

Measuring the Contribution of Strategic Commodities to Persistent Inflation; An Effort to Stabilize the Economy

Ecces: Economics Social and Development Studies

Farid Abidin^{1*}, Lustina Fajar Prastiwi²

^{1, 2} Department of Development Economics, Faculty of Economics and Business,
Malang State University-Indonesia
E-mail: farid.abidin.1904326@students.um.ac.id*

(Article history) Received: 2023-05-25, Revised: 2023-06-26, Accepted: 2023-06-26,

Available online: 2023-06-29, DOI: [10.24252/ecc.v10i1.37856](https://doi.org/10.24252/ecc.v10i1.37856)
Stable URL: <http://journal.uin-alauddin.ac.id/index.php/ecc/index>

Abstract: Measuring the Contribution of Strategic Commodities to Persistent Inflation; An Effort to Stabilize the Economy

This study aims to analyze the level of inflation persistence in the expenditure group and its contribution to eleven commodities or groups of goods/services towards the formation of inflation persistence in Blitar Regency. In addition, this study also looks at the role of the Regional Inflation Control Team in controlling inflation in the regions. This study uses monthly inflation and CPI time series data for 11 commodity groups from 2020 - 2022 recorded by the Blitar Regency Central Agency on Statistics and Central Bank of Indonesia. This period was during the pandemic and after the pandemic, when the increase in demand for public consumption led to an increase in commodity prices. In addition, Blitar Regency also has high inflation compared to other cities/regencies in East Java, especially rice and eggs which are prone to rising inflation rates. Therefore, proper inflation control is needed in accordance with the causes and characteristics of inflation. In these areas, it is necessary to carry out research related to the persistence of inflation so that the determination of government policies is right on target. This research method is the Univariate Autoregressive Model (AR) and Partial Adjustment Model (PAM) approaches. The result is evidence that inflation in Blitar Regency has a high level of persistence which is reflected in the time it takes for inflation to return to its equilibrium level, which is 19 months. The persistence of inflation in Blitar Regency was influenced by shocks that occurred in the housing, water, electricity, gas, and fuel groups, as well as the transportation group as representatives of the administered prices component and the food, beverage, and tobacco group. as a volatile food component. In addition to controlling volatile food component inflation due to shocks such as bad weather, the Regional Inflation Control Team can collaborate with relevant agencies to use technology to minimize the impact of climate change, maximize the

potential of regional superior products/commodities, and maximize production to maintain supply availability.

Keywords : Inflation Persistence; Volatile Foods; Administered Prices; CPI

INTRODUCTION

High inflation illustrates the uncertainty in the economy, where the price of goods and services tends to rise continuously, thus impacting the poverty rate in Indonesia. The occurrence of inflation will eventually lead to poverty, and the inflation rate in Indonesia will fluctuate from year to year. Pohan (2008) emphasized that inflation significantly impacts the success of macroeconomic policies, such as a country's economic growth and development, the balance of payments stability, employment prospects, and income distribution. The research findings of Salim & Fadilla (2021) show that inflation hurts a country's economic growth and development, where the economic growth rate will decrease as the inflation rate increases.

Efforts to achieve sustainable economic growth require appropriate policies and, of course, controlled and stable inflation conditions (Central Bank of Indonesia, 2020b). A low inflation rate at the deflation level is unsuitable for the economy because it will depress economic growth. An inflation rate that is too high is also not good for the economy, which will reduce people's purchasing power and hamper a country's economic activity.

The Inflation Targeting Framework (ITF) is a Central Bank of Indonesia policy that announces the inflation target to be achieved and implements a policy in an effort to achieve the predetermined inflation target. The government and Central Bank of Indonesia will use this policy to achieve controlled and stable inflation. Society can use the inflation target to guide future economic activities (Juhro et al., 2009).

Table 1. Target Inflation and Actual Inflation in 2018-2022

Year	Inflation Target	Actual Inflation
2018	3.5±1%.	3,13
2019	3.5±1%.	2.72
2020	3±1%	1.68
2021	3±1%	1.87
2022	3±1%	5,51

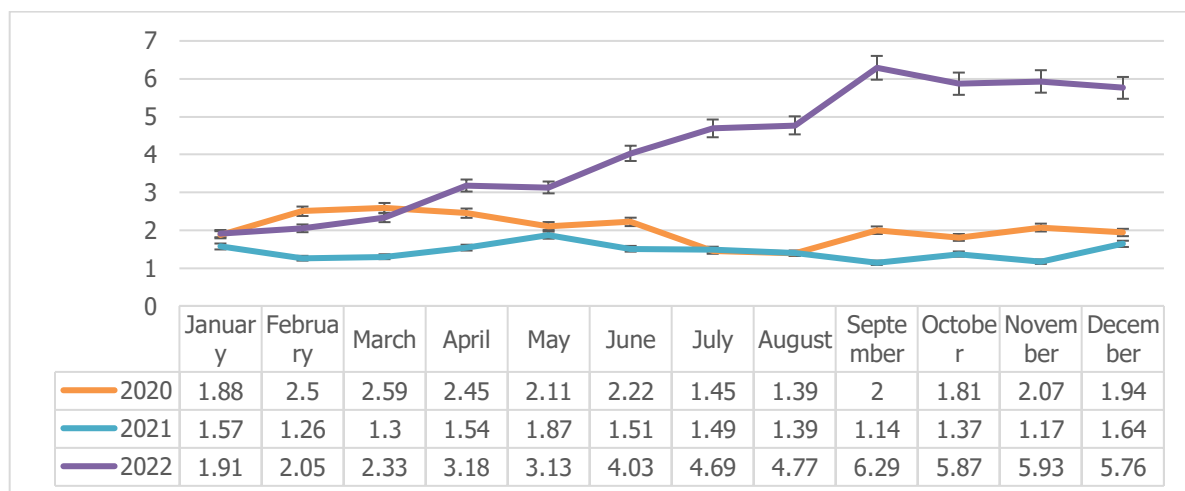
Source: Central Bank of Indonesia, 2022

Based on Table 1, it can be seen that actual inflation from w to 2021 is still below the

inflation target set by the government of $3 \pm 1\%$. While in 2022, actual inflation will increase to exceed the predetermined inflation target. Factors such as low public purchasing power, stable food prices, and adequate supply can influence the low inflation rate. The decline in inflation in 2019-2021 is the impact of the COVID-19 pandemic accompanied by low public consumption demand. Meanwhile, 2022 inflation jumped from 1.87% to 5.51%, largely influenced by inflation in administered prices *and* volatile *foods*.

