Analysis of the Development of the Consumer Price Index in Indonesia 2014-2020

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Abstract. The phenomenon that occurs in the annual report of the Indonesian economy is that economic growth declines if the inflation rate cannot be controlled properly. The inflation rate in Indonesia is easily rises, with various factors that influence it, making it increasingly difficult to control inflation, so that in controlling it, the government must know inflation-forming factors. This research aims to estimate the factors that influence inflation in Indonesia, using panel data, which is data from all provinces in Indonesia from 2014 to 2019. The estimation results are Inflation which is influenced by CPI Housing Electricity Water and CPI_Food-to-Drink Cigarettes, CPI Foodstuffs, Aggregate consumption, GRDP Per capita, has a contribution of 74.9%, while the remaining 25.1% is explained by other variables such as interest rates, exchange rates, etc. Partially, Inflation is significantly affected by the CPI, while Aggregate consumption and Per capita GRDP do not significantly affect Inflation.

Keywords: Consumer Price Index, Gross Regional Domestic Product, Inflation.

1 Introduction

In a country's economy, important indicators that must be analyzed are economic growth inflation, interest rates, aggregate macroeconomics, competitiveness, income equity and external balance. In influencing the mobilization of funds through formal financial institutions, for holders of financial assets, inflation plays a very important role. The higher the opportunity cost of the financial asset holder, the higher the change in the price level. Vice versa.

Not all inflation has a negative impact on the economy. If there is mild inflation, namely inflation below ten percent, it will encourage the economy for the better, which is marked by an increase in national income which has an impact on increasing investment and savings by the public. On the other hand, uncontrolled inflation causes hyperinflation to have a negative impact. Inflation like this will lead to rapid price increases, reduced people's purchasing power, investment, and slow economic growth.

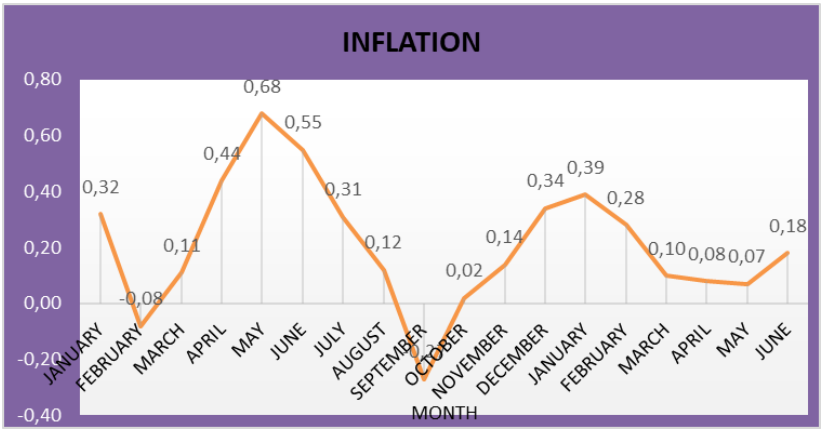

Fig. 1. Inflation developments in Indonesia in 2019-2020

Figure 1. shows that the structure of inflation in Indonesia fluctuated from 2019 to 2020. In 2019 in January inflation in Indonesia was 0.32% and in February it decreased by -0.08% and experienced an increase again in March 0.11% and in April by 0.44%, In May experienced high inflation rate of 0.68 which in that month people consumed goods and services which was quite high due to Eid al-Fitr, but after that Inflation experienced a drastic decline in October by -0.02% fluctuating inflation in Indonesia continued to experience changes up to early 2020 in January of 0.39%, 0.28% in February, 0.10% in March, 0.08% in April, 0.07% in May and 0.18% in June 2020. In the midst of these global challenges, Indonesia's 2019 economic growth remained resilient, supported by domestic demand and maintained economic stability and financial system. When COVID-19, which has been the

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talk of the whole world, since early 2020, has resulted in a decline in Indonesia's economic growth, and in 2021 it is estimated that economic growth will increase, this continues with the existence of structural policies and macroeconomic policies that accelerate the Indonesian economy to become a developed country.

