INFLUENCE OF PRODUCTION OF PRIMARY PRODUCTS ON THE RATE OF INFLATION IN THE REPUBLIC OF SERBIA

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ABSTRACT

The optimization of production processes leads to an increase in the volume of output from the primary sector, as an instrument to protect the population from crossing the border of extreme poverty. The Republic of Serbia is a traditional producer of primary products, as evidenced by the realized surplus in the net export of agricultural crops. In the period after global financial crisis, the Republic of Serbia achieved an above-average inflation rate growth, compared to the countries of the European Union. In this research, we detect a significant participation of products from agriculture, forestry, fishing, mining to reduce the volatility of product prices. The purpose of the research is to prove the causal relationship between the rate of inflation and the volume of production primary products. The methodological part was carried out through the evaluation of the model using econometric methods. The conclusion indicates a high correlation between the production of primary outputs and the rate of inflation in the Serbian economy.

Keywords: Inflation rate, Primary sector, Purchasing power, Volume of production, Republic of Serbia.

JEL: E23, E31, B23

Introduction

In the second half of the 20th century, the neo-classic economic thought was developed, according to which economic growth depends on reallocation of key factors of production, from the primary sector (agriculture, forestry, fishing, mining) to the secondary sector. In accordance with the adopted provision of the economic policy, the process of industrialization was rapidly implemented in developed and developing countries (Anríquez & Stamoulis, 2007). The process of continuous neglect of the primary sector causes the appearance of low productivity, insufficient application of technological innovations, low level of education and low income of the rural population (Lundahl, 2015).

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According to Kumar and Aithal (2023), insufficient attention is paid to the role of the primary sector in the overall development strategy of national economies. However, the absence of development of the primary sector leads to a scarcity of natural resources and raw materials, as well as basic foodstuffs. As a result, the general level of prices in observed economy increases, which directly affects the decline in the purchasing power of the population (Hałka & Leszczyńska Paczesna, 2023). In his research Brown (2008), claims that the stagnation of the primary sector would potentially threaten the comprehensive development of the national economy of the countries.

The potential of the primary sector of the Republic of Serbia is related to traditional food production, due to the favorable conditions of the natural environment and the high quality of arable land (Mihailović, Cvijanović, and Paraušić, 2013). In this regard, the Republic of Serbia achieves a chronic trade surplus, i.e. an increase in the net export of foodstuffs and agricultural raw materials. After the global Covid 19 pandemic, the growth in the volume of food production in the primary sector of the Republic of Serbia was 16.9% (Akter, 2020).

Through the analysis of production factors, we observe a percentage decrease in the number of employees within the primary sector, for the activities of agriculture, forestry, fishing and mining (Brož & Kočenda, 2018; Gáll, 2023). In the last quarter of 2018, the total number of employees was 1.59%, while the latest calculated data indicate a percentage of 1.29%. Due to the increase in the productivity of the primary sector, the nominal income of employees increase by 8.9% during 2020, as well as the growth of 8.4% during 2021 (Čorović & Gligorijević, 2021).

The neglect of the primary sector in the last couple of decades, affects a significant reduction in the level of education of the workforce, which reduce the application of technological achievements in the direction of the development of this sector (Kumar & Aithal, 2023). In the period June/July 2021, the value of the index of industrial production increases by 7.8%, compared to the same months previous year (Krstić, Jaksić, Mimović and Tadić, 2022).

In previous research, it is emphasized that the maintenance of overall economic development requires investment in activities such as agriculture, forestry, fishing and mining. By calculating the gross added value, we observe reliable data, which represent indicators of market conditions within a economic state of the country (Zakrzewska & Nowak, 2022). The available database indicate a significant contribution of primary outputs (agriculture, forestry, fishing, mining) to the creation of gross added value of the Republic of Serbia.

