

Volatility of essential food prices and regional inflation in Indonesia: empirical evidence from South Sulawesi

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ABSTRACT

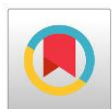
Purpose: to analyze the effect of staple food prices (shallot, garlic, red and green chili peppers, beef, and chicken) on inflation in South Sulawesi

Method: this study employs a quantitative approach using secondary monthly time series data from 2021 to 2025 in South Sulawesi. Multiple linear regression analysis is applied to examine the impact of staple food prices on inflation, supported by classical assumption tests and hypothesis testing using t-test and F-test.

Findings: staple food prices jointly have a significant effect on inflation in South Sulawesi. However, only green chili pepper and beef prices have a positive and significant impact on inflation, while shallot, garlic, red chili peppers, and chicken prices do not show a significant effect.

Implications: inflation-control policies in South Sulawesi should prioritize stabilizing the prices of green chili peppers and beef, as these are the most influential commodities. The study also highlights the importance of focusing on volatile food commodities in regional inflation management strategies.

Originality: lies in its simultaneous analysis of multiple staple food commodities (shallot, garlic, red and green chili peppers, beef, and chicken) at the regional level of South Sulawesi.



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Introduction

Food is the most basic human need and is an important component in developing the quality of human resources (Ferreira et al., 2025). Law of the Republic of Indonesia Number 18 of 2012 concerning Food emphasizes that the fulfillment of food is part of the human rights guaranteed in the 1945 Constitution of the Republic of Indonesia. Food includes everything that comes from biological sources, whether from the agricultural, plantation, forestry, fisheries, livestock, or aquatic sectors, and is intended for human consumption. Therefore, the availability, affordability, and stability of food prices are

strategic aspects in supporting national food security and public welfare (Bozsik et al., 2022).

In the national food policy, the government has designated several strategic food commodities as top priorities in achieving food self-sufficiency, including rice, corn, soybeans, sugar, beef, shallot, and red chilies (Agustian et al., 2026). Stable supply and prices of these commodities are crucial not only to fulfill the mandate of Law Number 18 of 2012 concerning Food, but also to ensure public access to staple foods that are physically and economically affordable (Sutrisno, 2022). Rice, for example, is a strategic commodity because more than 90% of Indonesians rely on it as a staple food, so rice production policies focus on increasing productivity and expanding planting areas, particularly outside Java (Dewi, 2019). However, production disparities between regions still result in surpluses in some areas and deficits in others, necessitating strong coordination between local governments and stakeholders to maintain food availability and price stability (Omay et al., 2025).

Besides rice, shallot are a strategic horticultural commodity that plays a significant role in household consumption and the Indonesian economy. They are not only widely used in daily cooking but also contain bioactive compounds such as quercetin, flavonoids, and sulfur compounds that offer health benefits, including immunomodulatory, anticancer, and antidiabetic effects (Gurunathan et al., 2023; Kaushik et al., 2026; Saadony et al., 2025). High domestic demand makes shallot a commodity that significantly impacts national food price stability (Fadhilah et al., 2023). Previous research has shown that shallot demand is influenced by domestic prices, consumer income, and household size (Wibowo & Surbakti, 2023). Consequently, shallot price fluctuations are often a major driver of food inflation in Indonesia.

Inflation is a macroeconomic issue that significantly impacts economic stability and public welfare. Inflation is defined as a general and persistent increase in the prices of goods and services over time (Salfiah, 2025). High inflation rates can reduce people's purchasing power, reduce household welfare, and create economic instability (Nurhasanah & Nugroho, 2024). Several studies have shown that inflation in Indonesia is influenced by various factors, such as the money supply, interest rates, and exchange rates (Fauziyah & Amaliah, 2024; Sihotang et al., 2024; Sinaga et al., 2025). From an economic perspective, inflation occurs when the money supply increases faster than demand, leading to a decline in people's purchasing power (Hansen & Newman, 2023). Therefore, controlling inflation is a crucial agenda item in both national and regional economic policies.

One effort to control inflation is maintaining food price stability, particularly for volatile food commodities (Kaur, 2023; Mamun & Laborde, 2025). In Indonesia, regional inflation is often triggered by price increases for strategic commodities such as shallot, red chilies, cooking oil, beef, and chicken. These commodities are highly sensitive to seasonal changes, distribution disruptions, weather conditions, and production fluctuations. Research by Siregar et al. (2025) shows that volatile food commodities are a major contributor to short-term inflationary pressures in various regions. Furthermore, cooperation between local governments and stakeholders is considered crucial for maintaining food availability and controlling price fluctuations (Tuhuteru & Rumbiak, 2025).

South Sulawesi province is a strategic food-producing region in eastern Indonesia. Despite its significant agricultural potential, South Sulawesi still faces price fluctuations for staple foods, particularly shallot, garlic, red chilies, green chilies, beef, and chicken. These commodity price fluctuations often trigger regional inflation and

reduce people's purchasing power (Ginn, 2023). Several factors, including seasonal production patterns, limited distribution, high transportation costs, and supply-and-demand imbalances, influence food price volatility in South Sulawesi. This phenomenon indicates that food price stability remains a significant challenge in controlling regional inflation.

Various previous studies have discussed the factors influencing inflation in Indonesia, both from a monetary and a food price perspective (Arintoko et al., 2024; Prayoga et al., 2025; Priastiwi, 2025; Rivai, 2022; Zhou & Chen, 2023). However, empirical research specifically analyzing the effect of staple food price volatility on regional inflation in South Sulawesi remains relatively limited. Most previous studies have focused on the national level or examined only one specific commodity without analyzing several strategic commodities simultaneously. Furthermore, research linking food price dynamics to regional inflation in South Sulawesi is still rare. This research gap highlights the need for more specific studies at the regional level to gain a more comprehensive understanding of the contribution of food price fluctuations to regional inflation.