Inflation as known to the public today is the inflation rate calculated based on an index number, known as the consumer price index. An increase in inflation can cause the percentage of economic growth to be meaningless which then has an impact on increasing poverty rates. Changes in inflation occurred due to changes in the Consumer Price Index (CPI), which is one of the important economic indicators. Information on the development of prices for goods and services paid by consumers is part of the consumer price index. The increase in the Consumer Price Index causes interest rates to increase, and the attractiveness of money also increases, there is an increase in inflation and an increase in the growth of the money supply. Determination of the quantity, type and quality of goods and services commodity packages and their weight in the CPI is based on the Cost of Living Survey (CLS). The development of prices of various commodities in Indonesia. The existence of shocks in food production and consumption caused by elasticity of demand and supply resulting in volatility.

Table 1. Expenditure group contribution to National Inflation (percent) in 2017 and 2018

Group	Contribution to Inflation	
	2017	2018
General	3,61	3,13
Food material	0,25	0,68
Prepared Foods, Beverages, Cigarettes & Tobacco	0,69	0,67
Housing, Water, Electricity, Gas and Fuel	1,24	0,6
Clothing	0,25	0,23
Health	0,13	0,15
Education, Recreation & Sports	0,25	0,24
Transport, Communication & Financial Services	0,8	0,56

It can be seen in Table 1. shows that the development of the expenditure group on national inflation in 2017 and 2018, in 2017 the groups that contributed the most were housing, flow, electricity, gas and fuel by 1.24 percent, followed by the transportation, communication and financial services by 0.80 percent. The processed food, beverages, cigarettes and tobacco groups ranked as the third largest contributor to inflation in 2017, reaching 0.69 percent. The foodstuffs group was the component that most influenced the inflation rate in 2018 by contributing 0.68 percent. This figure is much different from the previous year where the foodstuffs group only contributed 0.25 percent to inflation. The main role in the foodstuffs group that boosted inflation in 2018 came from rice commodities with a share of 0.13 percent, followed by chicken meat with a share of 0.12 percent, and fresh fish with a share of 0.1 percent.

Scarcity of goods and price spikes can at least be anticipated, if it is known the estimated procurement needs for local, foreign and imported products as well as stock estimates for each type of commodity of basic needs and other important goods. Besides that, it can also be used as a means of coordination with relevant agencies and the business world in providing transportation facilities, warehousing, smooth supply to the market and in improving services to the business world and the consumer community. So that it is formulated what factors affect inflation in provinces throughout Indonesia in 2014 to 2020?

2 Literature Review

The occurrence of continuous price increases can generally be interpreted as inflation [9], on the contrary that it cannot be said that inflation occurs if there is an increase in prices for only one or two types of goods, except that the increase in the price of these goods expands so that the prices of these goods increase. other items increase. The classical theory of money states that a change in the overall price level is like a change in the size of certain units [9]. The economic welfare of the community does not depend on all price levels, but depends on relative prices.

2.1 Views of Classical Economists

There are 3 important views of classical economists who believe that an increase in the money supply will not increase national income but only causes an increase in prices to the same level as the increase in the money supply. The role of money is neutral (money is neutral) (Money cannot affect variables in the real sector such as real national income, real value of savings, investment, interest rates [10]. Money will only affect the price level).

2.2 Keynes' View of Inflation

Inflation model according to Keynesian that: The amount of money in circulation is not the only factor determining the price level [1]. One of the factors that influence the price level is household consumption expenditure, government spending, investment spending and tax spending [1]. The desire of the community to meet their needs above their economic capacity can also cause inflation, because it can cause aggregate demand to exceed aggregate supply, meaning that public demand for goods exceeds the total supply of goods. And it can be said that there has been an inflationary gap. The monetarist view that in the short term production capacity cannot be developed to offset the increase in aggregate demand so that the supply of goods is limited.
Thus Keynes's thoughts on inflation [12], can be formulated as:

Inflation = f (money supply, government spending, credit, investment, net exports) (1)

2.3 The Phillips Curve and the Triangle Inflation Model

The Phillips curve states that in its modern form there are three forces that affect the inflation rate, namely expected inflation, cyclical unemployment, where unemployment deviates from the natural rate, and supply shocks [9].

