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Analysis of Frequency Distribution and Histogram of Inflation Rates in Indonesia for the Period 2020–2025

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Abstract - This study aims to analyze the distribution pattern and trend of Indonesia's monthly inflation rates from January 2020 to December 2025. The research employs a quantitative descriptive approach using secondary data obtained from the official website of Bank Indonesia, consisting of 72 monthly observations. Unlike most previous studies that focus on causal relationships between inflation and macroeconomic variables, this study emphasizes the analysis of inflation distribution patterns using frequency distribution and histogram visualization, particularly during the pandemic and post-pandemic periods. The results show that Indonesia's inflation is predominantly concentrated within the range of 1.28% to 2.80%, indicating a generally low to moderate inflation level. The mean inflation rate is 2.62% with a standard deviation of 1.31%, reflecting moderate variability. The distribution is positively skewed (skewness = 0.92), suggesting that higher inflation values occur less frequently but still exist as occasional spikes. The histogram analysis further confirms a unimodal distribution pattern, with most observations clustered around the central range and a slight extension toward higher inflation values. Overall, the findings indicate that inflation in Indonesia during the study period was relatively stable, with occasional increases likely influenced by external shocks and economic adjustments. These results provide important insights for policymakers in maintaining price stability and formulating responsive monetary and fiscal policies in the face of economic uncertainty.

Abstrak - *Penelitian ini bertujuan untuk menganalisis pola distribusi dan tren inflasi bulanan di Indonesia selama periode Januari 2020 hingga Desember 2025. Penelitian ini menggunakan pendekatan deskriptif kuantitatif dengan data sekunder yang diperoleh dari situs resmi Bank Indonesia, yang terdiri dari 72 observasi bulanan. Berbeda dengan sebagian besar penelitian sebelumnya yang berfokus pada hubungan kausal antara inflasi dan variabel makroekonomi, penelitian ini menekankan pada analisis pola distribusi inflasi menggunakan distribusi frekuensi dan visualisasi histogram, khususnya pada periode pandemi dan pascapandemi. Hasil penelitian menunjukkan bahwa inflasi di Indonesia sebagian besar berada pada kisaran 1,28% hingga 2,80%, yang mengindikasikan tingkat inflasi rendah hingga moderat. Rata-rata inflasi sebesar 2,62% dengan standar deviasi 1,31% menunjukkan adanya variasi yang moderat. Distribusi data bersifat menceng ke kanan (skewness = 0,92), yang berarti nilai inflasi tinggi relatif jarang terjadi namun tetap muncul dalam bentuk lonjakan sesaat. Analisis histogram juga menunjukkan pola distribusi unimodal, dengan sebagian besar data terkonsentrasi pada nilai tengah dan sedikit penyebaran ke arah nilai inflasi yang lebih tinggi. Secara keseluruhan, hasil penelitian ini menunjukkan bahwa inflasi di Indonesia selama periode penelitian relatif stabil, dengan beberapa peningkatan yang kemungkinan dipengaruhi oleh guncangan eksternal dan penyesuaian ekonomi. Temuan ini memberikan implikasi penting bagi pembuat kebijakan dalam menjaga stabilitas harga serta merumuskan kebijakan moneter dan fiskal yang responsif terhadap ketidakpastian ekonomi.*

Kata Kunci: *Inflasi, Distribusi Frekuensi, Histogram, Analisis Deskriptif.*

INTRODUCTION

Inflation is a critical macroeconomic indicator that reflects the general increase in prices over time, influencing purchasing power, investment decisions, and overall economic performance. In developing economies such as Indonesia, inflation not only affects household welfare but also plays a strategic role in shaping economic growth and capital formation (Taylor, 2020). Empirical evidence at the regional level shows that inflation significantly interacts with investment and consumption in determining economic growth performance. A recent study on regional economic dynamics in Indonesia found that inflation, alongside investment and household consumption, has a measurable and significant impact on economic growth, indicating that price stability is closely linked to regional development outcomes (Saibana et al., 2024).

At the national level, the relationship between inflation and investment is also evident. Research analyzing the 2003–2022 period demonstrates that inflation, together with interest rates and taxation, significantly influences investment realization in Indonesia (Ariyadi et al., 2024). Higher inflation levels tend to increase uncertainty and production costs, which may discourage investment activity. These findings reinforce the view that maintaining stable inflation is essential not only for macroeconomic balance but also for sustaining investment-driven growth and long-term economic expansion (Blanchard, 2021).