The total volume of output from the primary sector achieves an increase in participation in the creation of gross added value on the territory of the Republic of Serbia, in the period from 2011 to 2023. In the third quarter 2023, the volume of primary products increased by 1.6 times compared to the volume of primary outputs, which were produced in the same quarter 2011.
In the period after the global Covid 19 pandemic, the production of primary outputs constitutes for 6% of the gross added value of the Republic of Serbia (Demary, Herforth and Zdrzalek, 2022). In the continuation of the research, we present the key factors that influence the quarterly level of production of primary products and regressors that affect the general level of prices in the Republic of Serbia. In the first place, we mention the change in the price of energy sources (coal, oil, gas, oil shale). In addition, we emphasize the change in the condition of the natural environment and temperature oscillations. Finally, the success of the agricultural season is reflected in the level of the annual yield (Turan & Özer, 2022).

The agricultural seasons of 2020 and 2021 are characterized by above-average temperatures, which causes to two dry years in the Republic of Serbia. There is a significant drop in the yield of agricultural production. In the same period, the inflation rate reaches 15.1%, during December 2022 (Tabaković, 2023). As a method of mitigating the growth of inflationary rate, it involves the process of reviving global supply chains, which leads to a decrease in domestic and world energy prices. According to quarterly data, the agricultural season in 2023 was a more successful, in terms of growth in the volume of primary outputs in the Republic of Serbia (Krstić, Jaksić, Mimović and Tadić, 2022).

The method of evaluating the correlation between the described macroeconomics variables is carried out through verified econometric tests. The initial step refers to revealing the direction of causality of the variables, which are the subject of our research (Shojaie & Fox, 2022). In the continuation of this research, we examine the regression between the production of primary outputs and the inflation rate. This type of prediction allows us to forecast further changes in the values of the observed variables and draw conclusions, with the aim of improving the position of the Serbian economy (Mladenović & Petrović, 2007).

In accordance with theoretical concepts, we define and examine research questions and hypothesis, which represent the subject of this research:

1. Does the increase or decrease in the volume of production of primary outputs affect the change in the quarterly inflation rate, in the observed period?
2. Does the increase or decrease in the quarterly prices of primary products cause variation in the level of output production from the primary sector, in the observed period?

**Ho:** The realized increase or decrease in the volume of production of primary outputs will not affect the change in the quarterly inflation rate in the economy of Serbia.

**H1:** The realized increase or decrease in the volume of production of primary outputs will affect the change in the quarterly inflation rate in the economy of Serbia.

In their research Przybyla and Roma (2005) conclude that a higher level of production goods and services, along with the growth of market saturation and concentration,
provides mitigation of the increase in the inflation rate in modern economic circumstances. Competitive pressure leads companies to improve production performance and capacity, and the saturation process affects the growth of the supply of goods and services in the observed market areas.

Glatzer, Gnan and Vladerrama (2006) point out that the process of globalization, optimization of supply chains and a higher degree of trade openness, ensure a decrease in the prices of production inputs of countries around the world. The trend of increasing the available amount of production factors affects the volume of production placement of companies. The growth of the market supply of goods and services is positively correlated with the reduction in the inflation rate.

According to Baek and Koo (2010), the price of food in the American market has grown rapidly in the last two decades. By examining the causes of the rise in the general price level, the authors identified three key factors. The group of factors includes the volatility of energy prices, the volume of agricultural goods and exchange rate changes. The influence of the mentioned three variables on the general level of prices was carried out through econometric evaluations.

Olatunji, Omotesho, Ayinde and Adewumi (2012) prove the impact of the efficiency of the primary sector on the oscillation of the inflation rate within the Nigerian economy. The quality of the agricultural season is an important factor in the movement of the general price level. The researchers indicated a significant effect of weather conditions and the availability of natural resources on the volume of food items. The results of the study proved a negative correlation between the volume of agricultural production and the inflation rate.

Ali and Ibrahim (2018) examined the effect of the operations of manufacturing companies on the change in the rate of inflation in the Malaysian economy. In this research, they proved that productivity and technological progress affect the growth of market placement, which leads to a decrease in the general level of prices.

According to Jašová, Moessner and Takáts (2020), the domestic and global output gap significantly influence the change in the value of the consumer price index, in countries around the world. The paper confirmed that the domestic and global output gap influence the change in inflation rates, in the period before the world economic crisis (1994-2007), as well as in the post crisis period (2008-2017).

