A Comparative Study of Food Inflation Trends in India and Indonesia: 2010–2025

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Abstract—**Food inflation is a pressing concern for developing nations like India and Indonesia, where a large portion of household income is devoted to food consumption. Persistent increases in food prices pose risks not only to individual welfare but also to macroeconomic stability, especially in the wake of global disruptions such as pandemics or climate-induced shocks. This study explores the food inflation trends in both countries from 2010 to 2023 and investigates the macroeconomic and structural factors driving these trends. By comparing the patterns of food inflation, this research provides insights into the shared and distinct challenges faced by the two economies. The study also evaluates the effectiveness of monetary policies, such as India's Flexible Inflation Targeting (FIT) framework and Indonesia's stabilization mechanisms, in controlling food inflation. Through correlation and paired t-test analysis, it was found that while food inflation in India and Indonesia is strongly correlated, the difference in average inflation rates is not statistically significant. The findings suggest that global economic forces and commodity prices influence both nations similarly, although their domestic policy responses and market dynamics may differ. This comparative perspective aims to contribute to more coordinated and effective inflation management strategies across emerging economies.**

Index Terms—**Food Inflation, India, Indonesia, Monetary Policy.**

I. INTRODUCTION

Food inflation refers to the sustained increase in the prices of food items over time, which directly affects the cost of living, especially for low- and middle-income households that spend a large share of their income on food. It is influenced by a variety of factors including seasonal fluctuations, poor agricultural productivity, climate-related disruptions (like droughts and floods), rising input costs (such as fertilizers and fuel), inefficient supply chains, and global price volatility. In developing countries like India and Indonesia, food inflation not only impacts consumer purchasing power but also poses challenges for policymakers in maintaining price stability, ensuring food security, and supporting overall economic growth.

Food inflation poses a serious challenge to economic stability and food security, especially in developing economies like India and Indonesia, where a significant portion of household income is spent on food. Both countries have large populations, agrarian-based rural economies, and are vulnerable to both domestic and global shocks in food prices. Understanding and analyzing food inflation in these countries is essential to formulate policies that safeguard consumer welfare and promote macroeconomic stability. A comparative study offers insights into how different policy approaches, economic structures, and climatic factors shape inflationary trends in similar yet distinct environments.

In both India and Indonesia, food inflation is driven by a combination of factors including agricultural productivity, climate change, rising input costs, global commodity price fluctuations, currency volatility, and government intervention through price controls and subsidies. However, the weight of these factors differs across the two nations due to variations in agricultural output composition, import dependency, and policy responses. For instance, India's minimum support price (MSP) mechanism influences market prices significantly, while Indonesia often uses export bans and subsidies to manage domestic prices of staples like

rice and palm oil. These differing strategies provide an interesting framework for comparison.

Over the past two decades, both countries have witnessed episodes of high food inflation, particularly during periods of global crises like the 2008 financial meltdown and the COVID-19 pandemic. While India adopted the Flexible Inflation Targeting (FIT) framework with the Reserve Bank of India (RBI) focusing on CPI inflation, Indonesia's monetary authority, Bank Indonesia, also targets inflation but with more emphasis on exchange rate stability and food price volatility. This study aims to assess how these frameworks have performed in controlling food inflation, and what lessons can be drawn from each country's approach to managing demand and supply-side pressures.

This comparative study uses secondary data from international institutions such as the World Bank, IMF, and FAO, along with central bank reports, to analyze food inflation trends between 2005 and 2024. The analysis involves comparing food price indices, inflation volatility, and responsiveness to global price shocks. Statistical tools such as trend analysis, correlation, and regression techniques may be used to examine the extent to which macroeconomic variables (exchange rates, interest rates, crude oil prices, etc.) influence food inflation in both nations. The study also evaluates policy interventions and their effectiveness in managing price stability and protecting vulnerable populations.

The primary objective of this chapter is to explore the similarities and differences in food inflation trends in India and Indonesia, assess their causes, and evaluate the impact of policy responses. The study also aims to identify best practices and recommend suitable strategies for sustainable food price management. The chapter is structured to begin with a literature review on food inflation, followed by an analysis of country-specific data and policy mechanisms. It concludes with key findings, comparative insights, and actionable policy recommendations that can help improve food security and inflation management in both economies.