From a broader macroeconomic perspective, international studies also confirm that inflation volatility can reduce economic efficiency and distort resource allocation, particularly in emerging economies where financial markets are less developed. Persistent inflation uncertainty has been shown to weaken consumption smoothing behavior and increase precautionary savings, thereby slowing down aggregate demand growth (Danylyshyn & Bohdan, 2022). Furthermore, inflation dynamics are often influenced by global shocks such as commodity price fluctuations and supply chain disruptions, which are more pronounced in open developing economies (Lavoie, 2024).

The period between 2020 and 2025 represents a particularly dynamic phase for the Indonesian economy. The COVID-19 pandemic triggered disruptions in supply chains, shifts in consumer demand, and fluctuations in production capacity. During the early stages of the pandemic, inflationary pressures weakened due to reduced demand, while subsequent recovery phases saw temporary inflation spikes driven by supply constraints and rising commodity prices. In the post-pandemic recovery period, inflation trends reflected the combined effects of domestic policy interventions and global economic shocks (Bank Indonesia, 2024). Recent international literature also highlights that post-pandemic inflation is characterized by a combination of demand recovery and supply-side bottlenecks, which has led to heterogeneous inflation patterns across countries (Feldkircher & Siklos, 2019).

Furthermore, inflation during this period was also associated with financial market responses. Changes in inflation and money supply were shown to significantly affect stock price movements in the banking subsector, illustrating the broader transmission of inflationary pressures to financial markets (Farhana & Ramadhani, 2025). Similar findings in international studies indicate that inflation shocks can rapidly propagate into asset price volatility, especially in emerging financial markets with higher sensitivity to macroeconomic uncertainty (Cabral et al., 2020).

Despite its importance, inflation is commonly presented as a single monthly or annual figure, which may obscure the variability and distributional characteristics of the data. While many prior studies focus on causal relationships between inflation and macroeconomic variables—such as growth, investment, and taxation—less attention has been given to examining the statistical distribution patterns of inflation itself. Understanding how frequently certain inflation ranges occur, as well as identifying the overall shape and dispersion of the data, provides deeper insight into inflation dynamics (Black, 2023). In line with modern empirical macroeconomic approaches, distributional analysis is increasingly recognized as important for capturing heterogeneity and hidden dynamics in economic time series data (Bok et al., 2018).

Descriptive statistical tools such as frequency distributions and histograms offer a systematic way to summarize and visualize data patterns. A frequency distribution categorizes inflation rates into intervals and reveals dominant ranges and unusual observations. Meanwhile, histograms enable visualization of the data's shape, whether symmetric or skewed, and help detect clustering or extreme values. These descriptive insights are essential for complementing macroeconomic analyses that focus primarily on regression-based causal inference (Whitaker & Jacobbe, 2017).

Therefore, this study applies frequency distribution and histogram analysis to Indonesia's monthly inflation data from January 2020 to December 2025. By organizing inflation rates into meaningful intervals and visualizing their distribution, this research seeks to provide a clearer descriptive foundation for

understanding inflation behavior during a period marked by global disruption and economic recovery. The inclusion of updated 2025 data further addresses the research gap in recent inflation dynamics, allowing for a more comprehensive depiction of post-pandemic inflation behavior. In doing so, the study complements existing empirical findings on the relationship between inflation, investment, and economic growth, and contributes to a more comprehensive interpretation of Indonesia's macroeconomic stability during 2020–2025.

LITERARTURE REVIEW

Measurement Of Inflation

Inflation is commonly measured using the Consumer Price Index (CPI), which shows the average change in prices of a fixed basket of goods and services over time. The CPI reflects typical consumer spending patterns, including items such as food, transportation, and housing (Kunthi et al., 2023). As a key macroeconomic indicator, CPI-based inflation is widely used by policymakers to monitor price stability and to formulate monetary policy decisions. However, it may be subject to certain limitations, such as substitution bias and quality adjustment issues, which can affect its accuracy in fully capturing changes in the cost of living (Schultze, 2003).

