the fuel cost in Ukraine was determined by the exchange rate factor. As a result, it was increased the fuel prices during the year by 60,7%.

In 2014 the producer price index rose again, which was 31,8% at the end of the year. Significant influence on the dynamics of prices in the industry was the increase in prices for imported raw materials and energy, in particular for gas, because of Hryvnia devaluation. Also, the exchange rate factor stimulated the price increase in export-oriented industries, which are determined by the Hryvnia equivalent of prices on the foreign market [10].

In the first quarter of 2015, the implementation of monetary policy occurred in stressful conditions. The fall of real GDP deepened to 17,0% year-on-year (to 3,5% compared to the 4th quarter of 2014 with the minus of seasonal factor). The acceleration of the economic downturn was the result of infrastructure destruction and load reduction of enterprises in the eastern part of the country, the breakdown of industrial relations with other regions. The further fall in world prices for commodity exports and the effect of restrictions on trade with Russia led to a decrease in exports. Domestic demand was also declined: the consumer one – due to lower purchasing power of the population, and investment one – due to significant geopolitical risks, as well as limited access to financial resources. The significant decline in economic activity was accompanied by worsening expectations because of the worsening of the military conflict in eastern Ukraine at the beginning of the year. This has provoked a devaluation splash with a significant acceleration of consumer inflation. Thus, the depreciation of the exchange rate of Hryvnia in relation to US dollar during January-February accelerated to 76%, and CPI only increased by 14,0% in April, and reached 60,9% per year. In addition to devaluation, the contribution to inflation was also planned to increase administratively regulated tariffs. According to assessment of the National Bank, such depreciation of Hryvnia was excessive and did not correspond to the fundamental macroeconomic parameters. Thus, holding of restrained monetary policy contributed to decline in consumer inflation to 43,3% by the end of the year [11,12].

In 2016 there was a rapid decline in consumer inflation – up to 12,4%, while in 2015 the consumer prices grew by 43,3%. The rapid deceleration of inflation in 2016 was primarily due to the weakening of inflationary pressures caused by fundamental factors. It was evidenced by a sharp deceleration of core inflation. Also, a significant impact has favourable factors from the side of raw food supply. At the same time, the main drivers of price increase were the increase of tariffs that are administratively regulated, and the increase of world oil prices. The effect of these factors increased in the fourth quarter, which also affected the acceleration of the growth of total CPI in world markets [13,14].

The consumer inflation accelerated to 16,4% in September 2017 (from 13.5% in May 2017). The actual inflation rate exceeded the prognosis trajectory of the National Bank, published in the Inflation Report in July. This is primarily caused by accelerating the raw food price increase, rising of production costs, and a certain recovery in consumer demand [15].

The price increase for raw products continued to accelerate and significantly exceeded the forecasted indexes. So, significant volumes of exports, as well as supply reduction through the reducing in livestock have caused a rise in prices for meat and milk products. In addition, adverse weather conditions this spring led to a loss of yield and reduced the quality of some fruit and vegetable products. This was reflected in the domestic prices for vegetables and fruits. At the same time, the annual growth rate of administratively regulated prices and tariffs and fuel prices moderately have decreased compared to May on the backdrop of an increase in the comparison base.

During the third quarter, the price increase for raw food is indirectly – because of the impact on the cost of products with a high degree of processing, and it also affected the level of basic inflation, which has also exceeded the expectations. In addition, the increase in service prices because of increased production costs had an impact on acceleration of basic inflation, including also the shadowing of wages. The acceleration of basic inflation was also facilitated by the expected intensification of consumer demand. At the same time, they have been countered the growth of the

base inflation by the restrained fiscal policy, as well as low imported inflation, which was related with favourable situation on the foreign exchange market since the beginning of the year.

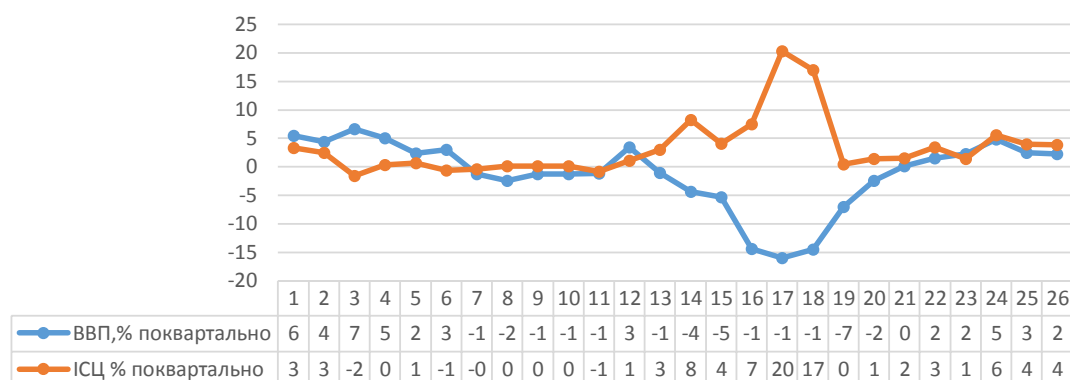


Fig. 1 Changes of real GDP and CPI in % quarterly in 2012-2017
Source: developed by the author on the basis [18]

As for the dynamics of GDP (Fig. 1), the economic situation in Ukraine has significantly deteriorated since 2014. There was a rapid drop in production volumes of all basic types of economic activity, except agriculture. There was an increase in inflationary pressures on the economy, which was accompanied by a fall in real incomes of population and, consequently, a decrease in its purchasing power.

In general, in 2015 the real GDP dropped by 9.9%. The decline in economic activity was recorded in all types of economic activity, except the health care, which showed a slight increase compared to the previous year. The significant drop occurred in the airborne troops (by 13.5%) and trade (by 16.8%) [12].