II. LITERATURE REVIEW

1. Chand, R. (2010), In the research titled "Understanding the nature and causes of food inflation" The study concludes that India's food inflation between 2008 and 2010 was primarily driven by supply-side constraints, particularly a sharp fall in foodgrain production due to the 2009 drought. It also highlights the role of increasing input costs, inefficient supply chains, and the rising demand from a growing middle class. The research underscores that structural issues, including low productivity, poor storage, and distribution inefficiencies, need urgent policy attention beyond short-term monetary responses.

2. Bandara, J. S. (2013), In the research titled "What is driving India's food inflation? A survey of recent evidence" The paper concludes that India's food inflation is the result of multiple interrelated factors, including rising incomes, shifting consumption patterns, weak supply responses, and poor market integration. It also highlights the role of fiscal policies and global food prices, though these are secondary to domestic structural issues. The author advocates for a comprehensive policy approach that includes investment in agriculture, efficient supply chains, and targeted welfare measures to address the root causes of persistent food inflation.

3. Malhotra, A., & Maloo, M. (2017), In the research titled "Understanding food inflation in India: A machine learning approach" Using a machine learning approach, the study finds that the major determinants of food inflation in India include increasing minimum support prices (MSP), rising rural wages, and fiscal policy impacts, rather than global food price fluctuations. The conclusion emphasizes that domestic policy choices and wage-productivity imbalances significantly influence inflation trends, suggesting that targeted agricultural reforms and better forecasting models could help manage food price volatility.

4. Ayu, T. K. (2020), In the research titled "Global crude oil price and domestic food commodity prices: Evidence from Indonesia (2010–2017)" This study demonstrates that global crude oil prices significantly affect food prices in Indonesia, primarily due to their influence on transportation and import costs. It finds a strong transmission effect from international to domestic prices for key food staples such as rice, maize, and soybeans. The paper concludes that Indonesia's food inflation is not solely a domestic phenomenon but also shaped by global energy

markets, necessitating a diversified energy and trade strategy for food price stability.

5. Pratikto, R. et.al (2022), In the research titled "Uniting a diverse Indonesia: Tackling food price disparity through domestic port connectivity" The study finds that improving domestic port infrastructure in Indonesia can substantially reduce food price disparities across regions, particularly in an archipelagic context. By enhancing connectivity and lowering logistics costs, such infrastructure improvements can promote more uniform food prices and reduce inflationary pressures. The conclusion emphasizes that supply-side interventions, especially in transportation and distribution networks, are critical to managing food inflation in geographically diverse economies like Indonesia.

6. Anwar, C. J., et.al (2023), In the research titled "Food price and inflation volatilities during Covid-19 period: Empirical study of a region in Indonesia" This empirical study reveals that food prices in Indonesia during the COVID-19 pandemic became highly volatile and closely correlated with overall inflation volatility. Key contributors to this volatility were perishable goods such as chilies, garlic, rice, and shallots, which are sensitive to disruptions in supply chains. The authors conclude that the government must invest in food price stabilization mechanisms, especially in times of crisis, to reduce inflationary shocks and protect vulnerable populations.

7. Manogna, R. L., & Kulkarni, N. (2025), In the research titled "Does the financialization of agricultural commodities impact food security? An empirical investigation" The research concludes that financialization, where agricultural commodities are increasingly treated as financial assets, has exacerbated food price volatility in emerging economies like India and Indonesia. It argues that this trend undermines food security by detaching prices from physical supply-demand dynamics. The paper suggests that central banks and regulatory bodies should strengthen oversight on commodity markets and integrate food inflation concerns into monetary policy frameworks.

Research Gap

Despite several studies analyzing food inflation trends in India and Indonesia individually, highlighting factors such as supply-side constraints, global oil price shocks, infrastructure gaps, and financialization of commodity markets—a significant research gap exists in conducting a comparative, long-term, and integrated analysis of food inflation between the two countries over the extended period from 2010 to 2025. Most existing studies focus on either short-term fluctuations or single-country case studies, lacking a holistic cross-country comparison that considers shared challenges (e.g., dependence on imports, policy shocks, COVID-19 disruptions) and divergent institutional responses. Additionally, there is limited empirical research that combines both macroeconomic variables (such as global commodity trends and exchange rates) and micro-level drivers (like regional infrastructure and consumption patterns) across both nations. A comparative framework incorporating these dimensions is crucial for formulating more adaptive and coordinated inflation management strategies in emerging Asian economies.