In Indonesia, the CPI is published monthly by Badan Pusat Statistik (BPS) and serves as the official measure of inflation. Inflation is calculated by comparing the current CPI with that of a previous period, either on a year-on-year (YoY) or month-to-month (MoM) basis. YoY inflation provides insight into long-term trends, while MoM inflation captures short-term price movements. In addition, core inflation excluding volatile components such as food and energy is used to reflect underlying inflation trends and is often considered more stable for policy analysis (Bank Indonesia, 2024).

The CPI is constructed based on price data collected from multiple regions and follows international statistical standards to ensure comparability and reliability. Each item in the consumption basket is assigned a weight derived from household expenditure surveys, allowing the index to represent actual consumer behavior. Periodic adjustments, including quality improvements and basket updates, are applied to maintain the relevance and accuracy of the CPI as an indicator of inflation over time (Susanto, 2017).

Descriptive Statistics In Economic Analysis

Descriptive statistics are essential tools in economic analysis, especially when dealing with time-series data such as inflation rates. These statistics summarize and describe the main features of a dataset, allowing researchers and policymakers to understand the underlying trends, variability, and patterns within the data without making inferential conclusions. In the context of inflation analysis, descriptive statistics help reveal how inflation behaves over a specific period, such as its average level, volatility, and distribution (Gujarati, 2021). Empirical studies in applied econometrics also highlight that preliminary descriptive analysis is crucial for identifying patterns and structural characteristics in time-series data before conducting advanced modeling (Kolambe & Arora, 2024).

In addition, descriptive statistical measures—such as mean, median, variance, standard deviation, and frequency distributions—are considered a fundamental stage in social and economic data analysis before proceeding to inferential or econometric methods. These measures not only summarize numerical data but also assist in systematically interpreting socio-economic phenomena by identifying central tendency, dispersion, and distributional characteristics. Presenting data in this structured manner enhances analytical clarity and strengthens the foundation for economic interpretation and policy formulation (Lubis, 2021).

The most commonly used descriptive measures include central tendency (mean, median, and mode), dispersion (range, variance, and standard deviation), and distribution shape (skewness and kurtosis). Each of these metrics provides a different perspective on how inflation data behaves. a) The mean inflation rate indicates the average level of inflation over a given period and is often used as a benchmark for economic performance; b) The median provides insight into the central point of the data distribution and is especially useful when the data contains outliers or is skewed; c) Standard deviation and variance measure the degree of variability or dispersion in the data, indicating how much inflation fluctuates over time; d) Skewness shows the asymmetry of the distribution, whether inflation tends to cluster toward higher or lower values; e) Kurtosis reveals the sharpness of the data distribution, providing insight into the frequency of extreme values (Peren, 2021).

In economic studies, visual representations such as frequency distributions and histograms complement numerical summaries. These visual tools allow for an intuitive understanding of how often inflation rates fall within certain intervals and whether the data follows a normal distribution or deviates significantly. A histogram, in particular, is effective in identifying clusters, gaps, and outliers in the data, making it easier to detect periods of high or low inflation (Widyawati et al., 2021).

Descriptive statistics also play a critical role in informing economic decisions (Gujarati, 2021). For example, when inflation shows high volatility (a large standard deviation), policymakers may consider more cautious monetary interventions. Similarly, a positively skewed distribution might suggest recurring spikes in inflation that warrant further investigation into their causes.

Moreover, descriptive statistics serve as a foundation for more complex statistical and econometric analyses. Before applying regression models or forecasting techniques, researchers must understand the structure and characteristics of their data. Without a solid descriptive analysis, advanced methods may yield misleading or invalid results (Ross, 2020).

Frequency Distribution

Frequency distribution is a fundamental statistical tool used to organize and summarize quantitative data by showing how often each value or range of values occurs. In economic analysis, particularly in the study of inflation rates over a specific time period, frequency distributions help in understanding the spread and behavior of data by grouping it into intervals or classes (Widyawati et al., 2021).

The primary purpose of a frequency distribution is to present data in a structured form that facilitates analysis. Instead of reviewing a long list of individual inflation rates, researchers can observe how frequently certain inflation ranges appear, thus simplifying large datasets and revealing underlying patterns. This process is particularly beneficial when analyzing time-series data such as monthly or yearly inflation rates over several years (Gujarati, 2021).

To create a frequency distribution for inflation data, the data is first divided into class intervals. For example, if inflation rates range from 1% to 6% between 2020 and 2025, these values can be grouped into intervals such as 1.0–2.0%, 2.1–3.0%, and so on. The frequency of each interval—the number of times inflation rates fall within that range—is then tallied and presented in a table or graph (Wananda et al., 2023).