This study aims to analyze the influence of staple food prices on regional inflation in South Sulawesi. The commodities analyzed include shallot, garlic, red chilies, green chilies, beef, and chicken. The novelty of this study lies in the simultaneous analysis of several strategic food commodities in explaining regional inflation dynamics in South Sulawesi. Unlike previous studies that focused more on macroeconomic factors or national-level analyses, this study adopts a more specific regional approach, focusing on food price volatility. This research is expected to enrich the literature on regional inflation and food price volatility in Indonesia. Furthermore, this research is expected to inform local governments and policymakers in formulating more effective strategies to control inflation and stabilize food prices. Furthermore, this research is also expected to support efforts to strengthen regional food security and maintain economic stability and public welfare in South Sulawesi.

Shallots are a strategic horticultural commodity that significantly contributes to food inflation in Indonesia (Matondang et al., 2024). Based on the cost-push inflation theory, rising shallot prices will increase household consumption costs and drive up the prices of various food products (Rosyid & Pratiwi, 2024). Furthermore, shallots are a staple food used in almost all household activities, making their prices highly sensitive to inflation rates (Merry et al., 2026). Previous research has shown that shallots are one of the volatile food commodities that predominantly influence regional inflation in Indonesia (Siregar et al., 2025). Research by Wibowo & Surbakti (2023) also shows that high demand for shallot frequently causes their prices to fluctuate, undermining food price stability. Based on this description, the first hypothesis in this study is: H1: Shallot prices have a positive effect on inflation in South Sulawesi.

Garlic is an important food commodity widely consumed by Indonesians, and its supply remains largely dependent on imports (Kiloes et al., 2024). According to the cost-push inflation theory, increases in garlic prices can raise production costs and household consumption, thereby pushing up the general price level (Feryanto et al., 2025). Dependence on imports also makes garlic prices vulnerable to exchange rate fluctuations and disruptions in international distribution (Phillips et al., 2024). Previous research has shown that garlic prices are a food commodity that contributes to food inflation in Indonesia, especially during times of supply disruptions and seasonal increases in demand (Anwar et al., 2023). Based on this explanation, the second hypothesis is: H2: Garlic prices have a positive effect on inflation in South Sulawesi.

Red chili is a volatile food commodity that often experiences extreme price fluctuations due to changes in weather, harvest seasons, and distribution (E. P. Lestari et al., 2022). Inflation theory holds that increases in the prices of strategic food commodities can drive inflation by increasing public consumption expenditure (Zhou & Chen, 2023). Red chili has a significant weight in the food group of the consumer price index (CPI), so changes in its price significantly affect regional inflation rates. Research by Siregar et al. (2025) shows that red chili is a major contributor to short-term inflation in Indonesia. Based on this description, the third hypothesis is: H3: The price of red chili has a positive effect on inflation in South Sulawesi.

Green chilies are a horticultural commodity widely consumed by the public and are characterized by fluctuating prices (Saptana et al., 2022). Based on the theory of supply and demand, limited supply due to production or distribution disruptions will increase the price of green chilies and push up the prices of other food items (Muflikh et al., 2023). An increase in green chili prices can boost household consumption expenditure, thereby putting pressure on regional inflation. Previous research on horticultural commodities has shown that changes in chili prices affect the dynamics of food inflation in Indonesia (Anwar et al., 2023). Based on this explanation, the fourth hypothesis is: H4: The price of green chilies has a positive effect on inflation in South Sulawesi.

Beef is a primary source of animal protein with relatively high demand, particularly during religious holidays and other special occasions (Bachewe et al., 2023). According to the cost-push inflation theory, rising beef prices will increase household consumption expenditures and push up overall prices (Funke et al., 2022). Distribution factors, feed costs, and dependence on imported feeder cattle also influence beef prices (Hilmiati et al., 2024). Previous research has shown that beef prices are a contributing factor to food inflation in various regions of Indonesia (Setyoaji et al., 2023). Based on this description, the fifth hypothesis is: H5: Beef prices have a positive effect on inflation in South Sulawesi.

Chicken is a food commodity with high consumption rates due to its relatively more affordable price compared to beef (Baladina et al., 2024). According to the cost inflation theory, rising chicken prices will increase consumer spending and affect the prices of other goods (Tsiboe et al., 2024). Feed prices, distribution, and market demand typically influence fluctuations in chicken prices (Xie et al., 2024). Previous research has shown that chicken prices contribute to inflation in Indonesia's food, beverage, and tobacco group (Anwar et al., 2023). Based on this explanation, the sixth hypothesis is: H6: Chicken prices have a positive effect on inflation in South Sulawesi.

Methods

This study uses a quantitative approach, with descriptive methods and econometric analysis, to examine the effect of staple food price volatility on regional inflation in South Sulawesi province. The quantitative approach was chosen because this study aims to empirically measure the relationship between food commodity prices and inflation rates through numerical data processing. Descriptive analysis is used to describe the development of food commodity prices and inflation rates during the study period, while regression analysis is used to identify the effect of each independent variable on inflation. The study was conducted in Makassar city, South Sulawesi province. The research location was selected using purposive sampling, considering that Makassar city is the capital of South Sulawesi province and one of the regions with the largest contribution to regional inflation. Furthermore, Makassar serves as a food

distribution and trade center in Eastern Indonesia, so food price dynamics in this region significantly influence regional inflation.

