

The Contribution of Food Commodities to Inflation Rates: A Case Study of Agricultural Products in Region X

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ABSTRACT

This study investigates the contribution of agricultural products to inflation rates in Region X, Indonesia, using a qualitative approach. Based on interviews with five farmers, the research identifies key factors influencing agricultural production and their link to inflationary pressures. Findings reveal that fluctuating input costs, climate variability, and supply chain inefficiencies significantly impact production levels and pricing mechanisms. Intermediaries play a dominant role in determining prices, creating a gap between farm-gate and market rates. Socio-economic vulnerabilities, including farmers' dual roles as producers and consumers, exacerbate the challenges posed by inflation. The study highlights the need for policy interventions, such as improved infrastructure, price stabilization mechanisms, and enhanced bargaining power for farmers, to address these issues. These findings contribute to a deeper understanding of inflation dynamics and the socio-economic challenges faced by smallholder farmers in Indonesia.

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1. INTRODUCTION

Inflation, defined as the general increase in prices and the subsequent decline in the purchasing power of money, remains a critical issue for economic stability in developing nations, including Indonesia. As one of the primary contributors to inflation, food commodities hold a unique position in shaping both microeconomic realities and macroeconomic policies. Indonesia's dependence on agriculture as a cornerstone of its economy further underscores the importance of understanding how fluctuations in agricultural production and pricing impact inflation rates. Various studies

have highlighted the influence of specific food commodities—such as rice, red onion, and especially red chili, which has the most dominant effect—on inflation in Indonesia [1]. Other key items like shallots, beef, and cooking oil have also shown significant impacts, with some like garlic, chicken meat, and sugar contributing positively to inflation, while others contribute to deflationary trends [2]. The mechanisms behind these impacts are largely driven by demand and supply dynamics, where food prices serve as the primary influencers of inflation rather than sectors such as housing or transportation [3]. These effects are further complicated by

regional variations; for instance, in Riau Province, red chilies, bird's eye chilies, and eggs significantly influence both short- and long-term inflation trends [4]. Addressing these challenges requires targeted policy responses, such as effective monetary policies that prevent food inflation from spilling over into non-food sectors and maintaining exchange rate stability to curb long-term volatility [5], along with efforts to stabilize food supply chains and prevent disruptive price fluctuations [4]

Region X, characterized by its reliance on agricultural products such as rice, vegetables, and fruits, exemplifies the intricate relationship between agricultural output and price stability. This dependency, however, makes the region vulnerable to inflationary pressures arising from various factors, including climatic variations, input cost volatility, and inefficiencies in supply chain logistics. Such inflation disproportionately affects households with lower incomes, as food expenditures constitute a significant portion of their budgets. Thus, understanding the contribution of food commodities to inflation in Region X offers valuable insights into broader economic challenges and potential solutions.

This study aims to investigate how agricultural products contribute to inflation rates in Region X through a qualitative lens. By focusing on the lived experiences and perspectives of five farmer informants, the research seeks to explore the underlying dynamics of production, pricing, and market mechanisms. This approach not only provides a granular understanding of the issue but also highlights the socio-economic challenges faced by farmers and their potential influence on regional economic stability.

2. LITERATURE REVIEW

2.1 Food Commodities and Inflation

Fluctuations in food prices significantly influence inflation, particularly in developing economies like Indonesia, where food constitutes a substantial portion of household expenditures. The volatility in

prices of essential commodities such as grains, vegetables, and dairy products can lead to broader inflationary trends, disproportionately affecting low-income households. In Indonesia, factors such as seasonal variations, inadequate infrastructure, and supply chain inefficiencies exacerbate food price volatility, with a notable impact during the Covid-19 pandemic due to regional restrictions and mobility issues. Food prices have a direct impact on inflation, with commodities like shallots, rice, beef, and cooking oil showing significant effects, where some contribute to deflation while others such as garlic, chicken meat, and sugar drive inflation upward [2]. The volatility of prices for items like chili, rice, shallots, and garlic has been specifically linked to inflation volatility, with differentiated impacts before and during the pandemic [6]. Low-income households, who allocate a greater share of their income to food consumed at home, are more vulnerable to such fluctuations, resulting in a wider disparity in the effects of food inflation between income groups [7]. Moreover, global food price shocks tend to have a stronger impact on emerging economies like Indonesia compared to advanced economies due to the larger share of food in consumer spending and weaker anchoring of inflation expectations [8]. This context highlights the complex interplay between food prices and inflation, necessitating targeted policy interventions.