There are several key types of frequency distributions used in economics: a) Absolute frequency, which refers to the actual count of data points in each interval; b) Relative frequency, which expresses the frequency as a proportion or percentage of the total number of data points; c) Cumulative frequency, which shows the number of observations that fall below or within a certain interval, helping identify thresholds and medians in the data (Peren, 2021).

Analyzing the frequency distribution of inflation data helps identify whether inflation tends to stay within a certain range or if it frequently experiences spikes or drops. For example, if the majority of values fall within a narrow range, it may indicate price stability. On the other hand, a wide or skewed distribution might signal economic instability or inflationary pressure. Such distribution-based analysis is widely applied in statistical and economic research to complement traditional descriptive measures and provide deeper insights into data behavior (Mishra et al., 2019)

In economic policy and planning, frequency distribution is a valuable tool because it allows policymakers to visualize risk and evaluate the consistency of inflation targets. For instance, central banks might use this technique to assess how often actual inflation deviates from their target range, thereby adjusting interest rates or fiscal strategies accordingly (Gujarati, 2021). Furthermore, frequency distribution lays the groundwork for constructing histograms, which provide a visual representation of the data's shape and distribution. Together, these tools enhance the interpretability of statistical findings and support data-driven decision-making in economic contexts.

Histogram

A histogram is a graphical representation of the frequency distribution of a dataset. It is one of the most useful visual tools in statistical analysis, especially in economics, as it provides an intuitive way to understand the distribution of data points, such as inflation rates over time (Sbert et al., 2021). Unlike a bar chart, which represents categorical data, a histogram displays the distribution of continuous data by grouping values into intervals or bins and showing the frequency of data within each bin.

In the context of inflation analysis, a histogram allows researchers to visually assess the behavior and trends of inflation over a period, such as the years 2020 to 2025. By plotting the inflation rates on the x-axis (the horizontal axis) and the frequency (or relative frequency) on the y-axis (the vertical axis), a histogram can reveal the central tendency, spread, and shape of the inflation data distribution. Histograms are widely recognized as effective tools for approximating the underlying probability distribution of data and capturing important characteristics such as skewness and variability (Chen & Dobra, 2013).

The main components of a histogram include the following: a) Bins or intervals are the ranges of inflation rates. For example, inflation might be grouped in intervals like 1.0-2.0%, 2.1-3.0%, and so on. The choice of bin width can affect the appearance of the histogram and should be carefully considered to balance detail and clarity; b) Bars correspond to each interval or bin. The height of each bar indicates the frequency of data points that fall within the specified interval. Taller bars show more frequent occurrences, while shorter bars indicate less common ranges of inflation; c) X-axis (horizontal axis) represents the range of inflation

values (e.g., 1%–6% inflation) divided into the chosen intervals; d) Y-axis (vertical axis) represents the frequency or the count of data points within each bin. In a relative frequency histogram, this axis will show percentages or proportions instead of raw counts.

Histograms offer several advantages when analyzing inflation data. For example, a histogram helps in quickly identifying the shape of the distribution of inflation rates. If the data follows a normal distribution, the histogram will show a bell-shaped curve. On the other hand, a skewed distribution might indicate that inflation is often higher or lower than the mean. Extreme values or outliers, such as unusually high inflation rates, can be easily spotted in a histogram, helping to identify periods of economic instability or inflation spikes.

The spread or width of the bars in the histogram indicates the variability of inflation. A narrow spread suggests stable inflation, while a wider spread implies greater volatility. Histograms can also be used to compare inflation data from different years or months. For example, one could compare the inflation distribution in 2020 with that of 2025 to examine how inflation has shifted over the years.

By interpreting the shape and spread of the histogram, policymakers and economists can derive insights into the nature of inflation and its potential impacts on the economy. If the inflation distribution is skewed, it may signal the need for targeted monetary policies. Conversely, a uniform or symmetrical distribution might indicate more stable economic conditions.

In this study, a histogram will be constructed to analyze the inflation data from 2020 to 2025. This visualization will help identify key trends, such as whether inflation remained within a predictable range or whether there were significant fluctuations that could affect economic stability.