The data used in this study are secondary, in the form of a monthly time series covering the period January 2021 to December 2025. Data were obtained from the Makassar city Food Security Agency, the Central Statistics Agency (CSA), and other supporting sources relevant to the study. The variables used include dependent and independent variables. The dependent variable in this study is regional Inflation, measured as a percentage (%). Meanwhile, the independent variables include the price of shallot, garlic, red chilies, green chilies, beef, and chicken, measured in rupiah per kilogram (IDR/kg). To analyze the effect of food prices on regional Inflation, a multiple linear regression analysis model was used. This model was chosen because it can explain the simultaneous relationship between several independent variables and a single dependent variable. The independent variable consists of the price of shallot (IDR/kg), price of garlic (IDR/kg), price of red chili peppers (IDR/kg), price of green chili peppers (IDR/kg), price of beef (IDR/kg), and price of chicken (IDR/kg), while the dependent variable is Inflation (%).

Data analysis was conducted using SPSS 23 software. The analysis stages included descriptive analysis, classical assumption tests, and multiple linear regression analysis. The classical assumption tests were conducted to confirm the regression model, including normality and multicollinearity tests. Furthermore, hypothesis testing was conducted using partial tests (t-tests) to determine the effect of each independent variable on inflation, and simultaneous tests (F-tests) to determine the effect of all independent variables together on inflation. The results of the analysis are expected to provide an empirical picture of the contribution of staple food price fluctuations to regional inflation in South Sulawesi, which can serve as a basis for formulating food price stabilization policies and controlling regional inflation.

Results and discussion

Food price trends in South Sulawesi

The theory of food commodity price trends originates from microeconomics, where prices are determined by the interaction between demand (consumers) and supply (producers/farmers). Food prices are highly sensitive to fluctuations (changes) due to external factors such as weather, pests, distribution, and government policies (such as HPP/HET). Price increases often lead to inflation and reduce purchasing power, particularly for the poor. Unstable food prices pose a risk to developing countries. If food prices rise, inflation will increase, and economic growth will decline, which will subsequently impact household conditions, particularly among the poor. The prices of key food commodities, which serve as variables in this study, include shallot, garlic, red chili peppers, bird's eye chili peppers, beef, and chicken. The prices of these key food commodities are typically more volatile, thereby influencing inflation rates in South Sulawesi.

The price trends for shallot and garlic from 2021 to 2025 show that shallot prices tend to fluctuate more sharply than garlic prices. Shallot prices ranged from a low of IDR 12,500/kg in July 2021 to a high of IDR 50,500/kg in August 2022. Meanwhile, garlic prices showed a relatively stable pattern, rising year over year, with the highest price in April 2025 at IDR 44,050/kg. In general, garlic prices are higher than shallot prices, though in some months shallot prices briefly exceeded garlic prices during supply-and-

demand surges. These findings indicate that shallot exhibit greater price volatility, whereas garlic exerts more consistent price pressure over the long term.

As shown in Figure 1, the price changes for shallot and garlic from January 2021 to December 2025 reveal that the two commodities exhibit different price movement patterns. Shallot prices tend to fluctuate sharply from month to month, while garlic prices show a more stable pattern with a long-term upward trend. This difference in patterns indicates that the market characteristics of the two commodities differ in terms of supply, distribution, and response to changes in demand. In 2021, shallot prices dropped from IDR. 23,500/kg in January to IDR. 12,500/kg in July, before rising again to IDR. 16,650/kg in December. Meanwhile, garlic prices in the same year remained relatively stable, ranging from IDR. 25,500/kg to IDR. 27,700/kg. These conditions indicate that in 2021, shallot supply was abundant, especially in the middle of the year, while garlic prices remained more stable and did not experience significant market disruptions. The highest fluctuations occurred in 2022, particularly for shallot. The price of shallot surged from IDR. 19,000/kg in June to IDR. 47,750/kg in July, peaking at IDR. 50,500/kg in August. After that, the price dropped back to IDR. 23,750/kg in September. This sharp price spike indicates an imbalance between supply and demand, likely influenced by seasonal factors, distribution disruptions, or limited production at certain times.