After reviewing the theoretical basis of the influence of the volume of primary production on mitigating the growth of the inflation rate, an analysis of the key characteristics of the primary sector of the Republic of Serbia will be performed. The “Data and Methods” chapter will present the “Granger causality test”, which determines the direction of interaction between variables. In the “Results and Discussion” chapter, the influence of the volume of primary production on the movement of inflation rates will be examined through regression analysis. As part of the conclusion, proposals and economic policy measures will be written to improve the efficiency of the primary sector and the general economic condition.
Key characteristics of the primary sector in Serbian economy

The primary sector represents a strategic component in the process of economic development of countries, with a significant impact on the improvement of performances within the other three sectors (Dimovski, Radivojević and Rađenović, 2023). The production of primary outputs participates in the formation of the value of the gross domestic product, through the creation of added value, with significant employment in the primary sector (Lundahl, 2015). In this sense, the production of primary outputs (agriculture, forestry, fishing, mining) is the basis of the successful economic progress of countries around the world (Cinaroglu & Top, 2021).

The influence of the primary sector on the growth of the gross domestic product is derived through an overview of the trade balance. The key category is net exports of products and services ("Nx"), which is obtained by subtracting imports ("Im") from exports ("Ex") of primary outputs, for a period of one year (Šoškić, 2015).

**Figure 1.** Inflation rate, prices and volume of food production in the Serbian Economy

![Graph](http://ea.bg.ac.rs)

*Source: Author’s calculation, based on data from yearbooks of Serbia (2011-2023)*

The primary sector consists mainly of homogeneous products, which in conditions of perfect competition have only price as a differentiating tool on the market. Difficulties in predicting the prices of primary products occur due to the unpredictability of the natural environment and climate changes. As a result, there is a price volatility of primary products on a seasonal level, which can be avoided through the openness of the economy and the removal of trade barriers (Magdalena & Suhatman, 2020).

In developing countries, a significant part of the population earns income through the production within the primary sector. Due to limiting factors, such as: agricultural land area, absence of labour force, high age and lower educational structure, insufficient application of technological innovations, the growth of the primary sector in a short period of time is
not achievable. Therefore, increasing total productivity is the strategic orientation of most subject, within the primary economic activity (Brož & Kočenda, 2018).

**Data and methods**

The source of data for the purposes of this research is the group of ”Statistical Yearbooks”, in the period from 2011 to 2023, which we obtained from the official database of the Statistical Office of the Republic of Serbia. From the publicly available reports of the “World Bank” and “Eurostat”, we conducted an analysis of the trends in inflation rates during the observed period.

Through the review of the statistics of the national accounts of the “Statistical office of the Republic of Serbia”, we find out the participation of primary outputs in the formation of the gross added value. From September 2014, the methodology for calculating “GDP” was changed, in accordance with the “SNA 2008/ESA 2010” implementation plan. The statistical office of the Republic of Serbia has changed the method of calculating national account according to “ESA 2010”. In order to form a regression model, the movement of the inflation rate represents a dependent variable, which was detected in the economy of the Republic of Serbia. In this research, we used quarterly data, obtained through chain indexes, in the period from 2011 to 2023.

The subject of the research refers to the identification of macroeconomic indicators that influence the change in the general level of price in the economic system of the Republic of Serbia. On the other hand, gross added value represents an independent variable in the model, which refers to the primary sector, i.e. activities such as agriculture, forestry, fishing and mining. The added value of production of the primary sector of the Republic of Serbia is the subject of further analysis. The motive for evaluating the regression model is to examine the influence of the volume of production of primary outputs on the movement of the inflation rate.

In the observed model, we included more control variables, in order to achieve a higher degree validity of regression analysis. For the control variable, we use the value of the chain index of nominal wages in the Republic of Serbia. The second control variable implies a change in the nominal exchange rate, in the period from 2011 to 2023. According to the postulates of economic theory, we include energy prices in the country and abroad, as one of the significant factors in changing the general level of prices in the economy. Furthermore, a key part of control variables of the model, which influence the movements of the inflation rate in an economy, refer to the value of the chain indices of the volume of food production, as well as the level of food prices, in the market area of the Republic of Serbia.