Samuelson and Nordhaus (2009) explained that demand factors, supply factors, and inflation expectations can influence inflation. Inflation from the demand factor is caused by the high demand for goods and services that exceeds their availability. In contrast, factor supply inflation is caused by an increase in production costs which will impact reducing the amount of production and increasing selling prices which will trigger inflation.

Figure 1. Blitar Regency Inflation in 2020-2022



Source: Central Agency on Statistics, 2022

The Blitar Regency inflation rate jumped from 1.64% to 5.76% in 2022. This increase was due to rising gasoline prices, which underwent price adjustments in early September. The *core* inflation group also experienced inflation of 0.09% which was mainly driven by an increase in the wages of household assistants and a group of volatile foods such as rice, chicken eggs, red chilies, shallots, and cayenne pepper which were corrected (Blitar Regency Statistics Center, 2022). In 2020-2021, inflation will remain low due to a slowdown in domestic demand due to the Covid-19 pandemic, slowing inflation in the volatile foods group, and deflation in the administered prices group (Haryono, 2022).

Each region must understand its respective region's inflation behavior to achieve a stable inflation rate that aligns with the ITF's inflation target. According to Robalo Marques (2004),

inflation persistence is the rate at which inflation recovers to its equilibrium level after a shock occurs, so inflation persistence can be used to analyze inflation behavior. The level of inflation persistence is said to be high if the return is slow to the natural inflation rate. Conversely, the persistence level is low if it quickly returns to the natural inflation rate (Arimurti & Trisnanto, 2011).

Various studies related to the persistence of inflation, in general, have been carried out before, both at the provincial, national, and regional levels; among other things, the persistence study by Arimurti and Trisnanto (2011) on the persistence of inflation in Jakarta, found that the city exhibits a significant level of inflation persistence. According to estimates, the food, beverage, tobacco, and health groups have the highest inflation persistence. Commodities showing the highest level of persistence included sugar, rice, cooking oil, beef, real estate contracts, and rent.

Hidayati (2013) conducted a study to determine the persistence of inflation in East Java. The study's findings indicate that East Java's inflation persistence is relatively high. The prices of food and housing, water, electricity, gas, and fuel are the most significant contributors to inflation. Based on the study's findings, East Java's inflation rate began to decline after the Regional Inflation Control Team was formed.

In a different study, Iskandar (2017) examines ongoing inflation in South Sulawesi. This study shows that South Sulawesi has a high inflation rate. This was influenced by the shock in the volatile food component and the administered prices component, which included the food and housing group, water, electricity, gas, and fuel.

Ridhwan (2016) examines the development of food commodity prices which often contribute to inflation in various regions in Indonesia, and the variables that affect the persistence of Indonesian inflation, especially red chilies, shallots, beef, and broiler meat. Based on the study findings, most provinces in Indonesia have high inflation persistence. The lack of supply and the domination of distributors and wholesalers, which significantly impact selling prices, are the main reasons for high inflation in the regions.

Inflation in Indonesia is formed by the combined contribution of regional inflation with a weight of up to 81%. Therefore, a study of regional inflation at the Regency/City level is needed; this research will focus on Blitar Regency. Throughout 2022, especially in February and June, Blitar Regency had the highest inflation rate in East Java. In addition, this area is a commodity-producing area that contributes most to the inflation of volatile food components such as rice and eggs. Seeing the data on inflation developments and these problems, it is

necessary to study the persistence of inflation and the causes of inflation persistence in Blitar Regency. This is done to distinguish sources of inflationary pressure, both fundamental and non-fundamental. Identification of inflation persistence sources is also used to determine which policies are appropriate to deal with these problems following the inflation sources. Considering that each region has different problems and inflation characteristics, it is necessary to study inflation persistence in each region to understand its inflation behavior. Studies on the persistence of inflation are carried out so that the government can apply policy strategies that are right on target based on inflation behavior in the regions concerned.

The novelty of this study is to estimate or measure the degree of persistence of inflation in the expenditure group and to measure the length of time it takes for inflation to return to its equilibrium point. In addition, this study wants to know the proportion of expenditure groups that contribute to inflation persistence in Blitar Regency. This study will serve as a valuable complement to previous research on the persistence of inflation at the sub-national level in Indonesia and the underlying factors, as previous studies have concentrated more on provinces than regions. This study also aims to determine whether the inflation persistence observed in Blitar Regency aligns with the pattern of inflation observed at the provincial and national levels. Furthermore, this research can be used as a reference in determining inflation control measures in the regions that are right on target and effective by looking at the source of the cause.

LITERATURE REVIEWS

The Central Agency on Statistics (2023) defines inflation as a tendency for the prices of goods and services to continue to increase. The existence of inflation will eventually cause a decrease in the value of money as a result of rising prices for goods and services in general. According to Samuelson and Nordhaus (2009), inflation is defined as an increase in the overall price level. According to New-Keynesian economic theory, demand, supply, and expectations can exert inflationary pressure. According to Central Bank of Indonesia's classification (2020), inflation can be categorized into two types: core and non-core. Core inflation refers to inflation arising from fundamental factors that last a long time or are persistent in the inflation process; these fundamental factors include (1) Factor Demand Inflation caused by high demand for goods and services exceeding their availability ; (2) Supply Factor Inflation caused by an increase in commodity prices, which causes an increase in production input goods /increase in production costs ; (3) Inflation Expectations are influenced by the decision-making behavior of people's economic activities.

According to Central Bank of Indonesia (2020), non-core inflation is caused by temporary disturbances and causes high price volatility. Non-core inflation is influenced by non-fundamental factors, which include : (1) Volatile food inflation, the phenomenon of volatile food inflation, especially the food sector, is influenced by various factors such as fluctuations in yields, natural disturbances, and changes in national and global food commodity prices ; (2) Inflation is the component of administered prices, the main driver of inflation is policy shocks originating from the government, including increases in fuel prices, transportation fares, and electricity rates.

According to the quantity theory, as proposed by Irving Fisher, an increase in the money supply will lead to a corresponding increase in the prices of commodities and amenities. Milton Friedman developed an enhanced version of the quantity theory, which evolved into the theory of money demand. According to this theory, several economic variables, such as interest rates, economic expansion, and price levels, influence the demand for currency in a given society. The basic principle of the quantity theory argues that inflation arises from an excess of the money supply relative to the demand for both demand deposits and currencies. In addition to the impact of the expansion rate of the money supply, inflation is also influenced by public expectations of future price increases (Suseno & Astiyah, 2010).