2.2 Agriculture and Economic Stability

Agriculture plays a crucial role in Indonesia's economy, contributing significantly to GDP and employment; however, the sector faces numerous challenges that hinder its potential to stabilize prices and ensure food security. Despite being a major contributor to national income, agricultural growth has been relatively sluggish, with only a 3.08% increase recorded in 2019 [9]. Challenges such as land conversion for infrastructure—reducing agricultural land by 150,000 to 200,000 hectares annually—alongside low incomes and limited land ownership among agricultural workers further constrain

sectoral development [9]. Climate variability, including shifting weather patterns and water scarcity, exacerbates production instability, while global market pressures demand adaptation through sustainable farming techniques and the use of modern technologies [10]. At the same time, historical government efforts to support agriculture have lost momentum due to insufficient infrastructure development and persistent rural poverty [11]. Strengthening institutions like BULOG, Indonesia's logistics agency, could help stabilize food prices and incentivize farmers to improve productivity [9]. Additionally, environmental concerns such as deforestation caused by agricultural land expansion threaten biodiversity and sustainability, underscoring the urgent need for balanced strategies that promote both increased agricultural output and environmental preservation [12]. Addressing these interlinked issues is essential to enhancing agricultural productivity, stabilizing food prices, and fostering long-term economic resilience in Indonesia.

2.3 The Role of Supply Chains in Food Pricing

The supply chain significantly influences food prices in Indonesia, where logistical inefficiencies and high transportation costs contribute to persistent price volatility. Logistical bottlenecks, particularly in remote regions, hinder the efficient distribution of agricultural products, leading to elevated consumer prices and diminished farmer earnings. These challenges are compounded by market intermediaries who inflate prices through multiple transaction layers, creating disparities between farm-gate and retail prices and exacerbating inflationary pressures. Logistics costs in Indonesia are notably high—ranging from 21% to 23% of GDP—largely driven by transportation and inventory expenses, which are ultimately passed on to consumers [13]. The country's archipelagic geography and uneven regional development further complicate efforts to harmonize prices across regions, with areas such as Koarmada III suffering from suboptimal transportation infrastructure and poorly positioned

distribution centers [14]. In Central Java, for instance, the rice supply chain includes six to seven intermediaries, prolonging the supply route and distorting price formation—an issue that could be mitigated by shortening the chain to boost farm-level prices and lower consumer costs [15]. Additionally, regulatory burdens such as value-added taxes and mandatory local freight forwarding inflate logistics expenses, while government programs like the Sea Highway and public service obligations have yet to effectively reduce these structural inefficiencies [13].

2.4 Inflation and Socio-Economic Impacts

Inflation, particularly food inflation, has profound socio-economic consequences in agrarian societies like Indonesia, disproportionately affecting low-income households that allocate a larger portion of their budget to food, especially items consumed at home, which have experienced rapid price increases [7]. This persistent inflation erodes purchasing power—declining by 3% to 18% in various countries—and significantly lowers living standards while exacerbating poverty, particularly among rural and low-income groups [16]. At the same time, farmers face the dual burden of managing rising input costs and securing fair market prices for their produce, a challenge made more difficult by inflationary pressures [17]. To mitigate these impacts, policy interventions such as subsidies, price stabilization mechanisms, and price controls for staple foods are crucial to both support farmers and protect consumers [17], [18]. Additionally, targeted social safety nets for vulnerable populations and strategic investments in supply chain infrastructure are essential to reduce food waste, enhance food security, and alleviate the overall economic strain caused by high and persistent food prices [19].

2.5 Research Gap

While existing literature provides valuable insights into the relationship between food commodities and inflation, there is a lack of localized, qualitative analyses focusing on the perspectives of farmers. Most studies adopt quantitative approaches,

leaving a gap in understanding the lived experiences and challenges faced by key stakeholders in agricultural production. This study aims to bridge this gap by examining the contribution of agricultural products to inflation in Region X through a qualitative lens.

