

CHAPTER I

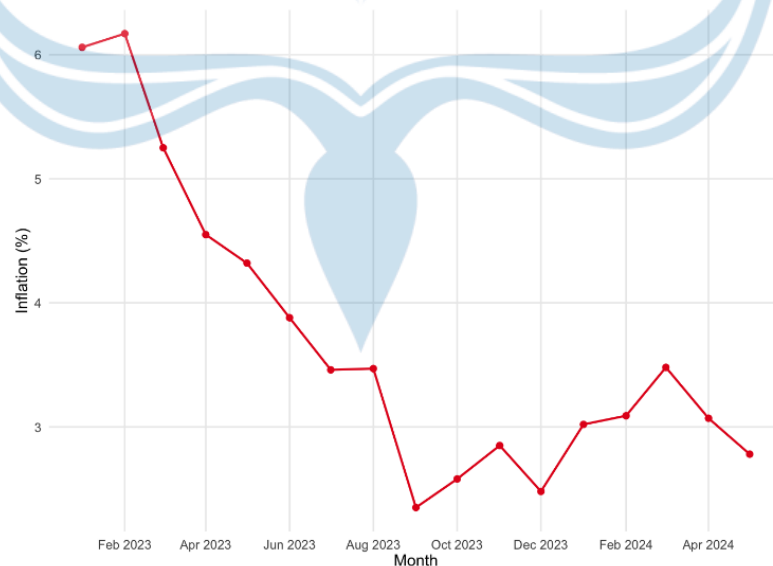
INTRODUCTION

1.1 Background of The Study

Staple food prices exert a profound influence on household welfare and food security in West Java, one of Indonesia's most populous and economically diverse provinces. However, in the global context, progress towards eliminating hunger and malnutrition has stalled in 2023. An estimate of 9.1 percent of the world's population remained undernourished, with Asia alone accounting for over half of those facing hunger (FAO 2024). Persistent drivers, such as lack of access to affordable healthy diets, economic shocks, and inequality, continue to undermine food stability which in return causes rural populations to bear a disproportionate burden of food insecurity. Daily fluctuations in the cost of essential items, such as rice, cooking oil, onions, and maize, can quickly erode purchasing power, especially among low-income households, and amplify short-term inflationary pressures. Nonetheless, most existing price-elasticity studies rely on monthly or annual data, which can obscure rapid consumption adjustments that households make when prices change day to day. Given that the global cost of a healthy diet rose to an average of 3.96 PPP dollars per person per day in 2022 (FAO 2024) and remains unaffordable for a large share of the population, high-frequency analysis is essential to inform timely interventions.

Therefore, West Java is particularly urgent to examine as it is home to Indonesia's largest population with more than 50 million residents in 2024. Also it ranks third among all provinces in terms of GDP (approximately USD 188

billion in 2024). This highlights West Java's economic profile, highlighting how a province with both such a large consumer base and significant output makes daily fluctuations in staple-food prices especially consequential for food security and household welfare. These dynamics become clearer when considering Figure 1. which shows the inflation of food and drink prices in West Java. The inflation figure shows a general downward trend, yet periodic fluctuations remain evident which suggest persistent short-term volatility in food and beverage prices. Concurrently, Figure 2. highlights the modest yet consistent decline in agriculture's contribution to West Java's overall economy. This figure shows a decrease in contribution from 8.57 percent in 2022 to 8.42 in 2024. Taking this observation together could suggest that as agriculture's relative economic role declines, West Java becomes more vulnerable towards food price inflation.