On the other hand, Structuralist Theory argues that inflation is caused by two economic rigidities, especially in developing countries: First, export earnings rigidity, namely, the value of exports, increases slowly compared to growth in other sectors. This is caused by the inability of the production of goods to adjust to rising prices. Second, rigidity in foodstuffs, i.e., an imbalance in domestic food production with population growth and per capita income growing faster, results in a rigid food supply causing domestic food costs to be higher than prices of other goods (Suseno & Astiyah, 2010).

Angeloni (2006) defines Inflation persistence as the gradual convergence of inflation to its long-term value after economic shocks. According to the findings of Robalo Marques (2004), inflation persistence shows the speed at which inflation returns to the equilibrium level after a *shock occurs*. Willis (2003) defines inflation persistence as the duration needed to return to equilibrium after an economic shock occurs. High inflation persistence is characterized by a slow return to the natural inflation rate. On the other hand, it is widely believed that the persistence rate is considered low in cases where there is a rapid return to the baseline level of inflation. The term "shock" can apply to various things, including government actions, distribution disruptions, weather changes, and natural disasters. It is crucial to conduct research

on inflation persistence in order to learn more about how to increase the effectiveness of a monetary policy, understand the dynamic effects of exogenous variable shocks, and determine whether various monetary policies will affect inflation persistence differently (Arimurti & Trisnanto, 2011).

The approaches commonly used in estimating inflation persistence are univariate and multivariate. The fundamental difference between the two approaches is their ability to examine the different sources of disturbances or shocks that impact inflation. Multivariate techniques can examine various forms of disturbances and identify the disturbances that directly impact the level of inflation persistence. The source of disturbance cannot be analyzed further using a univariate approach because all types of disturbance are total shocks that will be combined into one parameter. The univariate technique emphasizes the time series, while the multivariate approach includes other variables such as central bank interest rates and actual output (Dossche & Everaert, 2005).

The monetary policy pursued by Central Bank of Indonesia aims to mitigate inflationary pressures resulting from an imbalance between supply and demand for goods and services. Implementing monetary policy needs to sufficiently dampen inflationary pressures arising from exogenous shocks. Indonesia's inflation vulnerability to supply-side shocks requires collaborative and coordinated efforts between the government and Central Bank of Indonesia, which include integrated monetary, fiscal, and sectoral policies to achieve the inflation target. (National Working Group Implementation Team, 2014) .

Given the need for cooperation in achieving low and stable inflation, the Government of Indonesia and Central Bank of Indonesia jointly formed a Regional Inflation Control Team to produce healthy and consistent economic growth in all regions. The primary duties and responsibilities of the Regional Inflation Control Team are to oversee and formulate steps to overcome inflation problems, especially in the regions (Instruction of the Minister of Home Affairs of the Republic of Indonesia, 2013).

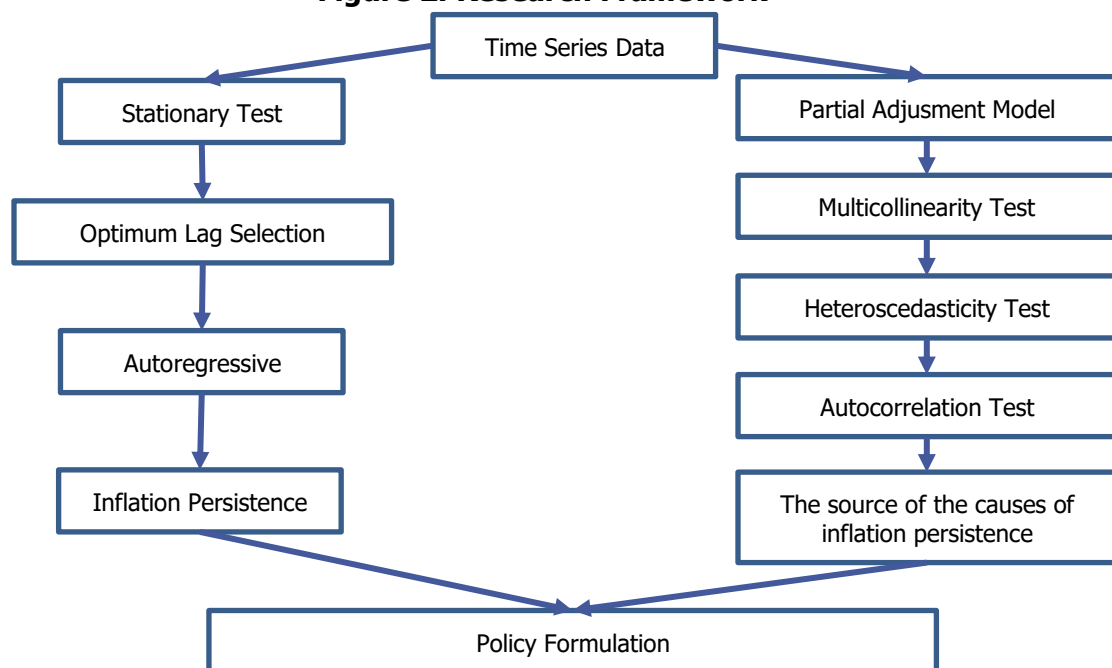
METHODS

This study uses a quantitative approach. According to Sugiyono (2013), quantitative research aims to test hypotheses by conducting in-depth studies of the target population or sample, collecting data through research instruments, and analyzing the results numerically and statistically.

Researchers focus on inflation in Blitar Regency for the 2020-2022 period. This study uses this period because it is the year of the Covid and post-Covid recovery where there is a

change in demand for public consumption which causes an increase in commodity prices. In addition, Blitar Regency is also recorded as having high inflation compared to other cities/regencies in East Java and is a commodity-producing area that contributes to the highest inflation, namely rice and eggs which are prone to increasing inflation rates. Therefore, proper inflation control is needed according to the causes and characteristics of inflation. In these areas, research related to the persistence of inflation is needed so that the determination of government policies can be right on target, otherwise inflation in the area will get worse. This study utilized secondary data from the Blitar Regency Statistics Center for 2020-2022. Walliman (2021) defines secondary data as information that has been read, interpreted, and documented in media such as magazines, newspapers, news, documentaries, advertisements, the internet, etc.