In the continuation of the research, we use the method of multiple linear regression to examine the intensity of influence between dependent, independent and control variables in the model. In the empirical part of the research, we conducted an examination of the cause-effect relationship between the dependent variable and six independent variables of this model. Using the method of multiple regression analysis, we identify
the direction and intensity of influence between the observed macroeconomic variables (Mladenović & Petrović, 2007).

The process of evaluating the interaction of the variables included in the regression model requires a preliminary examination of the stationary of the time series. Time series with a stochastic trend, which have a unit root, cannot be subject to regression analysis. The mentioned rule is equally used in trend-stationary and difference-stationary types of model (Anderson, 2011). From a statistical point of view, time series with biased and inconsistent estimates and violations of the normality of the distribution cannot be relevant in the process of econometric evaluation. From an economic point of view, the non-stationarity of time series implies a permanent deviation from the trend line, which directly pulls down the values of the time series. The test is carried out on the variables – production of primary outputs (“AQ_t”) and inflation rate (“IR_t”).

**Table 1.** Examining the existence of a unit root and stationarity of the included time series in the set regression model

<table>
<thead>
<tr>
<th>Variables</th>
<th>“ADF” test results</th>
<th>Hypothesis testing</th>
<th>Examining the stationarity of time series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary_outputs</td>
<td>1st differences (intercept)</td>
<td>Prob*. (0.0000)</td>
<td>Rejected Ho</td>
</tr>
<tr>
<td>Inflation_rate</td>
<td>1st differences (none)</td>
<td>Prob*. (0.0127)</td>
<td>Rejected Ho</td>
</tr>
<tr>
<td>Food_prices</td>
<td>1st differences (trend &amp; intercept)</td>
<td>Prob*. (0.0311)</td>
<td>Rejected Ho</td>
</tr>
<tr>
<td>Energy_Prices</td>
<td>level (constant)</td>
<td>Prob*. (0.0011)</td>
<td>Rejected Ho</td>
</tr>
<tr>
<td>Exchange_rate</td>
<td>level (constant)</td>
<td>Prob*. (0.0048)</td>
<td>Rejected Ho</td>
</tr>
<tr>
<td>Nominal_income</td>
<td>1st differences (intercept)</td>
<td>Prob*. (0.0001)</td>
<td>Rejected Ho</td>
</tr>
<tr>
<td>Food_outputs</td>
<td>1st differences (intercept)</td>
<td>Prob*. (0.0000)</td>
<td>Rejected Ho</td>
</tr>
</tbody>
</table>

*Source: Author’s calculation using software Eviews

*Note: p > 0.05, Null hypothesis: “The time series has a unit root”

*In the model p < 0.05%, based on which we reject null hypothesis: “the time series has a unit root” and accept the alternative hypothesis: “the time series does not have a unit root”. It follows that the dependent, independent and control variables are stationary time series.*

For the purpose of examining the unit root of time series, we use the “ADF test” (extended Dickey Fuller test), with a statistical significance level of α = 0.05%. By logarithming the data and then applying the first difference operator, we transform non-stationary into stationary time series (table 1.). The process of examining the stationarity of the observed series is a necessary requirement for further determining the cause and effect relationship between these two macroeconomic indicators (Shojaie & Fox, 2022). The procedure for applying the “Granger causality test” involves identifying the direction of
The correlation between the mentioned macroeconomic variables. The “Granger causality test” is used to determine the direction of causality between the total production of primary outputs (agriculture, forestry, fishing, mining) and the movement of the inflation rate in a certain period of time. As a designation for the volume of primary outputs, we use the abbreviation “AQ_t”. Additionally, we use the combination of the letters “IR_t” as a marker for the movement of the quarterly inflation rate.