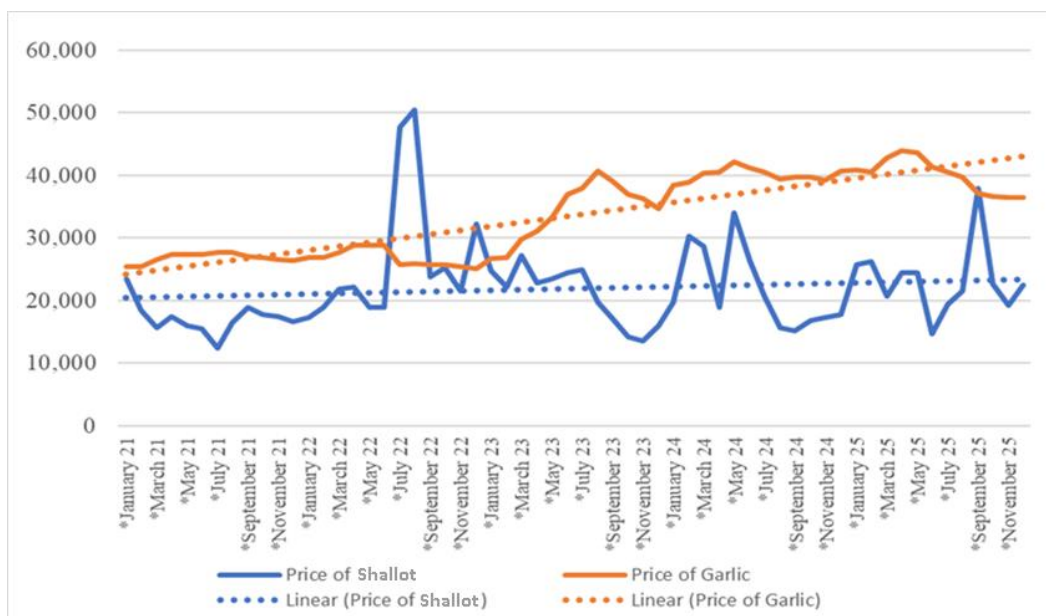


Figure 1 price trends for shallot and garlic (2021-2025)

Source: secondary data, processed

In contrast, garlic prices in 2022 remained within a stable range, ranging from approximately IDR. 25,150/kg to IDR. 28,850/kg. In 2023, shallot prices began to show a more regular pattern than the previous year, although they remained volatile within the IDR range. 13,500/kg to IDR. 27,150/kg. Meanwhile, garlic prices rose sharply, from IDR. 26,800/kg in January to IDR. 40,650/kg in August. This increase indicates that price pressure on garlic is intensifying and becoming more sustained. In 2024 and 2025, shallot prices remain volatile but do not experience the extreme spikes seen in 2022. The price of shallot in 2024 briefly reached IDR. 34,000/kg in May, then declined and stabilized through the end of the year. In 2025, the price of shallot became volatile again, with a spike in September to IDR 38,000/kg. In contrast, garlic prices in 2024 and 2025

remained high, ranging from IDR 38,450/kg to IDR 42,250/kg in 2024 and IDR 36,450/kg to IDR 44,050/kg in 2025. This indicates that, over the past two years of observation, garlic has experienced the most consistent price pressure. Overall, this study finds that shallot prices exhibit greater fluctuations than garlic prices. These fluctuations are evident in sharp spikes and drops over short periods, particularly in 2022. Meanwhile, garlic prices tend to be more stable but show a clear long-term upward trend. Thus, shallot have the potential to trigger short-term inflation, while garlic plays a greater role in causing more consistent inflation over the long term.

Monthly price trends for red chili peppers and green chili peppers during the 2021–2025 period. In general, the data shows that prices for both commodities are volatile, but red chili peppers tend to experience sharper price fluctuations than green chili peppers. In 2021, the price of red chili peppers declined from IDR. 26,450/kg in January to a low of IDR. 12,950/kg in September, then rose sharply to IDR 33,950/kg in December. In 2022, red chili pepper prices were relatively high in the first half of the year. Prices ranged from IDR 34,550 to IDR 42,700/kg from January to June, then continued to decline, reaching IDR 13,950/kg in December. Meanwhile, green chili prices were significantly lower than the previous year, ranging from IDR. 19,950 to IDR 32,250/kg. In 2023, red chili prices again showed sharp fluctuations. The lowest price occurred in January at IDR 14,750/kg, then rose to IDR 34,100/kg in June, dropped again in August to IDR 18,950/kg, and surged to a very high level in December at IDR 53,350/kg, which was one of the highest peaks during the entire period. In contrast, the price of green chili peppers throughout 2023 was relatively lower and more stable, ranging from IDR 19,500 to IDR 31,750 per kilogram. This indicates that the sharpest price surge in 2023 occurred with red chili peppers, particularly toward the end of the year. In 2024, the price of red chili peppers reached a high in March at IDR 58,100/kg, then dropped sharply in the following months to range between IDR 19,400 and IDR 30,500/kg by the end of the year.

The price of green chili peppers has remained relatively stable this year, ranging from IDR 19,500 to IDR 31,750 per kilogram, with little significant change in some months. In 2025, red chili prices rose again from the start of the year, from IDR 27,300/kg in January to IDR 49,550/kg in April, then fluctuated between IDR 25,450 and IDR 46,200/kg until the end of the year, closing at IDR 37,850/kg in December. Green chili prices moved more moderately, peaking in April at IDR 38,100/kg, then gradually declining to IDR 21,750/kg in December. From this data, it is evident that in 2025, both commodities experienced price increases at the start of the year, but red chili continued to exhibit a wider price range.

Figure 2 shows the price fluctuations of red and green chili peppers from January 2021 to December 2025. The price of green chili peppers at the beginning of the period, particularly in 2021, was very high, around IDR 60,000/kg, and gradually declined to the range of IDR 20,000–IDR 30,000/kg in subsequent years. The trend line for green chili peppers also shows a downward trend, indicating that, overall, green chili pepper prices during the observation period are declining. However, temporary increases still occurred, so the decline was not linear and continued to fluctuate. Meanwhile, red chili prices exhibit a different pattern. At the start of the period, prices ranged from IDR 27,000 to IDR 35,000 per kilogram, then experienced several sharp spikes, particularly around late 2023 through early 2024, and rose again in 2025. The peak for red chili peppers on the graph appears to reach around IDR 50,000–IDR 57,000/kg. The trend line for red chili peppers tends to rise, indicating that, overall, from 2021 to 2025, red

chili pepper prices followed an upward trajectory, though fairly sharp fluctuations still marked them.