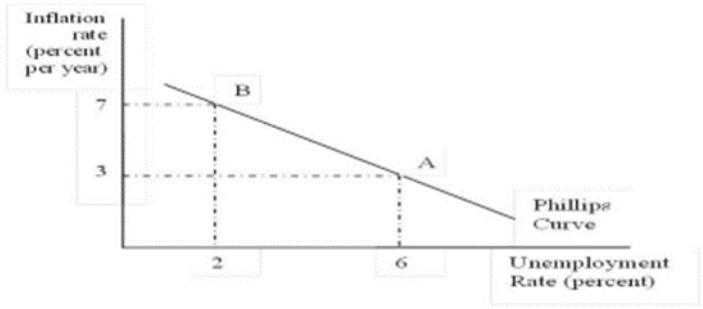

Fig. 2. Phillips curve

2.4 Formation of Inflation

Inflation that begins with an increase in aggregate demand is called demand pull inflation. By using the IS-LM curve approach.

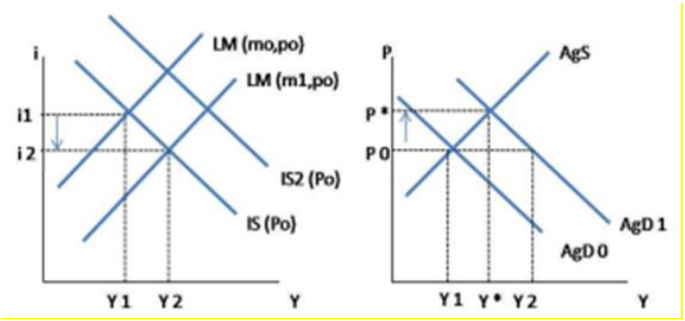

Fig. 3. Inflation due to Demand Pull

An increase in the real money supply causes the LM curve to rise and shift to the present. This shift was caused by a decrease in the price level of money circulating temporarily and in nominal terms (Keynes effect) or due to an expansion, namely a monetary contraction.

2.5 Inflation Measurement Method

In measuring the inflation rate, several ways can be done, one of which is by calculating the price index [3], such as:

Consumer Price Index (CPI). The percentage difference in the price of goods or services at a certain time with the price of goods or services at a certain time compared to the price of goods or services at a certain time. The economic indicator that provides information on the prices of goods and services is the Consumer Price Index. The rate of increase in the price of goods and services or inflation and the rate of decrease in the price of goods and services or deflation for daily household needs are changes in the Consumer Price Index from time to time. Calculation of the Consumer Price Index by:

$$\text{Inflasi} = \frac{(\text{IHK} - \text{IHK}_{-1})}{\text{IHK}_{-}} \text{ X } 100\% \quad (2)$$

Gross Domestic Product (GDP) Deflator. The occurrence of inflation is a picture of the Gross Domestic Product deflator. Gross Domestic Product Deflator or Gross Domestic Product Deflator is the percentage comparison between Gross Domestic Product at current prices (nominal) and Gross Domestic Product at constant (real) prices [4]. Can be written in the form:

$$\text{GDP Deflator} = (\text{Nominal GDP} : \text{Real GDP}) \times 100\% \quad (3)$$

2.6 Macro Economic Policy

Macroeconomic policy plays an important role in maintaining macroeconomic stability or managing a country's economy. The aim of a country's macroeconomic policy is to achieve an "inflation-free" (non-inflationary) economy and stable growth [11], [12]. Under these conditions, fluctuations in the unemployment rate, production, and prices can be minimized and potential growth in real output can be achieved. Macroeconomic policy consists of two main instruments, namely monetary policy and fiscal policy. Monetary policy is carried out by the central bank, while fiscal policy is carried out by the Ministry of Finance. The implications and objectives of these two policies are often contradictory.

2.7 Monetary Policy

Monetary policy is an effort to control or direct the macro economy to the desired (better) condition by regulating the money supply. What is meant by better conditions is an increase in equilibrium output and or maintenance of price stability (controlled inflation) [11], [12]. Through monetary policy, the government can maintain, increase or decrease the amount of money in circulation in an effort to maintain the ability of the economy to grow, while controlling inflation.

2.8 Fiscal Policy

Fiscal Policy is an economic policy in order to direct economic conditions for the better by changing government revenues and expenditures. This policy is similar to monetary policy to regulate the money supply, but fiscal policy places more emphasis on regulating government revenues and expenditures. The instrument of fiscal policy is government revenues and expenditures which are closely related to taxes.