For the purposes of conducting descriptive statistics and the “Granger causality test” to identify the interaction between variables, we set the following equations:

\[
AQ_t = \sum_{t-1}^{n} C1 \times IR_{t-1} + \sum_{t-j}^{n} C2 \times AQ_{t-j} + U_{1t}
\]  

(1)

\[
IR_t = \sum_{t-1}^{n} C3 \times IR_{t-1} + \sum_{t-j}^{n} C4 \times AQ_{t-j} + U_{2t}
\]  

(2)

**Table 2.** Overview of the results obtained through the Granger causality test

<table>
<thead>
<tr>
<th>Null Hypothesis (Ho)</th>
<th>Test Value</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The volume of production of primary outputs does not affect the movement of the inflation rate</td>
<td>20</td>
<td>0.002</td>
</tr>
<tr>
<td>Null Hypothesis (H0a)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The movement of the inflation rate does not affect the volume of production of primary outputs</td>
<td>20</td>
<td>0.2453</td>
</tr>
</tbody>
</table>

*Note:* p<0.10, pp<0.05, ppp<0.01.

**Sources:** Author’s calculation using software Eviews

The result of „Granger causality test” refers to the precise identification of the values of (F) and (T) statistics, which we use to test the statistical significance of hypothesis. Due to prob. (t)=0.002 and prob.(F)=15.9249, with a random error of ɑ=0.05%, we reject the null hypothesis (Ho). Therefore, we conclude that the production of primary outputs affects the movement of the quarterly inflation rate, in the observed economy, for a limited period (table 2.).

**Table 3.** Results of the cause-and-effect relationship of macroeconomic variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>(n-r)</th>
<th>Prob.</th>
<th>Direction of influence</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume of primary production</td>
<td>20</td>
<td>0.002</td>
<td>AQ_t statistically significantly affects IR_t</td>
<td>Confirmed hypothesis</td>
</tr>
<tr>
<td>Inflation rate</td>
<td>20</td>
<td>0.2453</td>
<td>IR_t statistically significantly affects AQ_t</td>
<td>Rejected hypothesis</td>
</tr>
</tbody>
</table>

*Note:* p<0.10, pp<0.05, ppp<0.01.

**Sources:** Author’s calculation using software Eviews
In the continuation of the analysis, we calculate the value of the (t) test of prob.=0.2453 and the (F) test of prob.=1.54563, with a random error of α=0.05%. In accordance with the presented results, we accept the “Null hypothesis”. The conclusion implies that the movement of the inflation rate does not affect the volume of production of primary outputs in the economy of the Republic of Serbia. On the contrary, the volume of production of primary outputs affects on the movement of the inflation rate in the Serbian economy, for the observed period of time (table 3.)

Results and Discussions

In the direction of a better interpretation of the obtained results, we performed an individual analysis of all positions within the program output of the mentioned econometric model. Therefore, we use the correlation coefficient, the coefficient of determination and the corrected coefficient of determination. The implementation of predictive analytics of this model was carried out by monitoring the value of the standard error of the regression. Testing the statistical significance of the model is provided through assessment of the variables, with the help of various econometric tests. The prerequisite for conducting regression analysis involves determining the equation:

$$y = \beta_0 + \beta_1 \cdot x_1 + \beta_2 \cdot x_2 + \beta_3 \cdot x_3 + \beta_4 \cdot x_4 + \beta_5 \cdot x_5 + \beta_6 \cdot x_6 + \epsilon_i \quad \text{(3)}$$

where $Y$ indicates the value of the dependent variable in the model, and $x_1, x_2, x_3, x_4, x_5, x_6$ represents a set of independent variables in this regression equation. The coefficient $\beta_0$ denotes the average initial level of the dependent variable, and the symbol $\epsilon_i$ the random error of this regression model. In addition, regression parameters $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ are partial coefficients, which reflect the influence of a single value of the independent variable on the value of the dependent variable (Mladenović & Petrović, 2007).

The aim of this research is to identify the impact of the volume of output production from the primary sector (agriculture, forestry, fishing, mining) on the trend of the inflation rate in the Serbian economy, in the period from 2011 to 2023. In this sense, we present the results of the multiple linear regression, which we used to analyze the movement of the observed variables, as well as to identify the key factors of their variation.