METHOD

Data Collection Techniques

This study employs a quantitative descriptive method with the objective of analyzing the distribution pattern and trend of Indonesia's monthly inflation rates from January 2020 to December 2025. The research utilizes secondary data, sourced directly from the official website of Bank Indonesia, which consistently publishes national inflation statistics.

A total of 72 monthly observations were collected to represent inflation behavior over the six-year period. These observations were compiled into a structured dataset and organized chronologically to ensure consistency and accuracy in time-series representation. Prior to analysis, the data were verified for completeness and consistency to avoid missing values or anomalies that could affect the results. The data collection process involved retrieving monthly inflation rates, measured in percentage terms, and recording them in a numerical format suitable for statistical processing. Each observation represents the inflation rate for a specific month, allowing for the identification of short-term fluctuations as well as long-term trends.

Furthermore, the use of secondary data in this study is justified by its reliability and accessibility, as the data are officially published by a national monetary authority. This ensures a high level of data credibility and minimizes measurement error. The structured dataset was then prepared for further analysis using statistical tools, including frequency distribution tables and graphical visualization techniques such as histograms and trend lines.

Data Collection Techniques

The following table presents the raw monthly inflation data for Indonesia from January 2020 to December 2025, which serves as the primary variable in this study. All values are expressed in percent (%), and this table provides a comprehensive overview of inflation behavior across different economic phases, including the pandemic period, recovery phase, and post-recovery dynamics. By presenting the complete set of observations, the table serves as the foundational dataset for subsequent statistical analysis, particularly in constructing frequency distributions and graphical representations such as histograms.

Table 1. Raw Data of Monthly Inflation Rates (2020-2025)

No	Inflation (%)	No	Inflation (%)	No	Inflation (%)	No	Inflation (%)
1	1.57	19	3.52	37	1.87	55	1.96
2	1.55	20	4	38	1.75	56	2.19
3	1.71	21	4.33	39	1.66	57	2.67
4	1.84	22	4.97	40	1.6	58	2.96
5	2.12	23	5.47	41	1.59	59	2.98
6	2.13	24	5.28	42	1.52	60	2.68

No	Inflation (%)	No	Inflation (%)	No	Inflation (%)	No	Inflation (%)
7	2.51	25	5.51	43	1.33	61	0.76
8	2.84	26	5.42	44	1.68	62	-0.09
9	3	27	5.71	45	1.42	63	1.03
10	3.05	28	5.95	46	1.37	64	1.95
11	2.75	29	4.69	47	1.38	65	1.6
12	2.57	30	4.94	48	1.55	66	1.87
13	2.61	31	4.35	49	1.68	67	2.37
14	2.86	32	3.55	50	1.59	68	2.31
15	2.56	33	3.47	51	1.44	69	2.65
16	2.28	34	2.64	52	1.42	70	2.86
17	3.27	35	2.06	53	1.32	71	2.72
18	3.08	36	2.18	54	1.54	72	2.92

Source: https://www.bi.go.id/, 2026

The single variable used in this study is the monthly inflation rate of Indonesia, which represents the percentage change in the general price level of goods and services over a one-month period. These inflation figures are officially published by Bank Indonesia and function as a key macroeconomic indicator of price stability. In this study, the inflation variable is treated as a continuous quantitative variable, analyzed to observe its frequency distribution, trends, and overall pattern throughout the six-year period.

Sample Collection Techniques

This study employs a non-probability sampling technique using a saturated sampling (census) approach, in which all monthly inflation data from January 2020 to December 2025 are included as research samples. The dataset consists of 72 observations, where each observation represents the monthly inflation rate (in percent) for a specific month, forming a continuous time-series dataset over a six-year period.

These observations cover distinct economic phases, including the COVID-19 pandemic period (2020–2021), the recovery phase (2022–2023), and the post-recovery period (2024–2025). The inclusion of all observations ensures that the dataset fully captures temporal variations, short-term fluctuations, and structural changes in inflation behavior. Since the objective of the study is to provide a comprehensive and unbiased overview, no data were excluded or selectively sampled. This approach minimizes sampling bias and preserves the integrity of the original data, allowing the analysis to accurately reflect national inflation dynamics throughout the entire observation period.