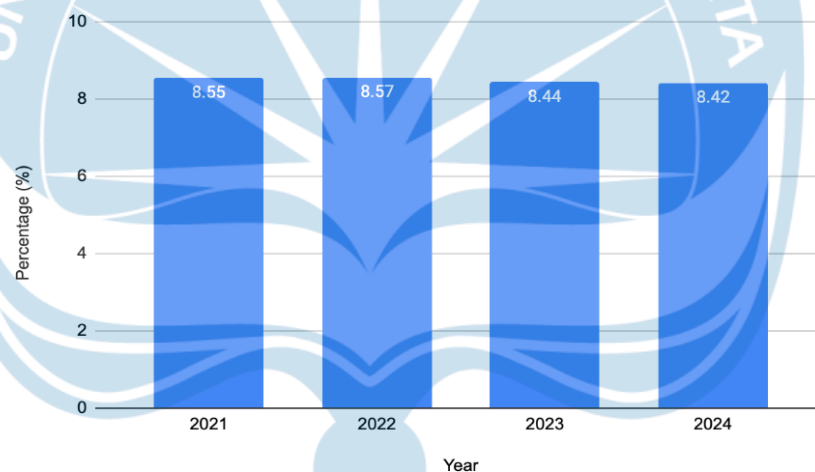


Source: Statistic Indonesia, 2024

Figure 1.1

Inflation of Food and Beverage Commodities in West Java

Research supports this linkage between declining agriculture output and rising food prices. A study by Wang et al. (2018) found that in India, reductions in food grain availability significantly contributed to food price inflation in both the short and long term. The study also identified that macroeconomic factors such as per capita income, money supply, and global food prices positively and significantly impacted food price inflation. These findings underscore the importance of monitoring agricultural productivity and its effects on food prices, particularly in regions like West Java where agriculture plays a vital role in food security.



Source: Statistic Indonesia, 2024

Figure 1.2

Agriculture Sector Contribution towards GRDP in West Java

Given the significant vulnerability of West Java to food-price inflation, particularly amidst a declining agricultural share in the regional economy, understanding consumer responses to price changes becomes increasingly critical. Previous research underscores the importance of analyzing the relationship between agricultural output and price stability to mitigate potential

risks to household welfare. Moreover, managing food price volatility is not just a matter of food security but is also crucial for broader macroeconomic stability. Research has identified a clear long-run relationship between food price volatility and the consumer price index, establishing that volatility in this key sector directly impacts headline inflation (Abaidoo et al., 2023). Building upon these insights, the primary goal of this paper is to conduct a detailed analysis of food-price elasticities for staple commodities in West Java, identifying those with elastic and inelastic demand. Such an understanding is essential for policymakers and stakeholders to develop targeted interventions that stabilize markets, minimize economic inefficiencies, and ensure continued access to essential food commodities across the population.

1.2 Research Problems

Based on the background above, the research problems that will become the main focus of this study are:

1. How do staple food prices in West Java behave in terms of volatility?
2. Which commodities are most volatile and sensitive to shocks?
3. How effective are GARCH models and VaR thresholds in explaining and monitoring this volatility?

1.3 Research Aims

Based on the background above, the objectives of this study are:

1. To analyze daily price volatility of five key commodities (rice, chili, cooking oil, chicken, eggs).
2. To identify the best-fitting volatility model for each commodity.
3. To establish Value-at-Risk (VaR) tolerance bands as policy benchmarks.

1.4 Research Benefit

The results of this study are expected to provide the following benefits:

1. This study can serve as a reference for policymakers in designing food price stabilization policies, especially by using Value-at-Risk (VaR) tolerance bands as quantitative benchmarks for targeted interventions.
2. The research contributes to development economics literature by applying high-frequency data and advanced econometric models (GARCH and VaR), providing a reference for future studies on food prices, inflation, and food security.
3. This study enhances the researcher's skills in big data analysis and modern econometric methods, while also linking methodological insights with real policy applications in the food sector.

1.5 Research Structure

The planned structure of this research paper consists of five chapters, namely:

Chapter I – BACKGROUND OF STUDY

This chapter presents the background of the research, research problems, objectives, benefits, hypotheses, and the systematics of writing.

Chapter II – LITERATURE REVIEW

This chapter discusses the theoretical foundations and empirical studies related to food price volatility, econometric modeling (GARCH-family and VaR), and the role of staple food commodities in economic stability. It also outlines the research gap addressed in this study.

Chapter III – RESEARCH METHODOLOGY

This chapter explains the data sources, data collection methods, and the analytical techniques employed, including the specification of GARCH-family models and the Value-at-Risk (VaR) framework.

Chapter IV – RESULTS AND DISCUSSION

This chapter presents the empirical findings of the study, including model estimation results, volatility analysis, and VaR tolerance bands, followed by a detailed discussion of their implications for food price stability and policy.

Chapter V – CONCLUSION AND POLICY RECOMMENDATIONS

This chapter summarizes the main conclusions of the research and provides policy recommendations based on the results, as well as suggestions for future studies