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Analysis of Consumer Price Index Changes at Mataram City in 2023-2024

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A B S T R A C T

This research aims to analyze the development of the Consumer Price Index (CPI) in Mataram City from January to September in 2023 and 2024. In addition, this study also aims to identify and analyze certain patterns or trends in the CPI comparison between the two years. This research also evaluates and explains the implications of CPI differences for the local economy. These include the impact on people's purchasing power, consumption patterns, and the affected economic sectors. The analytical methods used include descriptive and quantitative analysis by utilizing secondary data. The results show that there is a significant difference in the CPI between 2023 and 2024. The average CPI in January to September 2023 is 113.69, which is higher than the same period in 2024 which has an average of 106.03. This difference indicates that the cost of living in 2023 is higher, while the decrease in CPI in 2024 has the potential to increase people's purchasing power. These findings have important implications for the local economy in Mataram City, including changes in consumption patterns and impacts on various economic sectors.

Keywords: Central Bureau of Statistics Mataram City; Consumer Priice Index; Descriptive Analysis.

1. Introduction

The Consumer Price Index (CPI) provides an overview of the economy of a society, including an indication of the purchasing power of the population to meet their consumption needs, which in turn affects their decisions to save and invest (Alfuadi, 2019). The Consumer Price Index (CPI) has been widely accepted as a general indicator of inflation, as it can help policymakers identify sources of inflation. The government, as the policymaker, is obliged to achieve sustainable economic growth so that the socio-economic conditions of the society become more stable and improved (Izat and Jatipaningrum, 2018).

Inflation is a measure of expenditure patterns, and an increase in the inflation rate indicates an increase in the cost of living, which will impact the state of the currency. In other words, as a result of inflation, the purchasing power of money decreases as its value declines (Kunthi, et al, 2023). The value of the CPI will fluctuate from year to year. This movement can be monitored from the price changes of a package of goods and services consumed by society. The Consumer Price Index (CPI) is determined based on surveys conducted by the Central Bureau of Statistics. The survey attribute used is the Cost of Living Survey. This survey is monitored in several cities at one-month intervals and conducted in traditional or modern markets for various types of goods and services (Prakoso, 2019).

The inflation rate represents the price levels. High prices are reflected in high inflation, while relatively stable prices are reflected in low inflation rates. The inflation rate is the annual

percentage increase in the general price level measured by the Consumer Price Index or other price indices. It can be concluded that if only one item's price increases, it is not inflation, but if the increase causes other goods and services prices to rise, it is called inflation (Karlina, 2017).

A vital indicator for measuring inflation is the Consumer Price Index. Changes in the Consumer Price Index relate to the living costs for specific goods and services consumed by each individual, as well as indicating the occurrence of inflation or deflation. Inflation is a process of general and continuous price movement. One important indicator in calculating inflation is the CPI. Knowing this, the researcher initiates forecasting the CPI, as it relates to the living costs for specific goods and services consumed by each individual, as well as indicating the occurrence of inflation or deflation. Additionally, it can also reveal the impact of the CPI on the economic inflation rate (Effendie, et al, 2023).

The non-stationary nature of Consumer Price Index data often leads to invalid decisions related to the data (Dhewanty, et al, 2019). Consumer prices are transaction prices between sellers (retailers) and buyers (consumers) through cash payments. Retail refers to purchasing a good or service in the smallest unit for use or consumption. Examples include vegetables by the bundle, rice by kg/liter, gold by grams, or in packaging forms such as wraps, bottles, packs, and so on (Purba and Tarigan, 2021). The CPI for foodstuffs is divided into eleven groups: (1) cereals, tubers, and their products, (2) meat and its products, (3) fresh fish, (4) preserved fish, (5) eggs, milk, and their products, (6) vegetables, (7) legumes, (8) fruits, (9) spices, (10) fats and oils, and (11) other foodstuffs (Suarsih, at al., 2016).

On the other hand, factors such as poverty and employment, like the percentage of unemployed individuals or those working in the informal sector, also affect the purchasing power of the community and price stability (Fajri, 2024). Inflation can also influence a country's fiscal and monetary policies, which need to be managed wisely to maintain price stability and balanced economic growth (Meiditambua, et al., 2023). Changes in the CPI over time indicate the price movements of a package of goods and services consumed by the community (Rachmawati, 2018).