III. RESEARCH METHODOLOGY

The study employs a quantitative, comparative approach using secondary data obtained from international sources such as the World Bank, IMF, and central bank reports. Annual data on Food Consumer Price Inflation from 2010 to 2023 for both India and Indonesia is analyzed to identify trends, volatility, and relationships. Two key statistical methods were used: the Pearson Correlation Test was applied to assess the relationship between the inflation trends of the two countries, and the Paired Samples T-Test was conducted to determine whether a significant difference exists between their average inflation rates. Data visualization through bar diagrams was also used to highlight inflation patterns and variations over time.

Data analysis

This study employs secondary data analysis to examine and compare food consumer price inflation trends in India and Indonesia from 2010 to 2023. The data, sourced from reputable international institutions such as the World Bank, provides annual inflation figures for both countries. By analyzing this time-series data, the study aims to identify patterns, correlations, and differences in food inflation behavior

across the two economies. Statistical tools such as the Pearson Correlation Test and Paired Samples T-Test are applied to understand the relationship and significance of variations in inflation trends. This analytical approach helps evaluate how global and domestic factors have influenced food inflation and assesses the effectiveness of policy measures adopted by both countries during the study period.
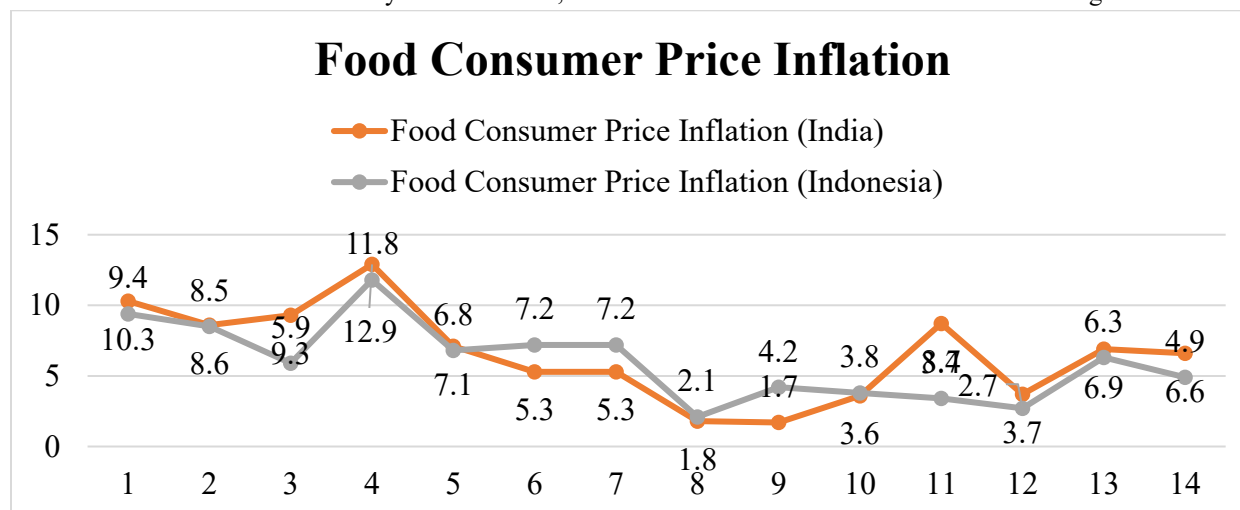
Food Consumer Price Inflation

Series Name	Food Consumer Price Inflation (India)	Food Consumer Price Inflation (Indonesia)
2010	10.3	9.4
2011	8.6	8.5
2012	9.3	5.9
2013	12.9	11.8
2014	7.1	6.8
2015	5.3	7.2
2016	5.3	7.2
2017	1.8	2.1
2018	1.7	4.2
2019	3.6	3.8
2020	8.7	3.4
2021	3.7	2.7
2022	6.9	6.3
2023	6.6	4.9

Source: https://www.worldbank.org/en/research/brief/inflation-database

The comparative data on food consumer price inflation from 2010 to 2023 shows that both Indonesia and India experienced significant fluctuations in food inflation, influenced by global and domestic factors. In the early years (2010–2013), both countries witnessed high food inflation, with India peaking at 12.9% in 2013 and Indonesia at 11.8%, likely due to supply constraints and high commodity prices globally. From 2014 to 2019, inflation gradually declined in both countries, with India maintaining relatively lower food inflation than Indonesia in some years. However, a sharp spike occurred in India in 2020 (8.7%) likely due to pandemic-related supply disruptions, while Indonesia's food inflation remained moderate. Post-pandemic, both countries saw a rebound, with food inflation rising again in 2022 and 2023, indicating ongoing pressures from global food prices, supply chain disruptions, and domestic agricultural challenges. Overall, while both nations faced similar trends, India's food inflation exhibited greater volatility compared to Indonesia. The following information is shown below in bar diagram.