3 Research Methods

This research is a mini quantitative research, with the data presented is panel data. the variables contained in inflation are the Consumer Price Index (CPI), Gross Regional Domestic Product (GRDP), Aggregate Consumption for all Provinces in Indonesia in 2014 to 2019 published by the Ministry of Finance of the Republic of Indonesia (Kemenkeu RI), the Central Statistics Agency (BPS), and Bank Indonesia (BI).

Econometric Models:

$$INF_{rt} = \beta_0 + \beta_1 IHK_{PALG_{rt}} + \beta_2 IHK_{MJMR_{rt}} + \beta_3 IHK_{BM_{rt}} + \beta_4 PDRB_{rt} + \beta_5 AG_{rt} + \mu_{rt} \quad (4)$$

Where:

INF_{rt} = Inflation
IHK_PALGt = Consumer Price Index for Housing, Water, Electricity, Gas
IHK_MJMRt= Consumer Price Index of Prepared Foods, Beverages, Cigarettes
IHK-BMt = Consumer Price Index of Foodstuffs
$PDRB_t$ = Gross Regional Domestic Product
AG_t = Aggregate Consumption
β_0 = Konstanta
$\beta_{1,2,3}$ = Parameters
r = Province in Indonesia
t = Time period (20014-2019)
μ_{rt} = Error Term

3.1 Analysis Stage

Descriptive Analysis. The descriptive analysis method is a simple analytical method that can be used to describe the condition of inflation developments listed in the consumer price index in the 2014 to 2019 period by presenting in the form of tables and figure.

Inductive Analysis. *Correlation Assessment (R).* The correlation coefficient is indicated whether or not there is a strong relationship between the CPI, GRDP and Aggregate Consumption on Inflation.

Coefficient of Determination (R^2). The coefficient of determination is the percentage contribution of the variable CPI of Housing, Water, Electricity, CPI of Food, Beverage, Cigarettes, CPI of Foodstuffs, and GRDP Per capita and Aggregate Consumption to the Inflation variable, in this case corrected or adjusted R^2 is used with the formula [6]:

$$Adjusted\ R^2 = 1 - R^2 - \left(\frac{-1}{n-k}\right) \quad (5)$$

Where:
R^2 = Coefficient of determination
n = Number of Samples
k = Number of independent variables

Partial Test (t Test). Partial correlation test is used to determine whether each CPI of Housing Water Electricity, CPI of Food, Beverage, Cigarettes, CPI of Foodstuffs, GRDP Per capita and Aggregate Consumption affect Inflation.

Simultaneous Test (F Test). Multiple correlation tests or simultaneous tests were conducted to determine whether the CPI of Housing, Water, Electricity, CPI of Food, Beverage, Cigarettes, CPI of Foodstuffs, GRDP Per capita and Consumption Aggregate simultaneously affected Inflation.

4 Results and Discussion

4.1 Descriptive Analysis

Inflation Developments in Indonesia. The price index is a barometer of general economic conditions. With the price index, leaders or managers can manage existing data so that they can know the development of the business or activities carried out, such as to find out the factors that affect economic progress, as a measure of the level of economic progress, or as a tool for the government to set price policies (increase or lower prices). In this case, the process of rising prices is generally and continuously referred to as inflation. Several price indices that are often used to measure inflation include the Consumer Price Index (CPI).

The percentage change in index or inflation/deflation rate each month is obtained by subtracting the index (CPI sub-group/group/general) one month from the index (CPI sub-group/group/general) the previous month, then the result is divided by the index (CPI sub-group/group). /general) the previous month and multiplied by 100. The inflation/deflation rate can also be calculated from the index (subgroup/group/general CPI) of a month divided by the index (sub-group/general CPI) of the previous month, the result is reduced by 1, and multiplied by 100%.