Figure 2. Research Framework



Source: Secondary data output after processing, 2023; (Farid, 2023)

The East Java, Consumer Price Index fills the population of this study. According to Sugiyono (2013), a population consists of things or subjects with certain traits and characteristics that researchers choose to investigate and draw conclusions from. The sample is representative of the object or subject population. The research sample consisted of eleven Blitar Regency Consumer Price Index (CPI) commodity categories for the 2020-2022 period, with the calculation of the 2018 base year. $CPI = 100.11$ The commodity groups include (i) the Food, Beverage, and Tobacco Group; (ii) the Clothing and Footwear Group; (iii) Housing, Water,

Electricity and Household Fuel Groups; (iv) Equipment, Equipment, and Household Routine Maintenance Group; (v) Health Group; (vi) Transportation Group; (vii) Information, Communication, and Financial Services Group; (viii) Recreation, Sports and Culture Groups; (ix) Education Group; (x) Food and Beverage/Restaurant Provision Group; (xi) Group Personal Care and Other Services.

Univariate autoregressive (AR) time series model analysis estimates inflation persistence. Autoregressive time series (AR) models are often used as a methodological approach in empirical research, as evidenced by many studies (Farida, 2020). According to the findings of Robalo Marques (2004), the AR model is a reasonably accurate model for estimating the level of inflation persistence. According to Arimurti & Trisnanto (2011), inflation persistence is high if the coefficient value is > 0.80 , which means that inflation persistence is said to be high if the estimated inflation persistence coefficient is close to 1. Determining the inflation persistence level involves adding the autoregressive Coefficient (AR):

$$\rho = \sum_{j=1}^k \beta_j \quad (1)$$

The duration needed for inflation to absorb the impact of the shock and return to equilibrium is estimated using the following equation:

$$h = \frac{1 - \rho}{\rho} \quad (2)$$

The variable h' indicates the duration required for inflation to assimilate the shock and return to its equilibrium level, while ρ' represents the estimated inflation persistence rate.

The next step is to use the *Partial Adjustment Model* (PAM) technique to look at the causes of inflation persistence :

$$Y_t = \gamma\beta_0 + \gamma\beta_0 X_t + (1 - \gamma) Y_{t-1} + v_t \quad (3)$$

One component of the *Autoregressive model* is the *Partial Adjustment Model* (PAM). The equation used in this estimation, which is based on the fundamental equation model, is as follows:

$$\begin{aligned} \text{INF}_t = & \beta_0 + \beta_1 \text{MAKANAN}_t + \beta_2 \text{PAKAIAN}_t + \beta_3 \text{PERUMAHAN}_t + \beta_4 \text{PERLENGKAPAN}_t \\ & + \beta_5 \text{KESEHATAN}_t + \beta_6 \text{TRANSPORTASI}_t + \beta_7 \text{INFORMASI}_t \\ & + \beta_8 \text{REKREASI}_t + \beta_9 \text{PENDIDIKAN}_t + \beta_{10} \text{RESTO}_t + \beta_{11} \text{PRIBADI}_t \\ & + (1 - \delta) \text{INF}_{t-1} + v \end{aligned} \quad (4)$$

INF is the Inflation Rate; FOOD is the Price Index for the Food, Beverage, and Tobacco Group; clothing is the Price Index for the Clothing and Footwear Group; HOUSING is the Price Index for Housing, Water, Electricity, and Household Fuel Groups; EQUIPMENT is the Price Index for Equipment, Equipment, and Routine Household Maintenance; HEALTH is the Health Group Price Index; TRANSPORTATION is the Price Index for the Transportation Group; INFORMASI is the Price Index for the Information, Communication and Financial Services Group; RECREATION is the Recreation, Sports and Culture Group Price Index; EDUCATION is the Education Group Price Index; RESTO is the Price Index for the Food and Beverage/Restaurant Supply Group; PERSONAL is the Group Price Index for Personal Care and Other Services; β_0 is a Constant; β_0 to β_{11} is the Coefficient; while v_t is *the Error terms*.

RESULTS AND DISCUSSION

Overview of Inflation in Blitar Regency

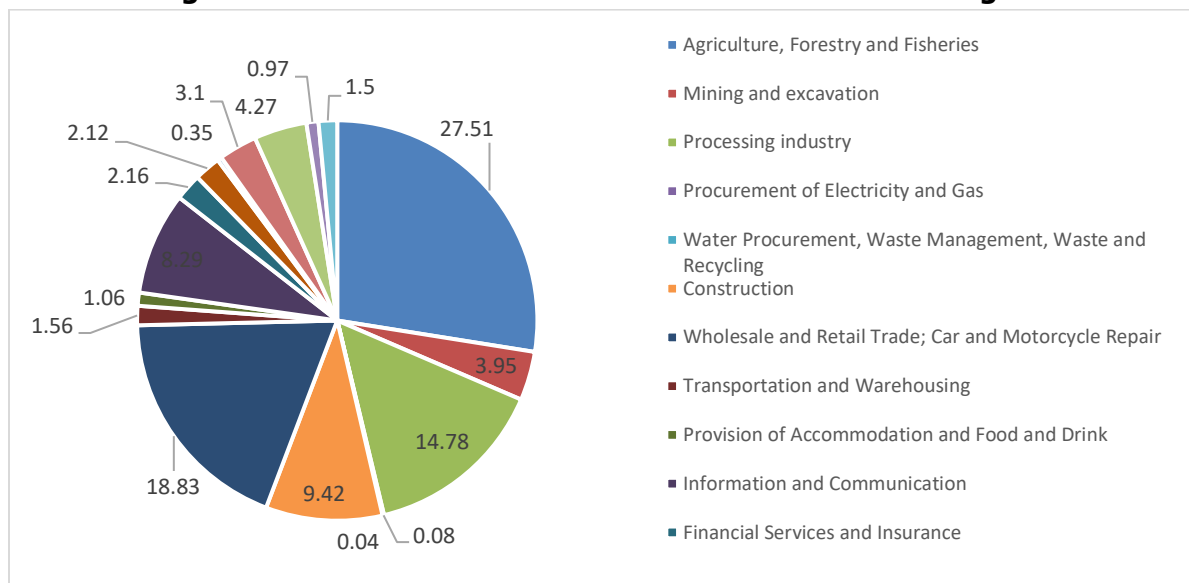
Based on the book Blitar Regency in figures (2023), an overview of inflation in Blitar Regency and its developments by sector and commodity can be described in Figure 2. Based on that, GRDP at Constant Prices for Blitar Regency in 2022 was recorded at 27,037,331.1 billion rupiahs. The GRDP statistics show an increase of around 5.20%, but the agriculture, forestry, and fishery sectors are still the most significant contributors to Blitar Regency's GRDP. This industry contributes 27.51% of the GRDP of Blitar Regency, or Gross Domestic Product. With a contribution of 18.83 percent, the wholesale and retail trade sector, Car and motorcycle repair ranks second after the manufacturing industry, contributing 14.78 percent.