Data Analysis Techniques

The data analysis process in this study was carried out through several systematic stages. The monthly inflation data were first arranged chronologically to maintain consistency with the official publication timeline. The data were then grouped into specified class intervals to construct a frequency distribution table containing absolute frequencies, relative frequencies, and cumulative frequencies. This grouping process allows for the identification of distribution patterns and facilitates interpretation of how inflation values are spread over time.

The inflation data used in this study are secondary, quantitative, and continuous in nature, expressed in percentage form and obtained directly from an official source, ensuring data accuracy and reliability. The dataset represents a time-series structure without any transformation or manipulation, thereby preserving the original characteristics (data purity) of the observed inflation values. This allows the analysis to reflect the actual condition of inflation without distortion.

A histogram was then developed to visually illustrate the distribution of monthly inflation rates, accompanied by a trend line to highlight the general direction and pattern of inflation movement. All stages of data processing, statistical computation, and graphical visualization were performed using the R programming language, selected for its precision in handling statistical analysis and its ability to produce clear, informative graphics. This analytical approach provides a strong foundation for understanding the characteristics of inflation and supports the formulation of meaningful economic interpretations.

RESULT AND DISCUSSION

Interpretation of Descriptive Results

The data analysis process in this study in order to gain a better understanding of the inflation trends in Indonesia from 2020 to 2025, the descriptive statistics were computed to summarize the key characteristics of the data. The data on inflation rates were obtained from the official website of Bank Indonesia (https://www.bi.go.id), ensuring the accuracy and reliability of the information used in this analysis. The following table presents the mean, median, standard deviation, skewness, and the range of inflation rates observed during this period. These statistics provide insights into the central tendency, variability, and shape of the inflation distribution, which are critical for interpreting the broader economic conditions during the analyzed period.

Table 2. Descriptive Statistics of Inflation Rates in Indonesia (2020-2025)

Descriptive Statistic	Value
Mean Inflation Rate	2.62
Median Inflation Rate	2.34
Standard Deviation	1.31
Skewness	0.92
Minimum Inflation Rate	-0.09
Maximum Inflation Rate	5.95
Range of Inflation Rates	6.04

Source : Processed using RStudio, 2026

The table above illustrates the central tendency and variability of inflation rates in Indonesia from 2020 to 2025. The mean inflation rate of 2.62% indicates a generally moderate level of inflation, while the median value of 2.34% suggests that most observations tend to be slightly lower than the average. This difference between the mean and median reflects the presence of several higher inflation values that pull the average upward. The standard deviation of 1.31% indicates a moderate level of dispersion, meaning that although inflation fluctuates over time, the variation remains within a relatively controlled range. This suggests that inflation in Indonesia during the study period was not excessively volatile.

The skewness value of 0.92 shows a positively skewed distribution, indicating that lower inflation rates occur more frequently, while higher inflation values appear less often but extend the upper tail of the distribution. This pattern confirms that inflation spikes are relatively rare but have a noticeable impact on the overall distribution. The inflation range, from -0.09% to 5.95%, reflects a wide variation in inflation levels throughout the observation period. The presence of a negative inflation rate (deflation) indicates a temporary decline in price levels, while the maximum value represents periods of significant inflationary pressure. The total range of 6.04% further emphasizes the extent of fluctuation over time.

Overall, these findings indicate that inflation in Indonesia was relatively stable with moderate variability, although it experienced occasional spikes and short-term declines. This result is consistent with recent international studies, which suggest that inflation in developing economies tends to remain manageable but can be affected by volatility and global economic disturbances, particularly during periods of uncertainty and economic transition (Ertl et al., 2025).

Analysis Of Frequency Distribution

Frequency distribution is a statistical method used to organize and summarize data by grouping it into classes or intervals. In this study, the inflation rate data from 2020 to 2025 is categorized into several class intervals to observe the pattern and concentration of inflation values over time. This approach allows for a clearer view of how frequently certain inflation ranges occurred during the analysis period.