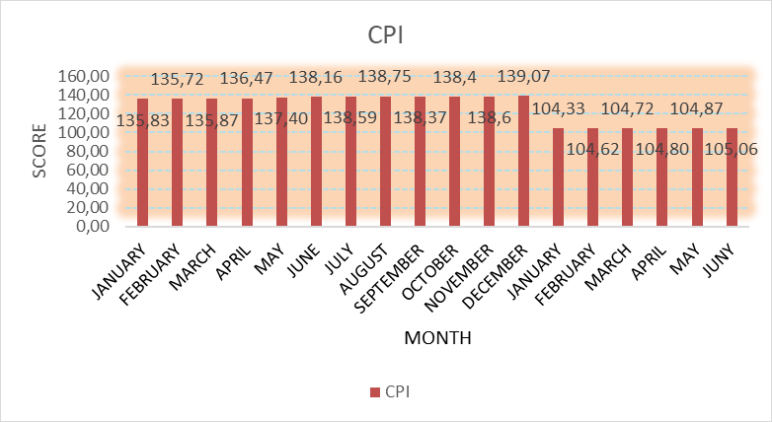

Fig. 4. Consumer Price Index 2019-2020

From fig. 4. it can be seen that the development of the consumer price index fluctuated from 2019 to 2020. the consumer price index in January 2019 was 135.83 in February the value of the consumer price index was 135.72 in March it increased by 135.87 and in April it increased to 136.47 then in May to December always experienced a change and an increase of 139.07 but in 2020 the Consumer Price Index in Indonesia fluctuated which decreased quite a bit in January 104.44 in February 104.62 in March 104.72 in April 104.80 in May amounted to 1104.87 and in June 2020 it increased slightly to 105.06. The decline in the Consumer Price Index in 2020 was caused by the decline in the level of public consumption in Indonesia caused by the weakening of the global economy so that the Indonesian people reduced the amount of their consumption.

Gross Domestic Product (GDP). Gross Domestic Product (GDP) is the value of all finished goods and services and is the value of all production obtained and made domestically, regardless of whether the product is made from factors of production originating from within the country or factors of production originating from other countries. used by the country. Gross Domestic Product can describe two things, first. The total income of each person and the total expenditure on all goods and services concerned. Because Gross Domestic Product is able to measure these expenses and income from the same currency. Second, GDP can also be interpreted as the value of goods and services for all sectors produced in a certain period of time from a country. Gross Domestic Product (GDP) is one of the indicators of Economic Growth. To see the success of development, it can be seen its economic growth. The higher the GDP of a country, the higher the economic growth of that country, thus the welfare of the people of that country will increase.

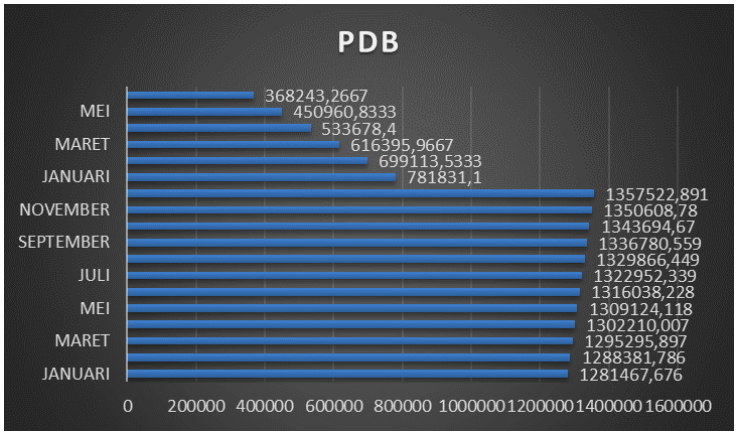

Fig. 5. Gross Domestic Product (GDP) 2019-2020

From fig. 5 During 2019, in the first quarter of 2019 the Gross Domestic Product in Indonesia was 1295295,897, in the second quarter of 2019 1309124,118, in the third quarter of 2019 it was 1322952,339 in the fourth quarter 1336780,559 the movement of the Gross Domestic Product in Indonesia experienced calm fluctuations Until January 2020, Indonesia's GDP was 781831.1 and in March it was 533678.4 and in June 2020 Gross Domestic Product was 368243.2667. The positive and increasing rate of growth as well as being the largest source of growth indicates the strength of these two categories in the national economy. The driving factor is the increasing market demand for domestic needs, especially before the month of Ramadan and the celebration of Eid al-Fitr. In addition, preparations for the continuation of general elections (elections) held in the second quarter of the year

4.2 Data analysis

From the processed data, the following table is obtained:

Table 2. Descriptive Statistics of Inflation

Date: 08/06/20 Time: 20:33
Sample: 2014 2019

	INFLASI	IHK_PERUM	IHK_MAKAN	IHK_BAHAN	AGREGAT_	PDRB_PERK
Mean	3.961527	123.3774	131.1972	133.8647	1070372.	288981.3
Median	3.300000	122.4300	131.6800	133.7700	969750.0	121787.6
Maximum	11.90000	156.6600	169.9900	166.9300	12116061	1838501.
Minimum	0.050000	105.7500	103.6200	106.3600	493088.0	19208.76
Std. Dev.	2.247234	8.835582	13.56256	12.78305	832187.0	408406.5
Skewness	1.183572	0.413066	0.187282	0.114119	11.63508	2.226609
Kurtosis	4.025501	3.472860	2.373077	2.419492	154.4845	6.995936
Jarque-Bera	56.29040	7.664008	4.511084	3.290985	198678.2	302.7970
Probability	0.000000	0.021666	0.104817	0.192918	0.000000	0.000000
Sum	804.1900	25045.62	26633.04	27174.54	2.17E+08	58663206
Sum Sq. Dev.	1020.113	15769.64	37156.51	33008.06	1.40E+14	3.37E+13
Observations	203	203	203	203	203	203

From the statistical results above, it shows that in the span of 2014-2020 the average inflation in Indonesia is 3.96%. Meanwhile, the average CPI of Housing, Water, Electricity and Gas is 123.37%. The average CPI of

Food, Cigarettes and Tobacco is 131.19%. Then the average CPI of Foodstuffs is 133.86 percent. The average Aggregate Consumption is 107.03 while the average GRDP in Indonesia is 288.98.

Regression Results

Table 3. Multiple Regression for Inflation

Dependent Variable: INFLASI
Method: Panel Least Squares
Date: 08/06/20 Time: 19:08
Sample: 2014 2019
Periods included: 6
Cross-sections included: 34
Total panel (unbalanced) observations: 203

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IHK_PERUMAHAN_AIR_LISTRIK_GAS_	-0.043843	0.027078	-1.619117	0.1070
IHK_MAKANAN_JADI_MINUMAN_ROKO	-0.033114	0.016125	-2.053613	0.0413
IHK_BAHAN_MAKANAN	-0.046682	0.015571	-2.998015	0.0031
AGREGAT_CONSUMSI	1.44E-08	1.65E-07	0.087338	0.9305
PDRB_PERKAPITA	4.90E-07	3.48E-07	1.407171	0.1610
C	19.80720	1.895119	10.45169	0.0000

R-squared	0.315987	Mean dependent var	3.961527
Adjusted R-squared	0.298626	S.D. dependent var	2.247234
S.E. of regression	1.882015	Akaike info criterion	4.131674
Sum squared resid	697.7703	Schwarz criterion	4.229602
Log likelihood	-413.3649	Hannan-Quinn criter.	4.171292
F-statistic	18.20125	Durbin-Watson stat	1.750936
Prob(F-statistic)	0.000000		

From the results of the processing of the data above, the adjusted R-Squared only has a value of 0.29 or 29% but all independent variables have a significant value to the dependent variable, meaning that the above model has a multicollinearity problem. For this reason, processing is carried out again using the Fixed Effect to eliminate the effect of multicollinearity.

Table 4. Multiple Regression Fixed Effect Inflation Model

Dependent Variable: INFLASI
Method: Panel Least Squares
Date: 08/06/20 Time: 19:09
Sample: 2014 2019
Periods included: 6
Cross-sections included: 34
Total panel (unbalanced) observations: 203

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IHK_PERUMAHAN_AIR_LISTRIK_GAS_	-0.111820	0.045766	-2.443280	0.0156
IHK_MAKANAN_JADI_MINUMAN_ROKO	0.002066	0.033871	0.060984	0.9514
IHK_BAHAN_MAKANAN	0.013699	0.028263	0.484683	0.6286
AGREGAT_CONSUMSI	1.02E-07	1.33E-07	0.768237	0.4435
PDRB_PERKAPITA	3.03E-07	2.43E-06	0.125030	0.9007
C	15.45585	7.961666	1.941284	0.0540

Effects Specification

Cross-section fixed (dummy variables)
Period fixed (dummy variables)

R-squared	0.749841	Mean dependent var	3.961527
Adjusted R-squared	0.682188	S.D. dependent var	2.247234
S.E. of regression	1.266874	Akaike info criterion	3.500178
Sum squared resid	255.1902	Schwarz criterion	4.218311
Log likelihood	-311.2681	Hannan-Quinn criter.	3.790706
F-statistic	11.08363	Durbin-Watson stat	2.722462
Prob(F-statistic)	0.000000		

Correlation Assessment. From the second processing above, it was found that the Adjusted R-squared value was 0.682 or 68.2% with a significant value below 5%, and the coefficient of determination was 74.9%, meaning that the contribution of the CPI of Housing, Water, Electricity, Gas, CPI of Food, Beverage, CPI of Foodstuffs, GRDP Per capita and Consumption Aggregate on Inflation in Indonesia, while the remaining 25.1 % is the contribution of other variables that are not included in the estimation model or are in the disturbance error term, such as interest rates or exchange rates.