This study analyzes changes in the consumer price index (CPI) in Mataram City from January to September in 2023 and 2024 to understand how various factors affect the prices of goods and services consumed by the community. This analysis not only provides an overview of the inflation rate, but can also be the basis for formulating more effective economic policies in the future. Thus, it is hoped that this research can contribute to efforts to maintain price stability and the economic welfare of the people in Mataram City.

2. Methods

a. *Data Collection*

In this study, the data used includes the Consumer Price Index (CPI) data from January to September for the years 2023 and 2024. The CPI data was obtained from the Central Statistics Agency (BPS) of Mataram City. This information forms the basis for analyzing the changes in the CPI in Mataram City during this period.

b. *Descriptive Analysis*

Qualitative research is descriptive and analytical in nature. Descriptive in qualitative research means describing and detailing the events, phenomena, and social situations being studied. Analysis means interpreting, making sense of, and comparing the research data (Waruwu, at al., 2023). The collected data is analyzed descriptively and qualitatively by explaining and describing the research findings through words and sentences in the form of both quantitative and qualitative data. The data analysis process involves identifying according to the research objectives, managing and interpreting the data, followed by abstraction, reduction, and checking the validity of the data (Hutami, 2017).

Quantitative data is processed and analyzed using statistics. The determination of statistical techniques will be based on two factors: the research objectives and the data to be analyzed. Descriptive statistical analysis includes tables, graphs, mean, median, mode, measurement of data variation, and other statistical techniques aimed at merely understanding the data patterns or trends without intending to make generalizations (Siregar, 2021). The quantitative descriptive analysis technique in this study uses measures of central tendency, which include:

- **Mean (Average)**

The mean is the total of all the Consumer Price Index (CPI) values divided by the number of data points. The mean provides an overall picture of the price level of goods and services included in the CPI. The formula for calculating the mean is:

$$\bar{x} = \frac{\sum_{i=1}^{n} x_i}{n} \tag{1}$$

where:
$\bar{x}$: Mean CPI
n : Total number of periods
x_i : CPI value for the i-th period

- **Median**
The median is the middle value in a data set that has been ordered.

- **Mode**
The mode is the value that appears most frequently in a data set.

- **Standard Deviation**
The standard deviation is a statistical measure that indicates the extent of variation or dispersion within a data set. The formula to calculate standard deviation is:

$$S = \sqrt{\frac{\sum_{i=1}^{n}(x_i - \bar{x})^2}{n-1}} \tag{2}$$

where:
S : Standard deviation
n : Total number of observed periods
x_i : CPI value for the i-th period
$\bar{x}$: Mean CPI

3. Results and Discussion

a. Data Analysis

In this study, the type of data used is time series data from the years 2023-2024. The data source was obtained from the Central Statistics Agency (BPS), and it includes the Consumer Price Index (CPI) data. The following Table 1 shows the CPI data for Mataram City for the years 2023 and 2024:

Table 1. Consumer Price Index Data of Mataram City in 2023 and 2024

Consumer Price Index of Mataram City		
Month	Year	
	2023	2024
January	112,87	105,22
February	113,22	105,66
March	113,19	106,32
April	113,69	106,48
May	113,92	106,56
June	113,9	106,3
July	114,14	105,86
August	114,15	105,89

Consumer Price Index of Mataram City		
Month	**Year**	
	2023	**2024**
September	114,13	105,97
Oktober	115,11	-
November	115,45	-
December	115,79	-

Source: Consumer Price Survey, Central Statistics Agency of Mataram City, 2023 and 2024

In this study, only CPI data from January to September for the years 2023 and 2024 is observed. This is because data for October to December 2024 is not yet available. Therefore, the comparison is made only for the same period, i.e., from January to September of both years. The descriptive analysis method was used with Google Colab, and the syntax that was run produced the following output:

Mean CPI 2023: 113.69
Standard Deviation of CPI 2023: 0.4806245936279167
Mean CPI 2024: 106.02888888888889
Standard Deviation of CPI 2024: 0.4309131131807336
Percentage Change in CPI from January to September 2023: 1.1163285195357409%
Percentage Change in CPI from January to September 2024: 0.7127922448203763%

i.   *Mean CPI*

The mean CPI from January to September in 2023 is 113.69, which is higher compared to 2024, which is only 106.03. This indicates that the Consumer Price Index data for 2023 is higher compared to 2024. The decrease in CPI in 2024 means that the prices of goods and services have fallen, which can increase consumer purchasing power as they can buy more with the same amount of money. However, this can reduce business turnover as income from sales decreases. Although lower prices benefit consumers, businesses need to adjust their strategies to maintain profitability.