Among the main factors that led to the negative economic trends in 2014 and 2015 were the annexation of the Crimea and military operations in the east, the break of interregional relations, narrowing of both external and domestic demand for domestic products, reduction of public financing, deterioration of financial results of enterprises, etc. At the same time, the high harvest of grain harvested by farmers in the reported period and the liberalization of the conditions for access of domestic products to EU markets have had a positive impact on the country's economy.

Since mid-2015 there is gradual recovering of Ukraine's economy from a deep crisis. In the first half of 2017, the real GDP grew by 2.4%. As in the previous year, domestic demand was the engine of the growth of domestic economy. Its investment component grew at with especially high rates. In the second quarter of 2017, the growth of gross fixed capital formation accelerated to 23.7%. The share of investment in GDP reached almost 19% after significant underinvestment in 2014-2015 [17].

As the figure 1 shows, when comparing quarterly indicators of the changing rates in consumer prices (inflation) and GDP, it is observed a correlation between the researched categories, but this fact should be confirmed or denied by research. To do this, we will check the direction and closeness relation between CPI and GDP in 2012-2017 (quarterly).

Let's conduct an analysis to determine the closeness of relations and the direction of the inflation impact on the economic growth in the short-term period. To do this, we need to conduct an econometric analysis, namely: to calculate the correlation coefficient that establishes the closeness, and the coefficient of determination, that determines the dispersion. In addition, let's define the trend formula.

Output data for the calculation of the above-mentioned coefficients are given in Table 1.

Table 1.

Dynamics of inflation (CPI, %) and economic growth (GDP, %) in 2012-2017 (quarterly)

	2012				2013				2014				2015				2016				2017	
	1 q.	2 q.	3 q.	4 q.	1 q.	2 q.	3 q.	4 q.	1 q.	2 q.	3 q.	4 q.	1 q.	2 q.	3 q.	4 q.	1 q.	2 q.	3 q.	4 q.	1 q.	2 q.
GDP	2,4	3	-1,3	-2,4	-1,3	-1,2	-1,1	3,4	-1	-4,3	-5,3	-14,4	-16	-14,5	-7	-2,4	0,1	1,5	2,3	4,8	2,5	2,3
CPI	0,701601	-0,5991	-0,3999	0,0998	0,0998	0,1	-0,7993	1,103804	3,018826	8,297654	4,138093	7,475968	20,28924	16,97403	0,466784	1,378718	1,501364	3,396293	1,393105	5,592254	3,948998	3,847087

Source: built by the author on the basis [16]

The processing of data in Table 1 allowed us to get the following results:

- coefficient of correlation – (-0,52);
- coefficient of determination – (0,72);
- a trend formula that most closely matches the available statistical data $y=0,86x+1,78$,

where: y – is the level of GDP (in %), x – CPI (in %).

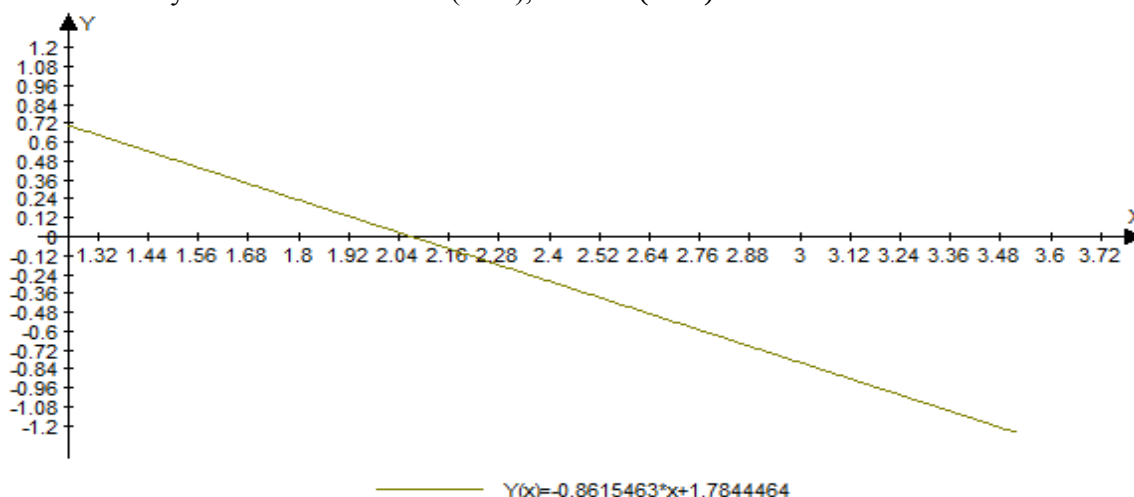


Fig. 2. Correlation field to determine the type of dependence between inflation and economic growth in the short-term in 2012-2017 (quarterly) [Source: developed by author]

The analysis of obtained trend formula (Figure 2) is evidenced by the fact that the relationship between inflation and economic growth in 2012–2017 is directly reversed.

Summarizing the above results of the research in the short-term period, the linear function clearly demonstrates a statistically significant feedback between inflation and economic growth. Thus, with the acceleration of inflation, we observe a fall in production volumes, and, conversely, economic growth is possible when inflation is dropped. At the same time, the growth of inflation by 1% reduces GDP by 0,86%.

Consequently, the researched connection during 2012 and 2017 is much more closely and statistically significant (the coefficient of determination is 72%) than in previous researches, that confirms J. Keynes's view on the existence of direct link between inflation and economic growth in the short-term period. This can be explained by the fact that in the current conditions of the domestic economy there was dominated an inflation of demand.

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