Correlation Coefficient (R^2). Inflation in Indonesia has a degree of closeness to the CPI of Housing, Water and Electricity, CPI of Food, Beverage and Cigarettes, CPI of Foodstuffs, GRDP Per capita and Aggregate Consumption is R 0.682188, the closeness of this relationship needs to be tested for truth by using a correlation test partial and multiple correlation test.

Interpretation of Results. From multiple linear regression model;

$$INF_{rt} = \beta_0 + \beta_1 IHK_{PALG_{rt}} + \beta_2 IHK_{MJMR_{rt}} + \beta_3 IHK_{BM_{rt}} + \beta_4 AG_{rt} + \beta_5 PDRB_{rt} + \mu_{rt} \quad (6)$$

It can be formed from the processed data contained in table 4. using the results of the fixed effects model as follows:

$$INF = 15.45585 - 0.111820\ IHK\_PALG + 0.002066\ IHK\_MMR + 0.013699\ IHK\_BM + 1.02E\text{-}07\ AG + 3.03E\text{-}07\ PDRB \quad (7)$$

From the estimation results obtained from the above model, an interpretation can be made as follows:

β_1= -0,111820, it is interpreted that if there is an increase in the CPI of Housing, Water, Electricity and Gas by 1 billion, then Inflation is estimated to decrease by 0.111820%. with a deviation of prediction changes ranging from 0.045766%. The large probability value of 0.0156 is still below 5%, (prob < = 5%). It means; the above estimate is correct, and it can be concluded that 'There is a significant relationship between the increase in the CPI of Housing, Water, Electricity and Gas to the decrease in inflation.

β_2= 0.002066 , it is interpreted that if there is an increase in the CPI of Food, Beverage and Cigarette by 1 billion, then Inflation is estimated to increase by 0.002066%, with a deviation of prediction changes around 0.033871%. The big probability value is 0.9514, it turns out to be above 5%, (prob > = 5%). Which means that the forecast above is not correct, so it can be concluded that 'there is no significant relationship between the increase in the the CPI of Food, Beverage and Cigarette to the increase in Inflation.

β_3= 0.013699 , it is interpreted that if there is an increase in the CPI of Foodstuffs Price Index by 1 billion, then Inflation is estimated to increase by 0.013699%, with a deviation of prediction changes around 0.028263%. The probability value is 0.6286, and it turns out that it is still above 5%, (prob > = 5%). Which means that the prediction above is not true, so it can be concluded that 'there is no significant relationship between the increase in the CPI of Foodstuffs and the increase in inflation.

β_4= 1.02E-07 , it can be interpreted that if there is an increase in Aggregate Consumption by 1 billion, then Inflation is expected to increase by 1.02E-07% or equivalent to 0.000000102%, with deviations from prediction changes ranging from 1.33E-075 or 0.000000133 %. It can be seen that the probability value is 0.4435, and it is still above 5%, (prob > = 5%). Which means that the prediction above is not correct, so it can be concluded that there is no significant relationship between the increase in Aggregate Consumption and the increase in Inflation.

β_5= 3.03E-07, it can be interpreted that if there is an increase in GRDP per capita by 1 billion, then Inflation is estimated to increase by 3.03E-07% which is equivalent to 0.000000303%, with a deviation of changes in predictions of around 2, 43E-06% or 0.00000243%. It can be seen that the probability value is 0.9007, and is above 5%, (prob > = 5%). Which means that the prediction above is not correct, so it can be concluded that 'there is no significant relationship between the increase in GRDP per capita and the increase in inflation.