Table 4. Evaluation of the entire regression model

<table>
<thead>
<tr>
<th>Model</th>
<th>R-squared</th>
<th>Adjusted R-squared</th>
<th>S.E. of regression</th>
<th>Sum squar. residuals</th>
<th>F statistic</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression Analysis</td>
<td>0.894</td>
<td>0.877</td>
<td>1.725</td>
<td>127.999</td>
<td>52.044</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Source: Author’s calculation using software Eviews

The value of F statistic, with a significance level of α=0.05% is used to evaluate the statistical significance of the entire regression model. Due to the fact that F=52.044 and
Sig. = 0.0000, we conclude that the entire regression model is valid. The values of the coefficient of determination (0.89) and the corrected coefficient of determination (0.87), are used to confirm the thesis that independent variables significantly explain the value of included dependent variable in the mentioned econometric model (table 4.).

Table 5. Results of testing the assumptions of the multiple regression model

<table>
<thead>
<tr>
<th>LM test (Breusch-Godfrey test)</th>
<th>Jarque-Berra test</th>
<th>Breusch-Pagan-Godfrey test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prob. (F stat.) Prob. Chi-Square (2)</td>
<td>JB test Probability Prob. (F stat.) Prob. Chi Square(2)</td>
<td></td>
</tr>
<tr>
<td>0.2235 0.1657</td>
<td>4.525091 0.104085</td>
<td>0.2594 0.2468</td>
</tr>
</tbody>
</table>

Source: Author’s calculation using software Eviews

In this part of the research, we applied the Breusch-Godfrey test, in order to detect autocorrelation between variables in the econometric model. Based on the Chi-Square (2) probability, which is greater than 0.05%, we reject the null hypothesis (Ho), which implies the absence of autocorrelation between the variables in the specified model. In the presented table number 5, the value of the Jarque-Berra test is 4.52 and the probability is significantly above 0.05%, which leads to the acceptance of the null hypothesis that the residuals have a normal distribution. By examining the results of the Breusch-Pagan-Godfrey test and the Chi-Square probability values, we proved that the residuals are homoscedastic. Finally, the centred VIF values are below 10, indicating that there is no multicollinearity in the model. Therefore, there is no violation of the assumptions of the multiple regression model (table 5.).

Table 6. Results of regression analysis

<table>
<thead>
<tr>
<th>Regress. Analysis</th>
<th>Model</th>
<th>Unstandardized Coefficient</th>
<th>(T) Statistic</th>
<th>Sig. Toleran.</th>
<th>Collinearity Statistics (VIF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variabl.</td>
<td>1</td>
<td>Beta</td>
<td>Std.Error</td>
<td>Value</td>
<td>p&lt;0.05</td>
</tr>
<tr>
<td>C (Constant)</td>
<td>34.463</td>
<td>15.600</td>
<td>2.088</td>
<td>0.042</td>
<td>272.250</td>
</tr>
<tr>
<td>X1 Energy_Srb</td>
<td>0.389</td>
<td>0.072</td>
<td>5.393</td>
<td>0.000</td>
<td>0.005</td>
</tr>
<tr>
<td>X2 Food_Prices</td>
<td>0.073</td>
<td>0.020</td>
<td>3.547</td>
<td>0.001</td>
<td>0.000</td>
</tr>
<tr>
<td>X3 Food_Output</td>
<td>-0.001</td>
<td>0.041</td>
<td>-0.027</td>
<td>0.978</td>
<td>0.001</td>
</tr>
<tr>
<td>X4 Exch_Rate</td>
<td>-0.292</td>
<td>0.091</td>
<td>-3.186</td>
<td>0.002</td>
<td>0.008</td>
</tr>
<tr>
<td>X5 Nom_Income</td>
<td>0.1535</td>
<td>0.056</td>
<td>2.725</td>
<td>0.009</td>
<td>0.003</td>
</tr>
<tr>
<td>X6 Primary_Out</td>
<td>164.66</td>
<td>68.169</td>
<td>2.415</td>
<td>0.0200</td>
<td>4647.04</td>
</tr>
<tr>
<td>Y(-1) Hicp (-1)</td>
<td>0.277</td>
<td>0.090</td>
<td>3.063</td>
<td>0.0038</td>
<td>0.008</td>
</tr>
</tbody>
</table>

Note: *p* < 0.10, **p** < 0.05, ***p*** < 0.01.