Meanwhile, the development of GRDP and its components is described using GRDP at Constant Prices in 2010. GRDP at Constant Prices data shows that the GRDP growth rate for Blitar Regency in 2022 is 5.20 percent. Meanwhile, the sector with the highest GRDP growth was the Transportation and Warehousing sector, which experienced a GRDP growth of 17.75 percent.

The agricultural sector is the backbone of the economy of Blitar Regency, agricultural sector products such as food crops, plantation products, horticulture, and livestock have very high potential. The production of horticultural crops in Blitar Regency, such as bird's eye chilies,

shallots, and tomatoes, was around 446,746 tons, 49,110 tons, and 43.20 tons, respectively. Apart from being the largest exporter of agricultural products in East Java, Blitar Regency is also the largest exporter of livestock products. By transitioning from Agriculture to Agro-industry, Blitar Regency is also innovating to boost the competitiveness and value of agricultural products. In addition, economic potential, such as tourist areas, must be fully realized and maximized.

Figure 3. 2022 GRDP at Constant Prices Distribution Diagram



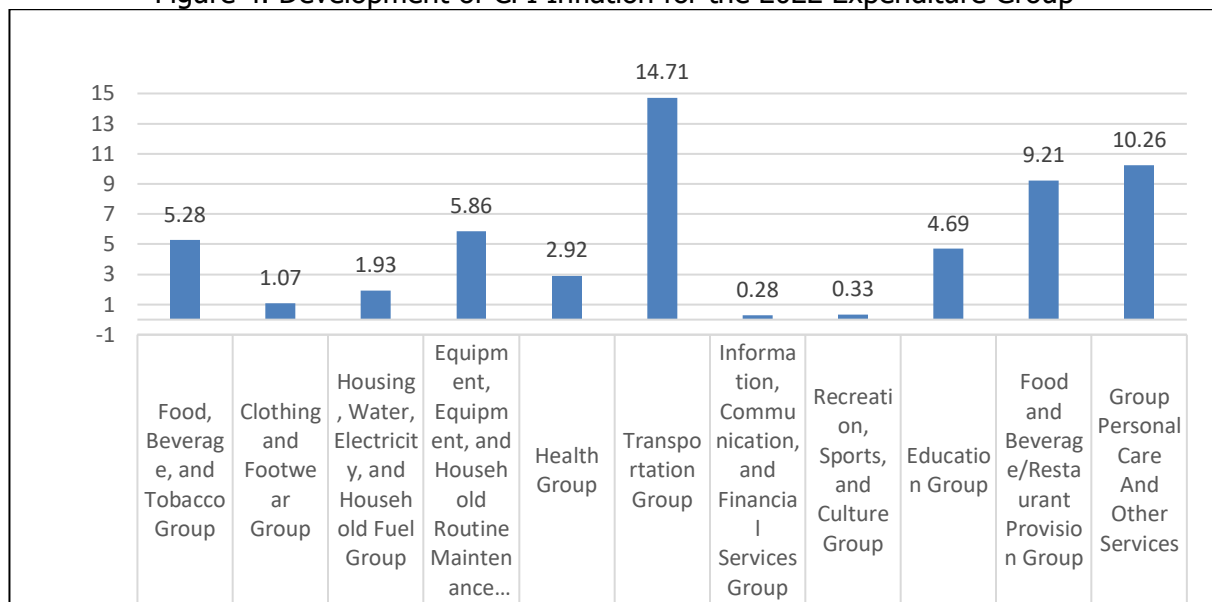
Source: Central Agency on Statistics, 2023

Commodities such as rice, chicken, and eggs are the leading commodities produced in the agricultural area of Blitar Regency, with a harvested area of 50,069 ha and rice production of 2,358,912 quintals in 2022, the productivity level of rice in Blitar Regency reaches 80.42 quintals/ha. The laying hen farming sector is a sector that has a significant influence on the livestock industry in Blitar Regency. Nationally, Blitar Regency is the leading producer of chicken meat and eggs. In 2022 Blitar Regency had a population of laying hens reaching 15,910,500 and broiler populations reaching 6,354,000 million, while production in each sector is eggs of purebred chickens of 157,183,606 tons, or if calculated, daily productivity reaches more than 420 tonnes/day. Meanwhile, the production of chicken meat was 13,986,000 tons. In addition, beef cattle farming is the second sector with a significant effect, with a population reaching 141,962 in 2022. One of the leading commodities in the fisheries sub-sector in Blitar Regency is Koi Fish which has shown relatively good development in recent years.

Inflation in Indonesia is measured using the CPI change. The Consumer Price Index (CPI) is the primary economic indicator for measuring inflation and deflation because it relates to the

purchasing power of the general public. Indonesia's Consumer Price Index (CPI) uses 2018 as the base year. The Consumer Price Index can track the cost of living, including food, clothing, housing, transportation, and medical care. The Consumer Price Index is used because it can show an increase in the cost of living, including goods and services routinely consumed by the general public. The development of CPI inflation in Blitar Regency in 2022 is presented in figure 4

Figure 4. Development of CPI Inflation for the 2022 Expenditure Group



Source: Central Agency on Statistics, 2023

Based on the 2022 expenditure group inflation development data, the group that contributed the most to inflation was the transportation group which showed an increase of 14.71% (yoy); the Food, Beverage, and tobacco group came in second place, which contributed 5.28% (yoy), and the personal care group which experienced a contraction of 10.26% (yoy). Furthermore, based on inflation disaggregation analysis, inflation is grouped into core *and* non-core inflation (volatile food and administered prices). Core inflation is inflation caused by fundamental factors such as inflation in demand, supply, and inflation expectations; *volatile food* is inflation caused by shocks in foodstuffs such as crop failure and distribution disruptions, while administered prices are inflation that arises as a result of shocks to government policies such as an increase in fuel prices. Inflation segregation produces an inflation index reflecting fundamental factors' influence (Central Bank of Indonesia, 2020).

Inflation Control in Blitar Regency

An area's economy can be stimulated by low and stable inflation, which in turn affects people's purchasing power, income distribution, and the amount of productive investment in

that area. According to the book Secretariat of the Central Inflation Control Team (2019), the Blitar Regency Regional Inflation Control Team implemented the 4K program as part of the control program delegated from the center to the regions, These 4k programs include:

The first program is the affordability of prices; creating affordability is an effort to maintain people's purchasing power. Efforts to create affordability must consider several aspects, including target accuracy, execution time, location, and community dynamics. Affordability can be realized through market operation policies or low-cost markets that can be applied when prices change, especially during National Religious Holidays, budget allocations for subsidies, assistance, and social security guarantees to create affordable prices.