4.3 Statistic test

Partial Correlation Test. The partial correlation test used the t statistic test, of the 5 observed variables, namely the CPI of Electric Water and the CPI of Food and Beverages, as well as the CPI of Foodstuffs and GRDP per capita and Aggregate Consumption, each of which affects inflation substantially. The only significant variable is the CPI of Housing, Electric, Water, the rest is uncorrelated and significant, it can be seen from each probability value, if the probability value is < 5% then it is significant, if the probability value is > 5% then it is not significant.

Simultaneous Correlation Test. Simultaneous correlation test using the F statistical test, simultaneously all independent variables CPI of Housing, Water, Electricity and CPI of Food, Beverage, Cigarettes as well as CPI of Foodstuffs and GRDP Per capita and Aggregate Consumption have a significant effect on Inflation in Indonesia, because the probability value is 0.000005 and below =5%.

4.4 Classic assumption test

Multicollinearity Test. The requirement of a good regression model is that it should be free from multicollinearity, and it can be seen that there is no multicollinearity found, because there is no sign of a changing coefficient (according to the hypothesis).

Heteroscedasticity Test. A good regression model is one that is free from heteroscedasticity. For this reason, it can be done by looking at the scatterplot graph between the predicted value of the inflation variable and its residual.

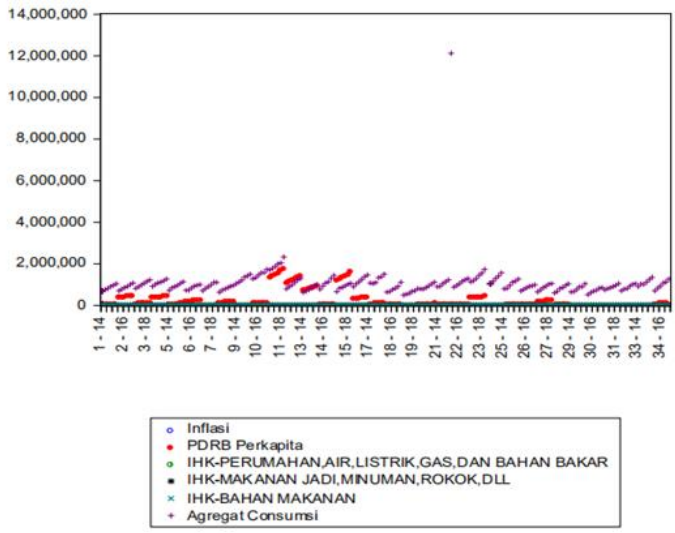

Fig. 6. Scatterplot of the Inflation Model

The figure above shows that the dots spread out in clusters and spread upwards towards the Inflation axis. Thus, it can be concluded that there is no heteroscedasticity

Autocorrelation Test. For the autocorrelation test, the Durbin Watson statistical test was used, namely by looking at the value (D-W) obtained.

In the inflation model above, the D-W value is 1.420580, meaning that the model used is free from autocorrelation problems.

Hausman test. To determine the regression model for the panel data, a significant test was conducted between the Fixed Effect and Random Effect models to find out which model is more appropriate to use. Here are the test results.

Table 5. Hausman test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	65.312641	5	0.0000

** WARNING: estimated cross-section random effects variance is zero.

It can be seen that the probability value of the random effect is 0.000 or 0.0%, which means that the probability value is < 0.05, meaning that the Multiple Linear Regression model above is a fixed effect model.

5 Conclusions and Recommendations

5.1 Conclusion

Inflation which is the contribution of the CPI of Housing, Water and Electricity, CPI of Food, Beverage and cigarettes, CPI of Foodstuffs, and GRDP Per capita and Consumption Aggregate is 74.9%, while the remaining 25.1% is explained by other variables such as interest rates, exchange rates etc

Taken together the CPI of Housing, Water and Electricity, CPI of Food, Beverage and cigarettes, CPI of Foodstuffs, and GRDP Per capita and Consumption Aggregate have an effect on Inflation.

5.2 Suggestion

Although the Consumer Price Index is not the only variable or sector that supports national development, if the Consumer Price Index is at a high level, it will also have a positive impact on national development. The government must stabilize the rate of inflation in Indonesia in order to support the welfare of the Indonesian people.

Inflation is not only measured by the Consumer Price Index. If the rate of inflation is large, it shows that the level of quality of community resources is also large. So that with a large level of community quality, it will directly or indirectly encourage economic growth. so that a policy is needed to improve the quality of human resources in Indonesia.

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