Table 3. Frequency Distribution of Monthly Inflation Rates in Indonesia (2020–2025)

Class Interval (%)	Frequency	Relative Frequency (%)	Cumulative Frequency
-1.00, -0.24	0	0.00	0
-0.24, 0.52	1	1.39	1

0.52, 1.28	2	2.78	3
1.28, 2.04	26	36.11	29
2.04, 2.80	18	25.00	47
2.80, 3.56	13	18.06	60
3.56, 4.32	1	1.39	61
4.32, 5.08	5	6.94	66
5.08, 5.84	5	6.94	71
5.84, 6.60	1	1.39	72

Source : Processed using RStudio, 2026

The frequency distribution table shows that the majority of inflation rates in Indonesia during the 2020–2025 period are concentrated within the lower to moderate intervals. The highest frequency is observed in the 1.28% – 2.04% interval, which contains 26 observations or 36.11% of the total data. This indicates that low inflation levels were the most dominant condition throughout the study period. When combined with the next interval (2.04% – 2.80%), which accounts for 25.00% of the observations, more than 60% of the data falls within the range of approximately 1.28% to 2.80%. This finding suggests that inflation in Indonesia was generally stable and remained within a controlled range during most months.

At the lower end of the distribution, only a very small proportion of observations fall below 1.28%, including a single occurrence of negative inflation (deflation), representing 1.39% of the data. This indicates that periods of very low or negative inflation were rare and temporary. On the other hand, higher inflation levels above 3.56% are relatively infrequent. Although there are a few observations in the upper intervals (particularly between 4.32% and 5.84%), each class contains only a small percentage of the total data. The highest interval (5.84% – 6.60%) includes only 1.39% of observations, confirming that extreme inflation values occurred only occasionally.

Overall, the distribution exhibits a positively skewed pattern, where most values are concentrated in the lower intervals with a gradual tail extending toward higher inflation levels. This pattern indicates that inflation is generally stable but occasionally experiences spikes due to economic shocks. These findings are supported by international empirical research, which shows that inflation in many economies tends to be relatively stable under normal conditions but can exhibit asymmetric behavior and occasional spikes due to external shocks and macroeconomic disturbances (Ball & Mazumder, 2019).

Histogram Analysis

To better understand the overall distribution pattern of inflation rates over the observed period, a histogram was constructed to visually represent how frequently various inflation values occurred. In addition to complementing the frequency distribution analysis, this visualization provides a clearer depiction of the shape, spread, and concentration of the data. The use of a histogram also allows for the identification of distribution characteristics, such as skewness and data clustering, which are essential for interpreting inflation behavior. The following figure shows the histogram along with a trend line that illustrates the central tendency and overall distribution pattern of the data.

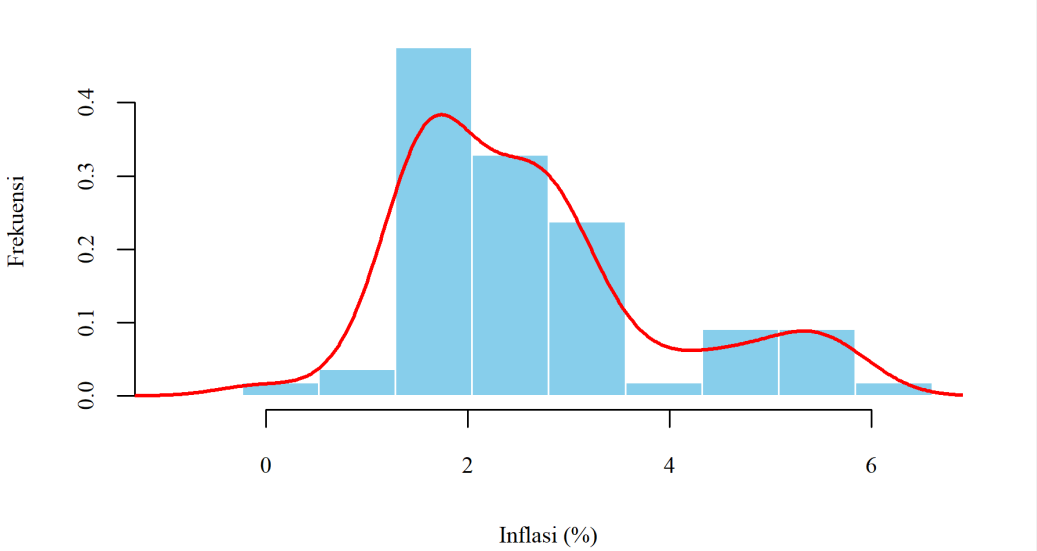

Figure 1. Histogram of Indonesia's Inflation Rates (January 2020 – December 2025) with Trend Line

The histogram of monthly inflation rates from 2020 to 2025 shows that the data are predominantly concentrated in the range of approximately 1.5% to 3.0%, as indicated by the highest bars and the peak of the density curve. This suggests that most inflation observations fall within the low to moderate range, confirming the results of the frequency distribution analysis. The overall shape of the histogram indicates a positively skewed (right-skewed) distribution, characterized by a longer tail extending toward higher inflation values (above 4%). While the majority of the data clusters around the central range, there are relatively few observations at higher inflation levels, creating the rightward tail. This pattern is consistent with the previously obtained skewness value (0.92).