The second program: Availability of Supply, takes into account the characteristics of an area; it is necessary for TPID's efforts to secure the ideal amount of supply because the amount of supply of a good and service directly impacts price increases. The availability of an ideal supply needs to pay attention to the needs over time and regions according to the characteristics of each area. Supply availability can be realized through allocating Regional Government Food Reserves, reforming crop management and food trading systems, provision warehouses, agricultural and supporting infrastructure, maximizing agricultural extension services, and implementing policies to increase other production capacities and inflation control policy strategies.

The third program: Is smooth distribution; the smooth distribution of goods will reduce logistics costs, thereby preventing an increase in the cost of goods. Smooth distribution can be hampered by inadequate infrastructure and facilities, poor connectivity between infrastructure, natural disasters, and others. In addition, law enforcement officials must be involved in controlling distribution so that they can anticipate price manipulation and hoarding of goods. Regional Cooperation with Other Regions is based on Government Regulation Number 28 (2018) to ensure smooth distribution and anticipate price fluctuations. Inter-regional trade can encourage the strengthening of economic institutions, maintain the stability of supply and prices of essential commodities, and improve people's welfare. Inter-regional trade can fulfill the distribution of products and commodities other regions need. smooth distribution can be achieved by procuring the central rice market.

The fourth program: Effective Communication, a policy strategy such as effective communication, is needed to maintain people's expectations of inflation. Strategic food price information systems can be developed to produce effective communication. Development of Strategic Food Price Information Center Data as a national-scale food price coordination

system. Strategic Food Price Information Center Data aims to provide access to information for the general public to identify different information, direct people's expectations, and become the primary basis for the government in monitoring and designing policies related to stabilizing food prices in the regions.

Descriptive Analysis Results

Table 2. Descriptive Statistics

	INFLATION	FOOD	CLOTHES	HOUSING AREA	EQUIPMENT	HEALTH
Means	2.54	4.01	0.74	1.08	2.15	2.91
Median	1.97	3.50	0.73	0.81	1.81	2.79
Maximum	6.2	7.82	1.38	2.33	5.88	5.47
Minimum	1.14	0.72	0.07	0	0.06	0.08
std. Dev.	1.51	1.9	0.3	0.64	1.34	1.37
	TRANSPORTATION	INFORMATION	RECREATION	EDUCATION	RESTO	PERSONAL
Means	2.51	0.3	-0.01	0.32	3.33	6.35
Median	0.92	0.29	0.12	-0.56	1.56	7.89
Maximum	15.1	1.25	0.66	4.88	10.1	11.7
Minimum	-0.52	-0.04	-0.9	-1.34	0.25	-1.85
std. Dev.	4.49	0.28	0.48	2.05	3.32	4.39

Source: Secondary data output after processing, 2023; (Farid, 2023)

Based on the descriptive statistical test in Table 2, all variables show an average general inflation rate in Blitar Regency during the study period (2020-2022) of 2.54% (yoy). Meanwhile, the lowest inflation was recorded at 1.14% (yoy), while the highest was at 6.2% (yoy). Furthermore, the group with the highest average inflation during the study period (2020-2022) is the private group at 6.35% (yoy), while the leisure group, on average, shows deflation during the study period. The group that experienced the maximum or highest inflation was the transportation group, which recorded an inflation of 15.1% (yoy). Interestingly, the private group, apart from being the group with the highest average inflation, was also the group experiencing the highest deflation, namely -1.85% (yoy).

Stationarity Test Results

Based on the stationarity test in table 3 using the Augmented Dickey-Fuller (ADF) test method, it was found that only two variables (Information and Personal) were stationary at the level, and other variables (Food, Clothing, Housing, Equipment, Health, Recreation, Education and Resto) stationary at the first difference level. At the same time, the transportation variable is stationary at the second difference level. The results of testing all variables above are stationary at the 5% significance level.

Table 3. Stationary Test Results

Augmented Dickey-Fuller Unit Root Test

	Levels			FirstDifference			Second Differences		
	<i>critical values</i>	t-Statistics	Prob.*	<i>critical values</i>	t-Statistics	Prob.*	<i>critical values</i>	t-Statistics	Prob.*
Inflation				-2,951	-5,913	0.000*			
Food				-2,951	-7,970	0.000*			
Clothes				-2,951	-5,363	0.000*			
Housing area				-2,951	-7,568	0.000*			
Equipment				-2,951	-7,163	0.000*			
Health				-2,951	-6,601	0.000*			
Transportation							-3,568	-7,403	0.000*
Information	-2,951	-5,421	0.000*						
Recreation				-2,951	-5,674	0.000*			
Education				-2,951	-5,912	0.000*			
Resto				-2,951	-5,725	0.000*			
Personal	-2,960	-3,070	0.039*						

Source: Secondary data output after processing, 2023; (Farid, 2023)

Inflation Persistence Test

Table 4. Inflation Persistence Test Results

Variables	coefficient	std. Error	t-Statistics	Prob.
C	0.005278	0.161819	0.032617	0.9742
INFLATION(-1)	0.953197	0.177451	5.371603	0.0000
R-squared	0.919309			
Adjusted R-squared	0.914103			
F-statistics	176.5910			
Prob(F-statistic)	0.000000			

Source: Secondary data output after processing, 2023; (Farid, 2023)

Based on the test results using the autoregressive (AR) model presented in table 4, be high if the estimated inflation persistence coefficient is close to 1. The autoregressive Coefficient (AR) shows a lift of 0.95. According to Arimurti & Trisnanto (2011), inflation persistence is high if the coefficient value is > 0.80; the coefficient value for Blitar Regency is close to 1, which means the degree of persistence for Blitar Regency is high. A high degree of inflation persistence indicates that the inflation rate slowly returns to equilibrium after *a shock occurs*. This finding aligns with a study conducted by Hidayati (2013) regarding the persistence of East Java inflation which showed inflation was still high at 0.90. Research conducted by Wahyudi, Khusaini, and Nabella (2021) on inflation persistence in 8 cities/regencies in East Java also shows that inflation persistence in East Java is high; at least eight of the sample cities/districts of study five in some of which show the persistence of high inflation. So that it can be said that

the persistence of inflation in East Java is high, one of which is Blitar Regency. This can answer the objectives of this study and prove that inflation behavior in Blitar Regency follows the pattern of inflation behavior at the provincial level, namely East Java, which has been proven by several previous studies.

Testing the Source of Inflation Persistence

The Partial Adjustment Model (PAM) method through Eviews 12 software tests the inflation persistence source in Blitar Regency and produces output following Table 5.