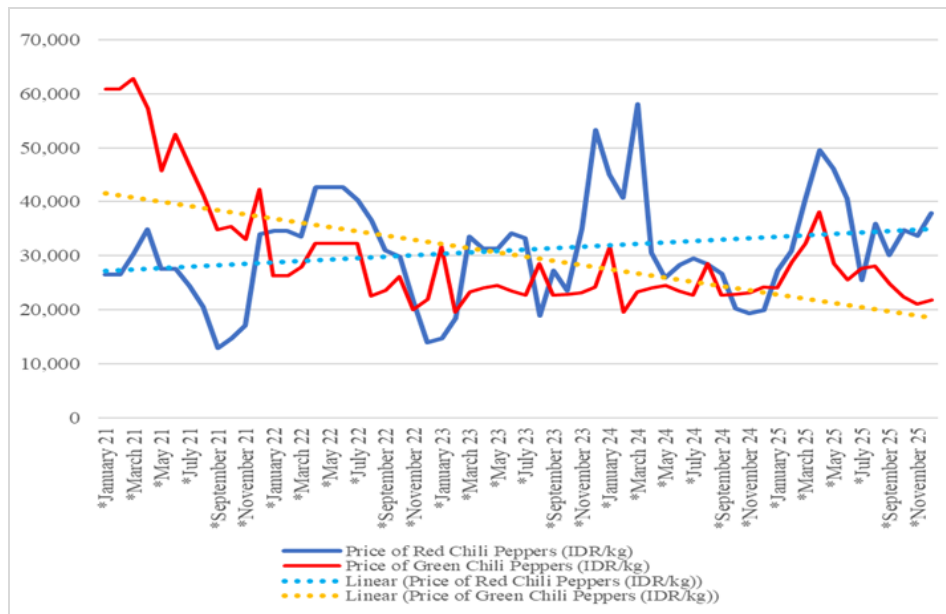


Figure 2 price trends for red and green chili peppers (2021-2025)
Source: secondary data, processed

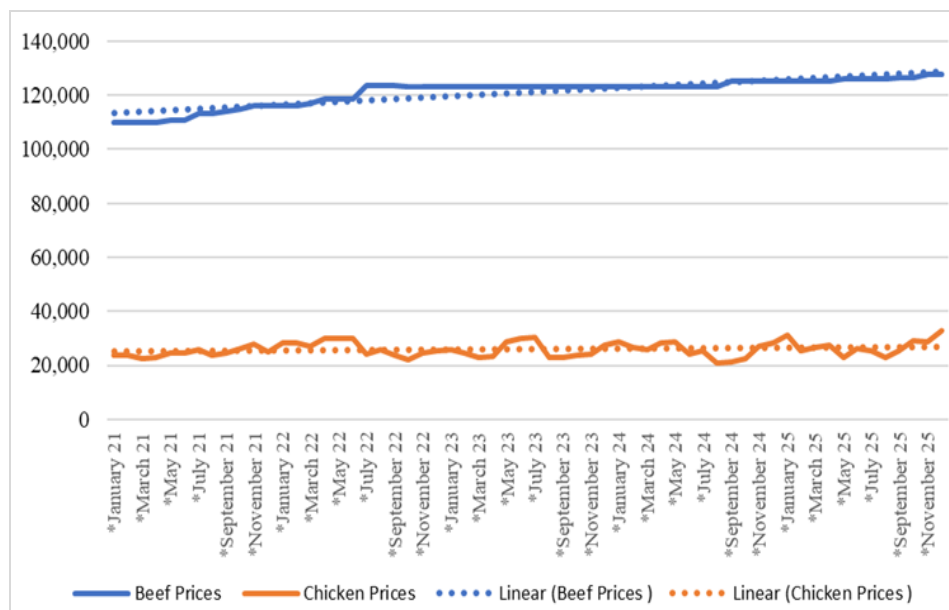


Figure 3 price trends for beef and chicken (2021-2025)
Source: secondary data, processed

When compared, this graph shows that red chili prices tend to fluctuate more in the middle to late stages of the period, while green chili prices are higher at the beginning of the period and then decline. In some months, the prices of the two commodities are close to each other, but at certain times, the difference is quite significant. This indicates that the price dynamics of red and green chili do not always move in the same direction, meaning each commodity has a different market response. Overall, the graph can be interpreted as follows: (1) red chili prices show an upward trend, (2) green chili prices show a downward trend, and (3) both experience fairly

sharp price fluctuations throughout the observation period. These conditions indicate that chili is a horticultural commodity vulnerable to price instability, necessitating careful attention to production management, distribution, and market stabilization.

Figure 3 shows the price fluctuations of beef and chicken from January 2021 to December 2025. Beef prices exhibit a relatively stable pattern with a gradual upward trend over the observation period. This is indicated by the beef price line, which rises gently from around IDR 110,000/kg at the beginning of the period to approximately IDR 127,500/kg at the end. The upward-sloping linear trend line further reinforces that beef prices are experiencing long-term growth. On the other hand, chicken meat prices exhibit a more fluctuating pattern with more frequent ups and downs from month to month. Nevertheless, the linear trend line for chicken meat prices remains upward, indicating that this commodity also generally shows a trend of rising prices. Thus, it can be concluded that beef has higher price stability than chicken, while chicken is more sensitive to market changes during the study period.

Normality test

The results of the normality test were conducted to determine whether the residual values in the regression model were normally distributed or not. The normality test in this study used the one-sample Kolmogorov-Smirnov test method. Based on the test results, the Asymp Sig value was 0.380, which is greater than the significance level of $\alpha = 0.05$. These results indicate that the residuals in the regression model are normally distributed, thereby meeting the normality assumption in the multiple linear regression model. With the normality assumption met, the regression model is considered suitable for further analysis, as the residuals are normally distributed and show no distributional deviations.