Additionally, the density curve shows a single dominant peak (unimodal distribution), indicating that inflation values tend to center around a common range rather than forming multiple clusters. However, there is a slight extension toward higher values (around 5%–6%), which reflects occasional inflation spikes during certain periods. The lower end of the distribution shows very few observations, including a near-zero or negative inflation value, indicating that deflation is rare and not a dominant characteristic of the dataset. Overall, the histogram confirms that inflation in Indonesia during the study period was generally stable and concentrated within a moderate range, with occasional higher-value deviations. This pattern reflects relatively controlled inflation conditions, with temporary increases likely driven by external shocks and economic adjustments.

These findings are consistent with previous studies, which suggest that inflation in many economies tends to remain relatively stable under normal conditions, but may experience temporary increases due to macroeconomic shocks and policy adjustments (Ascari & Sbordone, 2014).

Discussion

The analysis of both the frequency distribution and the histogram provides a comprehensive understanding of the inflation dynamics in Indonesia during the 2020–2025 period. The results consistently indicate that inflation predominantly remained within a low to moderate range, with only a limited number of observations falling into higher inflation intervals. This pattern suggests a generally stable macroeconomic environment, where price levels did not experience extreme fluctuations for most of the observed months.

The dominance of inflation values between approximately 1.00% and 3.00%, as indicated by the highest frequencies in the distribution table, reflects controlled price movements and aligns with the inflation management efforts commonly undertaken by monetary authorities. The histogram further illustrates this pattern through its positively skewed shape, in which a substantial concentration of data points appears at the lower end of the inflation spectrum. The trend line reinforces this observation by peaking around 1.5% to 2.0%, highlighting the modal range of inflation during the six-year period.

The presence of only a few months with inflation rates exceeding 4.0% suggests that such periods may have been influenced by temporary external shocks, such as supply disruptions, global economic uncertainty, or domestic policy adjustments. However, these higher inflation episodes did not significantly alter the overall distribution, which remained anchored toward lower values. This characteristic indicates

that the Indonesian economy exhibited resilience and maintained relative price stability despite occasional upward pressures.

Overall, the descriptive analyses provide valuable insight into the inflation behavior of Indonesia during the observed timeframe. The findings highlight a general tendency toward stable inflation, supported by both statistical distributions and visual patterns. These results offer a meaningful basis for policymakers, researchers, and stakeholders to further interpret economic conditions, evaluate policy measures, and formulate strategies aimed at sustaining inflation stability in the future.

CONCLUSION

This study analyzed Indonesia's monthly inflation data from January 2020 to December 2025 using descriptive statistics, frequency distribution, and histogram analysis to understand its overall pattern and behavior. The results show that inflation during this six-year period was generally concentrated within the low to moderate range, particularly between 1.28% and 2.80%, indicating relatively stable price conditions. The frequency distribution analysis reveals that the largest proportion of observations falls within the 1.28% – 2.04% interval (36.11%), followed by the 2.04% – 2.80% interval (25.00%), meaning that more than 60% of the data is concentrated within this range. This finding confirms that inflation in Indonesia was predominantly stable throughout the observation period. The histogram further indicates a positively skewed (right-skewed) distribution, where most inflation values are clustered at lower levels, while higher inflation rates occur less frequently but form a longer tail. Additionally, the presence of a small number of extreme values, including a brief period of deflation (-0.09%) and higher inflation reaching 5.95%, reflects temporary fluctuations influenced by external shocks, particularly during the post-pandemic recovery period. Overall, the findings suggest that inflation in Indonesia remained relatively well-controlled, despite experiencing moderate fluctuations and occasional spikes. These patterns highlight the importance of maintaining consistent and responsive monetary and fiscal policies to ensure price stability. Policymakers are encouraged to remain vigilant in anticipating inflationary pressures, especially during periods of global economic uncertainty, while continuing to support sustainable economic growth.

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