Sources: WB datasets, OECD reports, Eurostat, Own calculation using software

Using the results of the regression analysis, we evaluate the regression equation:

\[
Y = 34.46304 \times X_1 + 0.389X_2 - 0.001X_3 - 0.292X_4 + 0.153X_5 + 164.663X_6 + \epsilon
\]

\[
(16.500) \quad (0.072) \quad (0.020) \quad (0.041) \quad (0.091) \quad (0.056) \quad (68.169)
\]
The probability value in the regression model (column Sig.), leads to the conclusion that five independent variables have a statistically significant influence on one dependent variable. The measured prices of domestic and imported energy sources increase inflation rates in the Republic of Serbia. The appreciation or depreciation of the exchange rate and the average nominal wage affect the movement of the general prices in the economy. The research results imply that food prices are directly correlated with the level of inflation in the Serbian economy.

The growth of the output of the primary sector leads to the movement of general level of prices in the economy of the Republic of Serbia (Sig.=0.0002). Based on the principles of economic theory and practice, we conclude that the increase in the supply of primary outputs will reduce the prices on the market, with an emphasis on the reduction of food prices. The drop in food prices by a percentage point leads to a decrease in the inflation rate by 0.07%. The primary sector has an important function in mitigating the inflationary trend in the Serbian economy.

Conclusions

In the modern market economies, it is an increasingly common phenomenon that the rise in the inflation rate is accompanied by a decline in the purchasing power of the population. For this reason, the creators of economic policies especially analyze the trend of population consumption, i.e. analysis of the impact of the general price level on the trend of inflation. By applying the ,,Granger causality test”, the research proves the impact of the growth of production of primary products (independent variable) on the reduction of the general price level (inflation rate as a dependent variable) in the Republic of Serbia. In addition, we confirmed in the research that the change in the inflation rate will not significantly affect the volume of production of primary products. On the contrary, the research confirms that the volume of production of primary products directly affects the movement of the quarterly inflation rate.

In the process of identifying the direction and quantifying the intensity of the relationship between the analyzed variables, through multiple regression analysis, we determine that energy prices on the domestic and world markets participate in the formation of the general price level in the economy of the Republic of Serbia. In this research, we concluded that the movement of average nominal wages and the value of the exchange rate influence the movement of the inflation rate in the observed economy. The production of primary products doesn’t have a direct impact on the movement of the inflation rate, but the increase in food prices leads to a statistically significant change in the general price level in the economy of the Republic of Serbia.

In accordance with the basic postulates of economic theory that the development of supply directly causes price movements, we confirm the thesis that the increase in the supply of food products affects the reduction of food prices in country. At the same time, we mention the fact that primary agricultural production is predominantly carried out in open space. Therefore, the supply of primary agricultural products is highly
correlated with the general natural conditions of production. In the empirical part of this research, we proved that reducing the prices of food products means a tool for mitigating the rising trend of the inflation rate. Based on econometric and statistical evaluations, we conclude that the reduction in food prices leads to a decrease in the general level of prices in the economy of the Republic of Serbia.

Through the analysis of the obtained results, we confirm the hypothesis that the growth in the supply of products of the primary sector, along with the simultaneous growth of branch productivity, affects the mitigation of the increase in annual inflation rates. Data on the level and extent of the impact of food supply on the reduction of the general level of prices, i.e. the inflation rate, represent an important indicator for economic policy makers, with the aim of adopting specific measures of monetary policy and inflation control, through its introduction into the targeting regime in the Republic of Serbia. The development of the efficiency of the primary sector becomes a quality instrument for controlling the inflationary pressure on the economy of a country. Investing resources to improve the primary sector and reduce the production gap of producers ensures economic growth and comprehensive economic development of countries.

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Conflict of interests

The authors declare no conflict of interest.

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