Multicollinearity test

A multicollinearity test is performed to determine whether there is a strong relationship or correlation between the independent variables in a regression model. A good regression model should be free of multicollinearity symptoms so that each independent variable can accurately explain its effect on the dependent variable. Multicollinearity testing in this study was conducted by examining the Tolerance and Variance Inflation Factor (VIF) values. If the tolerance value is >0.10 and the VIF value is <10 , the regression model is declared free of multicollinearity. The results of the multicollinearity test in this study are presented in Table 1.

Table 1 results of the multicollinearity test

Variables	Tolerance	VIF
Price of shallot	0.722	1.385
Price of garlic	0.401	2.496
Price of red chili peppers	0.812	1.232
Price of green chili peppers	0.246	4.058
Price of beef	0.151	6.614
Price of chicken	0.852	1.174

Source: secondary data, processed

Based on the results of the multicollinearity test in Table 1, it is known that all independent variables in the study have a tolerance value greater than 0.10 and a Variance Inflation Factor (VIF) value less than 10. The shallot price variable has a tolerance value of 0.722 and a VIF of 1.385, while the garlic price variable has a

tolerance value of 0.401 and a VIF of 2.496. Furthermore, the price of red chilies shows a tolerance value of 0.812 and a VIF of 1.232, whereas the price of green chilies shows a tolerance value of 0.246 and a VIF of 4.058. The beef price variable has a tolerance of 0.151 and a VIF of 6.614, while the chicken price variable has a tolerance of 0.852 and a VIF of 1.174. These results indicate that there is no multicollinearity in the regression model, as all variables meet the multicollinearity criteria: tolerance > 0.10 and VIF < 10. Thus, each independent variable does not have a strong linear relationship with the others, so the regression model is suitable for further analysis.

Hypothesis test

The results of the hypothesis testing in this study aimed to determine the effect of each staple food price variable on inflation in South Sulawesi, both partially and simultaneously. The testing was conducted using multiple linear regression, with a t-test to determine the effect of each independent variable on the dependent variable and an F-test to determine the effect of all independent variables together. The results of the hypothesis testing are presented in Table 2.

Table 2 results of the hypothesis test

Hypothesis	Coefficient	t	Sig
H1: Price of shallot → inflation	3.120	0.389	0.699
H2: Price of garlic → inflation	1.845	1.542	0.129
H3: Price of red chili peppers → inflation	1.030	1.826	0.073
H4: Price of green chili peppers → inflation	2.614	2.840	0.006
H5: Price of beef → inflation	6.252	2.519	0.015
H6: Price of chicken → inflation	2.051	1.036	0.305
F		2.889	0.016

Source: secondary data, processed

Based on the results of the hypothesis test in Table 2, it is known that not all food price variables have a significant effect on inflation in South Sulawesi. The shallot price variable has a regression coefficient of 3.120 and a significance value of 0.699 (> 0.05), indicating that shallot price does not have a significant effect on inflation (H1 is rejected). The garlic price variable also does not have a significant effect on inflation, with a coefficient of 1.845 and a p-value of 0.129 (> 0.05); thus, H2 is rejected. Furthermore, the price of red chilies has a coefficient of 1.030 and a significance value of 0.073 > 0.05, indicating it does not have a significant effect at the 95% confidence level (H3 is rejected).

Meanwhile, the price of green chilies is found to have a positive and significant effect on inflation, with a coefficient of 2.614, a t-value of 2.840, and a significance level of 0.006 < 0.05 (H4 is accepted). This indicates that every increase in the price of green chilies tends to increase inflation in South Sulawesi. In addition, beef price has a positive and significant effect on inflation, with a coefficient of 6.252, a t-value of 2.519, and a significance level of 0.015 < 0.05 (H5 is accepted). This finding indicates that higher beef prices contribute to regional inflation. On the other hand, the price of chicken meat does not have a significant effect on inflation because its significance value is 0.305 > 0.05, although the regression coefficient is positive at 2.051 (H6 is rejected).

Simultaneously, all independent variables in this study significantly influenced inflation in South Sulawesi. This is indicated by the F-value of 2.889 with a significance level of 0.016 < 0.05. Thus, it can be concluded that staple food prices collectively

influence the inflation rate in South Sulawesi, although only the prices of green chilies and beef were partially significant.

The effect of the price of shallot on inflation

The results show that shallot prices do not significantly influence inflation in South Sulawesi, as indicated by a positive regression coefficient. Although the relationship tends to be positive, statistically it is not strong enough to explain regional variations in inflation. This finding indicates that shallot price fluctuations during the study period were not a dominant factor driving changes in the inflation rate in South Sulawesi, unlike other food commodities that are more price-sensitive.

Based on the cost-push inflation perspective, rising food commodity prices should increase household consumption costs and drive up the general price level. However, in the context of the shallot, these results indicate that the inflation transmission mechanism is not working strongly. This can be explained by the theory of supply and demand, which states that although shallots are a strategic commodity, the market can respond to price fluctuations through consumption substitution, interregional distribution, or supply stabilization from production centers (Uli, 2024). Empirical evidence from the field also indicates that the government and market players often intervene in distribution and price stabilization when shallot prices spike, thereby mitigating their impact on inflation.