Table 5. Test Results for Inflation Persistence Sources

Variables	coefficient	std. Error	t-Statistics	Prob.
C	-0.040087	0.019468	-2.059086	0.0515
FOOD	0.255761	0.001779	143.7498	0.0000
CLOTHES	0.086633	0.016099	5.381342	0.0000
HOUSING AREA	0.198313	0.012348	16.06074	0.0000
EQUIPMENT	0.048316	0.007230	6.682242	0.0000
HEALTH	0.030731	0.005822	5.278483	0.0000
TRANSPORTATION	0.121855	0.001820	66.95263	0.0000
INFORMATION	0.051447	0.011064	4.649911	0.0001
RECREATION	0.028090	0.009051	3.103525	0.0052
EDUCATION	0.056432	0.002498	22.58832	0.0000
RESTO	0.097606	0.003188	30.61779	0.0000
PERSONAL	0.059123	0.000926	63.87321	0.0000
INFLATION(-1)	-0.997388	0.006547	-152.3461	0.0000
R-squared	0.999645			
Adjusted R-squared	0.999451			
F-statistics	5160332			
Prob(F-statistic)	0.000000			

Source: Secondary data output after processing, 2023; (Farid, 2023)

Based on the test results using the Partial Adjustment Model (PAM) method, there are three variables that most influence inflation in Blitar Regency the Food, Beverage, and Tobacco Group with a coefficient of 0.255, the Housing, Water, Electricity, and Fuel Group with a coefficient of 0.198, and the Transportation Group with a coefficient of 0.121. Furthermore, based on inflation disaggregation analysis, inflation is grouped into core and non-core inflation (volatile food and administered prices). This inflation disaggregation is used to produce an inflation index that reflects the influence of fundamental factors (Central Bank of Indonesia, 2020). The volatile food component is represented by the Food, Beverage, and Tobacco Group because this group is vulnerable to shocks in the form of weather changes, crop disturbances, natural disasters, and distribution disruptions. Meanwhile, Housing, Water, Electricity, and Fuel

Groups represent the administered price component. Transportation was chosen because this group is dominated by needs determined by the government, such as fuel prices, freight rates, water, and electricity rates.

As for the developments component of volatile food, which is represented by the Food, Beverage, and Tobacco Group and the administered price component represented by Housing, Water, Electricity and Fuel Groups and Groups Transportation in the I-IV quarter as follows, developments inflation in the first quarter was dominated by the group food caused by the bad weather impact on failure harvest commodity chili and reduced fresh fish production height waves that make fisherman No Can go to sea In the second quarter of inflation dominated by groups food and transportation Where group food caused by his height request consequence coincide with day highway Eid and in groups transportation caused by rising fuel prices. In quarter III, the impact of a prolonged consequence of bad weather and adjustments in fuel prices that impacted rising price rates for transport and transportation made level inflation rise to 6.29% in September and continued until December. However, inflation (yoy) drops at the end 2022 (Official News Statistics, 2022).

Commodity or Goods/Services Group Inflation Persistence Test

The results of estimating the degree of inflation persistence in Blitar Regency based on the commodity groups forming the CPI are presented in Table 6.

Table 6. Degree of Persistence of Inflation in the Commodity Group

No	Commodity/ Group	Persistence Degrees	Time (month)
1	Housing, Water, Electricity, and Household Fuel Group	0.93	13,2
2	Food and Beverage/Restaurant Provision Group	0.93	13,2
3	Education Group	0.91	10,1
4	Group Personal Care And Other Services	0.91	10,1
5	Recreation, Sports, and Culture Group	0.87	6,6
6	Food, Beverage, and Tobacco Group	0.85	5,6
7	Health Group	0.85	5,6
8	Equipment, Equipment, and Household Routine Maintenance Group	0.80	4
9	Transportation Group	0.80	4
10	Clothing and Footwear Group	0.78	3,5
11	Information, Communication, and Financial Services Group	0.72	2,5

Source: Secondary data output after processing, 2023; (Farid, 2023)

Inflation persistence is high when the Coefficient is close to 1. According to Arimurti & Trisnanto (2011), inflation persistence is high when the coefficient value is > 0.80. Based on

the table, of the eleven commodity groups that make up the CPI, all show that the persistence degree is still relatively high. The group with the highest inflation persistence was the Housing, Water, Electricity, and Household Fuel group and the Food and Beverage/Restaurant Provisioning group, with an inflation degree of 0.93. Meanwhile, the group with the lowest persistence was the Information, Communication, and Financial Services group, with an inflation rate of 0.72. The estimated inflation persistence measurement results in Blitar Regency show a coefficient of 0.95, so the time needed for inflation to return to its equilibrium value after a shock occurs is 19 months.

Table 7. High and Low Persistence of Inflation in the Commodity Group

No	Commodity/ Group	Persistence Degrees	Time (month)
High Inflation Persistence Commodity			
1	Housing, Water, Electricity, and Household Fuel Group	0.93	13,2
2	Food and Beverage/Restaurant Provision Group	0.93	13,2
3	Education Group	0.91	10,1
4	Group Personal Care And Other Services	0.91	10,1
5	Recreation, Sports, and Culture Group	0.87	6,6
6	Food, Beverage, and Tobacco Group	0.85	5,6
7	Health Group	0.85	5,6
Low Inflation Persistence Commodity			
1	Equipment, Equipment, and Household Routine Maintenance Group	0.80	4
2	Transportation Group	0.80	4
3	Clothing and Footwear Group	0.78	3,5
4	Information, Communication, and Financial Services Group	0.72	2,5

Source: Secondary data output after processing, 2023; (Farid, 2023)

Inflation persistence is high when the Coefficient is close to 1. According to Arimurti & Trisnanto (2011), inflation persistence is high when the coefficient value is > 0.80 . The groups with the highest inflation persistence, namely the Housing, Water, Electricity, and Household Fuel Group and the Food and Beverage/Restaurant Provisioning Group, took approximately 13 months before returning to their equilibrium values. Meanwhile, the Information, Communication, and Financial Services Group has the lowest persistence and takes approximately 2.5 months before it returns to its equilibrium value. Overall, Blitar Regency's and the commodity groups' inflation persistence is still relatively high. The degree of persistence indicates that the time needed for inflation to return to its equilibrium value takes an average of 4-19 months. The role of government and coordination in order to reduce the persistence of inflation is necessary in order to reduce the degree of persistence of inflation. The better the

government's policy in suppressing inflation, the faster inflation persistence will return to equilibrium. So in taking policies to reduce the persistence of inflation, attention must be paid to the right time so that the implemented policies can be right on target.