ii.   *Standard Deviation*

The standard deviation of CPI from January to September in 2023 is 0.48, while in 2024 it is 0.43. This indicates that the variation or fluctuation in consumer prices in 2023 is greater compared to 2024. The larger fluctuation in 2023 could be due to more volatile economic factors or more significant changes in the prices of goods during that year.

iii.   *Percentage Change in CPI*

From January to September, the CPI increased by 1.11% in 2023 and 0.71% in 2024. The higher increase in consumer prices from January to September in 2023 might be due to greater inflationary pressures or different economic policies compared to the period from January to September in 2024. The data in Table 1 will be plotted to analyze whether the data pattern is horizontal, trending, seasonal, or cyclical. A trend plot can either show an upward or downward trend. The CPI data plot from January to September in 2023 and 2024 is illustrated in Figure 1.
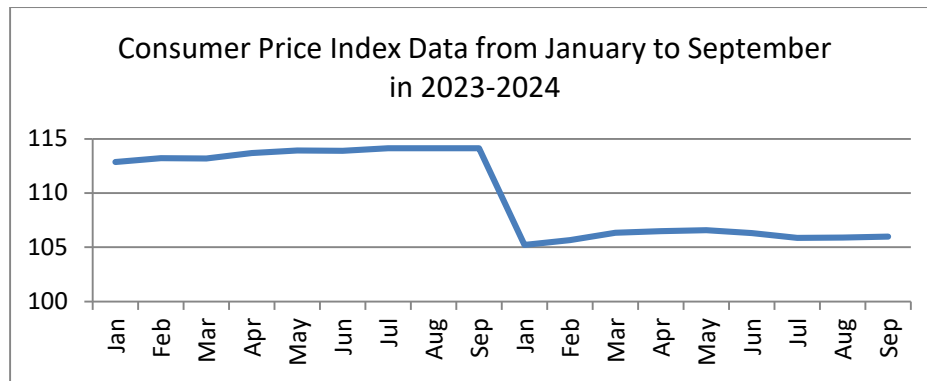
Figure 1. Consumer Price Index (CPI) Data Plot for 2023-2024

In Figure 1, the CPI plot for 2023 shows a gradual increase from January to September 2023. However, a significant decrease is observed from January to September 2024. This decline is steady but includes slight rises. Therefore, the data pattern can be said to follow a downward trend, despite experiencing an upward trend throughout 2023. The differences in the Consumer Price Index (CPI) from January to September between 2023 and 2024 have several important implications for the local economy in Mataram City.

A higher CPI from January to September in 2023 (mean of 113.69) compared to January to September in 2024 (mean of 106.03) indicates a higher cost of living in 2023, while the decrease in CPI in 2024 can enhance the purchasing power of the population. The decline in CPI also provides the government with room to focus on economic growth policies, such as infrastructure investment and public services, which can improve the community's welfare. However, the drop in CPI might signal a decrease in demand or prices for goods and services, which can negatively impact business revenues, though increased purchasing power may support business sector growth.

The CPI difference also affects investment decisions, with the CPI decline from January to September 2024 potentially attracting investments in growing sectors, while the high CPI from January to September 2023 may make investors more cautious. Additionally, a high CPI can reduce consumer confidence and spending, whereas better price stability from January to September 2024 can boost confidence and consumption. Thus, the CPI differences between January to September in 2023 and 2024 highlight significant dynamics in the local economy, requiring adaptive policies to leverage opportunities and address emerging challenges.

4. Conclusion

Based on the descriptive analysis of the Consumer Price Index (CPI) data for Mataram City in 2023 and 2024, it can be concluded that:

- There was a decrease in the CPI from January to September in both 2023 and 2024. From January to September 2023, the average CPI was 113.69, while from January to September 2024, the average CPI dropped to 106.03. This decrease indicates a significant change in the price level of goods and services consumed by the public.
- The data shows that the CPI in 2023 tended to increase gradually from January to September, with the highest increase occurring in July, August, and September. In contrast, in 2024, the CPI showed a decreasing trend or stabilization after a decline from January to September. This decrease suggests a general decline in prices or an increase in the purchasing power of the public in 2024.
- The difference in the CPI between January to September of 2023 and 2024 has several important implications for the local economy in Mataram City. The decrease in the CPI in

2024 could increase the purchasing power of the public, which in turn may drive higher consumption and economic growth. However, the decrease in the CPI may also indicate a decline in demand or a decrease in the prices of goods and services, which could negatively affect the income of businesses, especially small and medium enterprises.

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