By synthesizing the findings of prior research and identifying gaps in knowledge, this literature review establishes a foundation for exploring the nuanced relationship between agricultural practices and inflation in Region X. This study's focus on farmer perspectives seeks to contribute a novel dimension to the discourse, emphasizing the importance of localized, qualitative insights in shaping effective policy interventions.

3. METHODS

A qualitative case study approach was adopted to provide an in-depth understanding of the issue within the specific context of Region X. This method allows for the exploration of complex phenomena, such as inflation and its drivers, through the perspectives of individuals directly involved in agricultural production. The focus on Region X ensures that the findings are grounded in the unique economic and socio-cultural dynamics of the area. The study purposively selected five farmer informants from Region X based on specific inclusion criteria: (1) active engagement in the cultivation and sale of staple agricultural products such as rice, vegetables, or fruits, (2) a minimum of five years of farming experience to ensure familiarity with market trends and inflationary pressures, and (3) willingness to participate in in-depth interviews and share detailed insights. These farmers were identified through local agricultural cooperatives and community leaders to ensure diversity in farm sizes, production scales, and socio-economic backgrounds. Data collection involved semi-structured, in-depth interviews lasting approximately 60–90 minutes, conducted in the local language to ensure clarity and cultural relevance. The interview guide covered themes such as challenges in

agricultural production, pricing mechanisms, the perceived impact of price changes on inflation and livelihoods, and strategies to cope with price volatility. All interviews were audio-recorded with the informants' consent and transcribed verbatim for analysis.

Thematic analysis was employed to identify and interpret patterns within the qualitative data, following Braun and Clarke's (2006) six-step process. First, familiarization involved repeatedly reading the transcripts to gain a comprehensive understanding of the content. Second, coding was performed by systematically tagging key phrases and sentences relevant to the research objectives. Third, codes were grouped into broader themes such as "production challenges," "pricing determinants," and "socio-economic impacts." In the fourth step, themes were reviewed to ensure consistency and relevance across all interviews. Fifth, each theme was clearly defined to articulate its significance to the research questions. Finally, the sixth step involved writing up the findings into a coherent narrative, integrating direct quotes from informants to support and enrich the analysis. This methodical approach ensured that the insights gained were both contextually grounded and analytically robust.

4. RESULTS AND DISCUSSION

4.1 Production Challenges

Farmers consistently reported that fluctuating input costs, such as seeds, fertilizers, and pesticides, significantly impacted their ability to maintain stable production levels. Seasonal variability, particularly droughts and floods, further disrupted agricultural output, often leading to supply shortages. One farmer noted:

"During the dry season, our yields drop significantly, and this pushes prices higher in the market. We can't control the weather, and the costs to irrigate are too high."

4.2 Pricing Mechanisms

The prices of agricultural products were largely dictated by intermediaries and market demand. Farmers expressed frustration at the disparity between farm-gate

prices and retail prices, attributing it to multiple layers of intermediaries. A farmer shared:

"We sell our produce at low prices to middlemen, but when it reaches the market, the prices are much higher. This doesn't benefit us or the consumers."

4.3 Supply Chain Inefficiencies

Logistical issues, including poor infrastructure and high transportation costs, emerged as a critical barrier to efficient market access. These inefficiencies often resulted in post-harvest losses and increased consumer prices. Another farmer remarked:

"The roads are bad, especially during the rainy season. By the time we get our produce to the market, a lot of it is already spoiled."

4.4 Socio-Economic Impacts

The volatility in agricultural prices significantly affected both farmers' livelihoods and consumer purchasing power. Farmers reported difficulty in managing household expenses during periods of low prices for their produce or high inflation. As one farmer put it:

"When prices for inputs rise and our selling prices stay low, we struggle to make ends meet. Inflation makes it harder for everyone."