CONCLUSION

Inflation persistence in Blitar Regency, from January 2020 – December 2022, is high. Based on the estimation results of inflation persistence measurement in Blitar Regency, the time needed for inflation to return to its equilibrium value after a shock occurs is 19 months. However, developments in the inflation trend in Blitar Regency show a downward trend in September 2022, which reached 6.29 percent, which can gradually decrease to 5.5 percent in December 2022. At the same time, the commodity groups that contributed the most to inflation persistence in Blitar Regency were the food, beverage, and tobacco group, the housing, water, electricity, gas, and fuel group, and the transportation group. In comparison, the group that contributed the lowest persistence was the recreation, sports, and culture group a.

Improvement and optimization of coordination between Central Bank of Indonesia, local government, and the Regional Inflation Control Team must be realized. In this case, local government policy plays an essential role in setting the time and scope of pricing policy to avoid a significant impact on inflation; controlling administered price component inflation can be in the form of progressive pricing and considering the impact of the response to policy changes that will affect inflation and increases in prices for other commodity groups. Meanwhile, there is a component of volatile foods to control inflation. This can be done by increasing the potential of regional superior products/commodities, namely eggs, and rice, contributing to the highest inflation. Utilization of only commodities is done to increase exports to other regions. In addition, local governments can encourage farmers to plant commodities that often contribute to high inflation, such as chilies, shallots, tomatoes, etc., to increase production to control inflation. Inflation control in the regions must be carried out simultaneously for all commodity groups because there is an inflationary relationship between the prices of different commodity groups, increasing inflation in other commodity groups. In addition, commodities other than the volatile foods component and administered prices also contributed to the high inflation persistence in Blitar Regency.

REFERENCES

- Angeloni, I. (2006). New Evidence on Inflation Persistence and Price Stickiness in the Euro Area : *Journal of the European Economic Association*, 4, 562–574.
- Arimurti, T., & Trisnanto, B. (2011). The Persistence of Inflation in Jakarta and Its Implications for Regional Inflation Control Policies. *Monetary Economics and Banking Bulletin*, 14(1), 5–30. <https://doi.org/10.21098/bemp.v14i1.454>
- Central Agency on Statistics. (2023). *Blitar Regency in Figures 2023*. BPS Blitar Regency.
- Central Agency on Statistics Blitar Regency. (2022). Development of Consumer Price Index December 2022. *Statistical Official News*, 04, 2–11.
- Central Bank of Indonesia. (2020a). *Inflation Disaggregation*. Central Bank of Indonesia. <https://www.bi.go.id/id/fungsi-utama/moneter/inflasi/Default.aspx#Disagregasi>
- Central Bank of Indonesia. (2020b). *The Importance of Price Stability*. <https://www.bi.go.id/id/fungsi-utama/moneter/inflasi/default.aspx#Pentingnya-Kestabilan-Harga>
- Statistical Official News. (2022). November 2022 Consumer Price Index Development. *Central Agency on Statistics*, 04, 2–11. <https://www.bps.go.id/pressrelease/2022/04/01/1859/inflasi-terjadi-pada-maret-2022-sebesar-0-66-persen--inflasi-tertinggi-terjadi-di-merauke-sebesar-1-86-persen-.html>
- Dossche, M., & Everaert, G. (2005). Working Paper Series Persistence Network Measuring Inflation Persistence A Structural Time Series Approach By Maarten Dossche And Gerdie Everaert Working Paper Series Persistence Network Measuring Inflation Persistence A Structur. *Social Science Research*.
- Farida, L. U. (2020). *Regional Inflation Persistence Analysis: A Case Study in Surabaya*. <http://repository.ub.ac.id/183463/>
- Hidayati, F. (2013). East Java Inflation Persistence Analysis: A Supply Side Approach. *Scientific Journal of FEB University of Brawijaya Students*, 1(2).
- Juhro, S. M., Harmanta, Herdiawan, J., Mochtar, F., Asih, K. N., Prima S, D., & Esti H, D. (2009). Review of the Implementation of the Inflation Targeting Framework in Indonesia. *BI Institute*, 1–173. <https://www.bi.go.id/id/bi-institute/policy-mix/ITF/Pages/REVIEW-Penerapan-Inflation-Targeting-Framework-di-Indonesia.aspx>
- Instruction of the Minister of Home Affairs of the Republic of Indonesia, Pub. L. No. 027, 1 (2013). <https://www.kemendagri.go.id/>

- National Working Group Implementation Team. (2014). *Buku Petunjuk TPID*.
- Government Regulation Number 28. (2018). *Government Regulation (PP) Number 28 of 2018 concerning Regional Cooperation with other Regions*.
- Pohan, A. (2008). *Portrait of Indonesia's monetary policy: how far does monetary policy influence the Indonesian economy / Aulia Pohan*. Rajawali Pers, Raja Grafindo Persada.
- Robalo Marques, C. M. (2004). Inflation Persistence: Facts or Artefacts? In *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.533131>
- Salim, A., & Fadilla. (2021). Influence of Inflation on Indonesia's Economic Growth. *Economica Sharia: Journal of Islamic Economic Thought and Development*, 7(1), 17–28.
www.bps.go.id,
- Samuelson, P. A., & Nordhaus, W. D. (2009). Economics nineteenth edition. In *Douglas Reiner*.
www.mhhe.com
- Secretariat of the Central Inflation Control Team. (2019). *Guidebook Secretariat of the Central Inflation Control Team*.
- Sugiyono. (2013). *Quantitative Research Methods, Qualitative And R & D*. ALFABETA, CV.
- Suseno, & Astiyah, S. (2010). central banking series no. 22 - Inflation. *Central Bank of Indonesia*, 22(22), 1–68. <http://ipief.umy.ac.id/wp-content/uploads/2020/02/22.-Inflasi.pdf>
- Wahyudi, S. T., Khusaini, M., & Nabella, R. S. (2021). Measuring Inflation Persistence: A Comparative Study of Eight Regencies/Cities in East Java. *Journal of Economics & Public Policy*, 12(2), 117–129. <https://doi.org/10.22212/jekp.v12i1.1905>
- Walliman, N. (2021). Research theory. In *Research Methods* (pp. 18–34). Routledge.
<https://doi.org/10.4324/9781003141693-4>
- Willis, J. L. (2003). Implications of Structural Changes in the U.S. Economy for Pricing Behavior and Inflation Dynamics. *CFA Digest*, 33(3), 52–53.
<https://doi.org/10.2469/dig.v33.n3.1324>