These results align with previous research showing that not all strategic commodities significantly affect inflation at the regional level, especially when effective price-stabilization mechanisms are in place (Ikue, 2024). Some studies, in fact, found that commodities with extreme volatility and greater supply dependency contribute more to inflation (Abaidoo & Agyapong, 2022, 2024; Diaz et al., 2024). These findings imply that inflation control policies in South Sulawesi cannot focus solely on shallots but must also consider other commodities with greater impact, such as chilies and meat. Moving forward, strengthening the distribution system, increasing local productivity, and managing food stocks more effectively are needed to control shallot price fluctuations and prevent them from potentially triggering future inflation.

The effect of garlic prices on inflation

The study's results indicate that garlic prices do not significantly affect inflation in South Sulawesi. Although the relationship is positive, statistically, the effect is not strong enough to explain changes in regional inflation during the study period. This finding indicates that garlic price fluctuations are not yet a major factor in determining inflation dynamics in South Sulawesi, unlike other, more volatile food commodities.

From a cost-push inflation perspective, rising prices of essential commodities for public consumption can increase the cost of living and ultimately drive inflation. However, in the context of garlic, this mechanism does not appear to be operating to any significant extent. This can be explained by the characteristics of the Indonesian garlic market, which remains largely dependent on imports (Feryanto et al., 2025; Kiloes et al., 2024). Hence, prices are more influenced by global supply stability and trade policies than by fluctuations in domestic demand alone (Puspitasari et al., 2024; Yusuf et al., 2025). Furthermore, according to supply and demand theory, garlic consumption tends to be relatively stable and has low elasticity, so price changes do not immediately drastically alter public consumption patterns (Kiloes et al., 2024). Empirical evidence from the field also indicates that the government frequently intervenes through imports

and stock stabilization to maintain stable garlic prices, thereby mitigating the impact on regional inflation.

These findings align with previous research showing that not all imported food commodities contribute significantly to regional inflation, particularly when effective price- and supply-stabilization policies are in place (Mujihartono et al., 2023). Several studies also confirm that garlic's impact on inflation tends to be indirect and more pronounced during periods of extreme global supply disruptions (Yilmazkuday, 2026). This research implies that inflation control policies in South Sulawesi need not focus too much on garlic as the primary contributor to inflation, but rather on strengthening supply stability and distribution efficiency to maintain price control. Moving forward, the government needs to increase supply resilience by diversifying import sources, strengthening strategic food reserves, and improving distribution coordination to prevent garlic price fluctuations from becoming a future inflation risk.

The effect of the price of red chili peppers on inflation

The results show that the price of red chili peppers does not significantly affect inflation in South Sulawesi, as indicated by a positive coefficient. Although the direction of the relationship suggests that rising red chili pepper prices tend to increase inflation, this effect is not statistically significant. This finding indicates that during the study period, fluctuations in red chili pepper prices were not yet a dominant factor in directly influencing regional inflation in South Sulawesi, although they still exert economic pressure on general price levels.

Based on the cost-push inflation perspective, rising prices of volatile food commodities such as red chilies should raise household consumption costs, ultimately pushing up inflation. From the perspective of supply and demand theory, red chilies are a highly volatile commodity due to their dependence on weather factors, harvest seasons, and distribution disruptions (Vetricia et al., 2025). However, the insignificant effect of red chilies in this study can be explained by market adjustment mechanisms, such as substituting consumption of red chilies with green chilies or other substitute products, as well as government intervention through market operations and price stabilization during certain periods (Wasita et al., 2025). Empirical evidence from the field also indicates that, despite price spikes at certain times, their impact on overall inflation can be mitigated by the stability of other commodity prices and regional inflation-control policies.

These findings align with previous research, which suggests that although red chilies are a key volatile food commodity, their impact on regional inflation is not consistently significant, as they are heavily influenced by the observation period and the effectiveness of price stabilization policies (I. Lestari, 2025). Several studies have found that red chilies' contribution to inflation is more short-term and seasonal (Masani et al., 2025; Putri et al., 2025). These findings imply that inflation control in South Sulawesi cannot rely solely on red chilies but requires a more comprehensive approach that takes into account other commodities with more stable and significant impacts. Moving forward, the regional government needs to strengthen its price information system, increase distribution efficiency, and strengthen inter-regional reserves and supply to mitigate red chili price volatility and prevent it from becoming a potential source of inflationary pressure during certain periods.

The effect of the price of green chili peppers on inflation

The study's results indicate that the price of green chili peppers has a positive and significant impact on inflation in South Sulawesi. This finding indicates that increases in the price of green chili peppers significantly increase the regional inflation rate. Thus, green chili peppers are proven to be a strategic food commodity that significantly contributes to inflation dynamics in South Sulawesi during the study period. This finding aligns with the cost-push inflation theory, which explains that increases in volatile food commodity prices will increase household consumption costs, thereby driving up the general price level (Brander et al., 2023). In the context of supply and demand theory, green chili peppers are a horticultural commodity highly sensitive to weather factors, planting seasons, and distribution disruptions, making them susceptible to price fluctuations (Ahmad et al., 2024). Unlike other commodities, green chili peppers have relatively stable consumption patterns in Indonesian households, so price increases directly affect people's daily expenses (Hartono et al., 2023). Empirical evidence from the field also shows that when production or supply disruptions occur, the price of green chili peppers can increase sharply and is difficult to substitute in the short term, thereby exerting direct pressure on regional inflation.