DISCUSSION

The findings confirm that fluctuations in agricultural production are a key driver of inflation, particularly in essential food commodities. Seasonal production challenges and climate variability frequently reduce supply, creating a supply-demand imbalance that leads to rising market prices and heightened inflationary pressures. This aligns with previous studies that emphasize the strong link between food supply disruptions and inflation. Climate-induced biophysical yield shocks, as noted by Zhao et al. (2020), significantly impact agricultural markets, with interannual variations contributing to market volatility. Moreover, improved forecasting and better alignment of market and weather expectations could reduce price and consumption volatility by 55% and 41%,

respectively [20], suggesting that accurate prediction models could play a role in stabilizing food prices.

The structure of the agricultural supply chain also plays a critical role in amplifying inflation. The presence of multiple intermediaries' limits price transparency and increases consumer prices while reducing earnings for farmers. Market inefficiencies and the limited bargaining power of farmers prevent them from influencing pricing mechanisms, echoing the findings of studies such as Comín et al. (2023), who showed that supply chain constraints accounted for half of the inflation rise in the U.S. during 2021–2022. These constraints can stem from increased demand or diminished supply capacity, affecting both domestic and imported goods. Addressing such constraints through streamlined supply chains and reduced intermediary layers could help mitigate inflationary impacts. Poor infrastructure, especially in regions like Region X, contributes to logistical bottlenecks that delay distribution and cause significant post-harvest losses, particularly for perishable goods like vegetables and fruits.

Policy interventions and infrastructure investments are therefore essential to addressing food inflation. Enhancing food supply systems, reducing price distortions, and investing in transportation and storage facilities can substantially reduce post-harvest losses and stabilize food prices [20], [21]. These measures would also help ensure more equitable price realization for farmers. Furthermore, the socio-economic consequences of inflation—such as reduced purchasing power and heightened poverty—underscore the need for targeted support mechanisms, including input subsidies and guaranteed minimum pricing schemes. As both producers and consumers of food, farmers are particularly vulnerable to inflationary pressures, making comprehensive policy support critical to protecting their livelihoods and enhancing economic resilience.

Policy Implications

The study underscores the importance of integrated policy approaches to address the root causes of agricultural price volatility. Recommendations include:

- Enhancing access to affordable agricultural inputs through subsidies or credit schemes.
- Strengthening infrastructure to improve market access and reduce logistical costs.
- Establishing farmer cooperatives to improve bargaining power and reduce reliance on intermediaries.
- Implementing price stabilization mechanisms, such as government procurement programs, to mitigate the effects of supply shortages.

Contribution to the Literature

This study adds a qualitative dimension to the discourse on inflation and agriculture by highlighting the lived experiences of farmers. While existing research often focuses on macroeconomic indicators, this study emphasizes the socio-economic realities of key stakeholders, providing a more nuanced understanding of the issue.

Limitations and Future Research

The study's findings are limited to the perspectives of five farmers in Region X and may not fully capture the diversity of agricultural experiences across Indonesia. Future research could expand the sample size and incorporate quantitative methods to validate the findings. Additionally, exploring the role of government policies in mitigating inflationary pressures would provide valuable insights for policymakers.

5. CONCLUSION

This study provides valuable insights into the contribution of agricultural products to inflation in Region X, Indonesia, highlighting the intricate link between production challenges, market dynamics, and socio-economic vulnerabilities. Farmers in the region confront a range of obstacles, including high input costs, climate variability, and inefficient supply chains, all of which contribute to price volatility and inflationary pressures. The dominance of intermediaries in the pricing process further widens the gap between farm-gate and retail prices, disadvantaging both producers and consumers. These structural issues not only limit farmers' profitability but also increase the cost burden on low-income households that rely heavily on staple food items.

To address these challenges, the study proposes a set of integrated policy recommendations aimed at enhancing agricultural resilience and reducing inflationary risks. These include infrastructure investments to improve market access and minimize post-harvest losses, subsidies for agricultural inputs to stabilize production costs, strengthening farmer cooperatives to enhance bargaining power and reduce dependence on intermediaries, and implementing price stabilization programs to buffer against supply shocks. By centering the lived experiences of farmers, this research contributes practical, grounded perspectives to the discourse on food inflation, offering policymakers a roadmap toward ensuring food security, supporting rural livelihoods, and promoting broader economic stability in regions facing similar developmental challenges.

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