These results are consistent with previous research indicating that chilies, particularly green chilies, are volatile food commodities that significantly contribute to regional inflation in Indonesia (I. Lestari, 2025). Several studies have also confirmed that chilies are among the commodities with a high inflation weight within the food group, due to their price inelasticity (Alim & Prajanti, 2025; Vetricia et al., 2025). These findings imply that inflation control in South Sulawesi requires special attention to the stability of green chili prices. Moving forward, the regional government needs to strengthen local production through the development of horticultural centers, improve efficient distribution systems, and establish inter-regional supply reserve mechanisms to mitigate the impact of green chili price fluctuations on inflation. Price stabilization efforts also need to be strengthened by a faster, more responsive market information system to anticipate price fluctuations earlier.

The effect of beef prices on inflation

The study's results indicate that beef prices have a positive and significant effect on inflation in South Sulawesi. This finding indicates that increases in beef prices significantly increase the regional inflation rate. Thus, beef is proven to be a food commodity that significantly contributes to inflation in South Sulawesi during the study period, with a relatively stronger influence than several other food commodities in the model.

These results are consistent with the cost-push inflation theory, which holds that increases in the prices of strategic food commodities raise household consumption costs, thereby driving up the general price level (Arndt et al., 2023). From a supply-and-demand perspective, beef prices are heavily influenced by production costs, feed prices, feeder cattle availability, and reliance on imports (Bozma et al., 2023). Furthermore, beef is characterized as a high-value consumer good with relatively low demand elasticity, particularly during certain periods such as religious holidays (Kusumaningrum et al., 2024). Therefore, price increases tend to impact inflation directly. Empirical evidence from the field also indicates that spikes in demand during certain periods are often not matched by adequate supply, resulting in rising prices and significant inflationary pressures in the regions.

These findings align with previous studies showing that beef is a major contributor to food inflation in Indonesia, particularly in areas with high interregional supply dependency (Danasari et al., 2023). Several studies also confirm that beef prices contribute significantly to inflation due to their sensitivity to supply disruptions and changes in input costs (Bozma et al., 2023; Nava et al., 2023). These findings imply that inflation control policies in South Sulawesi require serious attention to beef price stability. Moving forward, the regional government needs to strengthen the beef supply chain by increasing local production, reducing dependence on imports, and optimizing interregional distribution. Furthermore, strengthening strategic food reserves and monitoring prices during periods of high demand are crucial to maintaining regional inflation stability.

The effect of chicken prices on inflation

The study's results indicate that chicken prices do not significantly affect inflation in South Sulawesi. Although the direction of the relationship indicates a positive effect, statistically, this effect is not strong enough to explain changes in regional inflation during the study period. This finding indicates that fluctuations in chicken prices are not a major driver of inflation in South Sulawesi, unlike other commodities such as green chilies and beef, which have a more dominant influence.

According to the cost-push inflation theory, rising food commodity prices should increase household consumption costs and raise the general price level (Headey & Hirvonen, 2023). However, in the context of chicken, this mechanism does not appear to be working significantly. This can be explained by the relatively more stable characteristics of the chicken market compared to horticultural commodities, as chicken production is more integrated and has a faster production cycle, making supply more easily aligned with demand (Abbasi et al., 2024). From a supply-and-demand perspective, chicken also has a higher price elasticity because it is a primary substitute for beef; when prices rise, consumers can easily switch to other protein sources or cheaper brands (Swann & Kelly, 2023). Empirical conditions in the field also indicate a more structured chicken production system (integrated livestock and feed industries) and relatively active market intervention, so price volatility does not directly affect regional inflation.

These findings align with previous research, which found that chicken meat's contribution to inflation tends to be lower than that of volatile food commodities like chilies and beef, due to greater supply stability and the existence of consumption substitution (Aphane et al., 2024). Several studies also confirm that the impact of chicken meat on inflation is usually indirect and more pronounced during extreme production disruptions (Attia et al., 2022; Bozma et al., 2023; Xie et al., 2024). These findings imply that inflation control policies in South Sulawesi need not focus too much on chicken meat prices, but rather on commodities with proven significant impacts. Going forward, even if the price is not significant, the government still needs to maintain the stability of the feed supply chain, distribution, and prices of chicken production inputs to prevent price spikes that could potentially turn into inflationary pressures under certain conditions.

Conclusions

The results show that staple food prices have varying effects on inflation in South Sulawesi. Simultaneously, the prices of shallots, garlic, red chilies, green chilies, beef, and chicken were shown to have a significant effect on inflation. However, partially, only the

prices of green chilies and beef had a positive and significant effect on inflation, while shallots, garlic, red chilies, and chicken did not. This finding indicates that regional inflation is more influenced by certain commodities with higher price sensitivity and limited supply, particularly green chilies and beef.

The implications of these findings suggest that inflation control in South Sulawesi needs to be more focused on stabilizing commodity prices, particularly those of green chilies and beef, which have proven significant. The results of this study also provide an important empirical contribution to the literature on regional inflation, particularly in the context of volatile food commodities. Furthermore, this study confirms that not all strategic commodities have the same impact on inflation, thereby requiring more selective inflation-control policies based on those that truly dominate changes in the general price level.

This study has limitations, namely, it uses only monthly time-series data for the 2021–2025 period, which limits its ability to capture broader long-term dynamics. The variables used are limited to food commodities, excluding other macroeconomic factors such as money supply, exchange rates, and interest rates, which can also influence inflation. This study focuses only on the South Sulawesi region (Makassar as a representative), so the generalizability of the results to other regions is still limited. Therefore, future research is recommended to include macroeconomic variables, extend the observation period, and employ more complex methodological approaches, such as dynamic models (ARDL or VAR) or cross-regional panel data analysis, to obtain more comprehensive and robust results.

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