Food Consumer Price Inflation

Legend: Food Consumer Price Inflation (India); Food Consumer Price Inflation (Indonesia)

Objective and Hypothesis

Objective 1 To Study relationship between Food Consumer Price Inflation of India and Indonesia.

Null Hypothesis H_{01}: There is no relationship between Food Consumer Price Inflation of India and Indonesia.

Alternate Hypothesis H_{11}: There is a relationship between Food Consumer Price Inflation of India and Indonesia.

To test the above null hypothesis Correlation Test is applied and obtained results are as follows.

Correlations		Food Consumer Price Inflation (Indonesia)	Food Consumer Price Inflation (India)
Food Consumer Price Inflation (India)	Pearson Correlation	1	.771**
	P-value		.001
	N	14	14
Food Consumer Price Inflation (Indonesia)	Pearson Correlation	.771**	1
	P-value	.001	
	N	14	14
**. Correlation is significant at the 0.01 level (2-tailed).			

Interpretation: The above results indicate that calculated p-value is less than 0.05. Therefore, Correlation test is rejected. Hence Null hypothesis is rejected and Alternate hypothesis is accepted.

Conclusion: There is a relationship between Food Consumer Price Inflation of India and Indonesia.

Findings: The correlation analysis between food consumer price inflation in Indonesia and India from 2010 to 2023 reveals a strong positive relationship, with a Pearson correlation coefficient of 0.771, which is statistically significant at the 0.01 level (p = 0.001). This means that changes in food inflation in one country are closely associated with changes in the other, when food inflation rises in Indonesia, it tends to rise in India as well, and vice versa. The high correlation suggests that both countries may be similarly influenced by common global factors such as international commodity prices, supply chain disruptions, and climatic events, although domestic policies and economic structures still play a role in shaping the exact inflation outcomes.

Objective 2 To compare Food Consumer Price Inflation of India and Indonesia.

Null Hypothesis H_{02}: There is no significant difference in Food Consumer Price Inflation of India and Indonesia.

Alternate Hypothesis H_{12}: There is a significant difference in Food Consumer Price Inflation of India and Indonesia.

To test the above null hypothesis Paired Samples Test is applied and obtained results are as follows.

Paired Samples Test				t	df	P-value
	Paired Differences					
	Mean	Std. Deviation	Std. Error Mean			
Food Consumer Price Inflation (India) - Food Consumer Price Inflation (Indonesia)	-.519	2.082	.556	-.933	13	.368

Interpretation: The above results indicate that calculated p-value is 0.368. It is more than 0.05. Therefore, one sample test is accepted. Hence Null hypothesis is accepted and Alternate hypothesis is rejected.

Conclusion: There is no significant difference in Food Consumer Price Inflation of India and Indonesia.

Findings: To understand the findings of hypothesis, mean scores of Food Consumer Price Inflation of India and Indonesia is shown in below table.

Paired Samples Statistics	Mean	N	Std. Deviation	Std. Error Mean
Food Consumer Price Inflation (India)	6.55	14	3.247	0.868
Food Consumer Price Inflation (India)	6.03	14	2.739	0.732

The Paired Samples Statistics table provides a summary comparison of food consumer price inflation between Indonesia and India over the 14-year period from 2010 to 2023. The mean food inflation rate for Indonesia was 6.03%, while for India it was slightly higher at 6.55%, indicating that on average, food prices rose faster in India than in Indonesia. The standard deviation values, 2.739 for Indonesia and 3.247 for India, suggest that food inflation in India was more volatile or variable over the years compared to Indonesia. The standard error of the mean, which reflects the precision of the sample mean estimate, was 0.732 for Indonesia and 0.868 for India. These statistics set the groundwork for a paired samples t-test to determine if the observed difference in average food inflation rates between the two countries is statistically significant. The following information is shown below in bar diagram.

Food Consumer Price Inflation of India and Indonesia
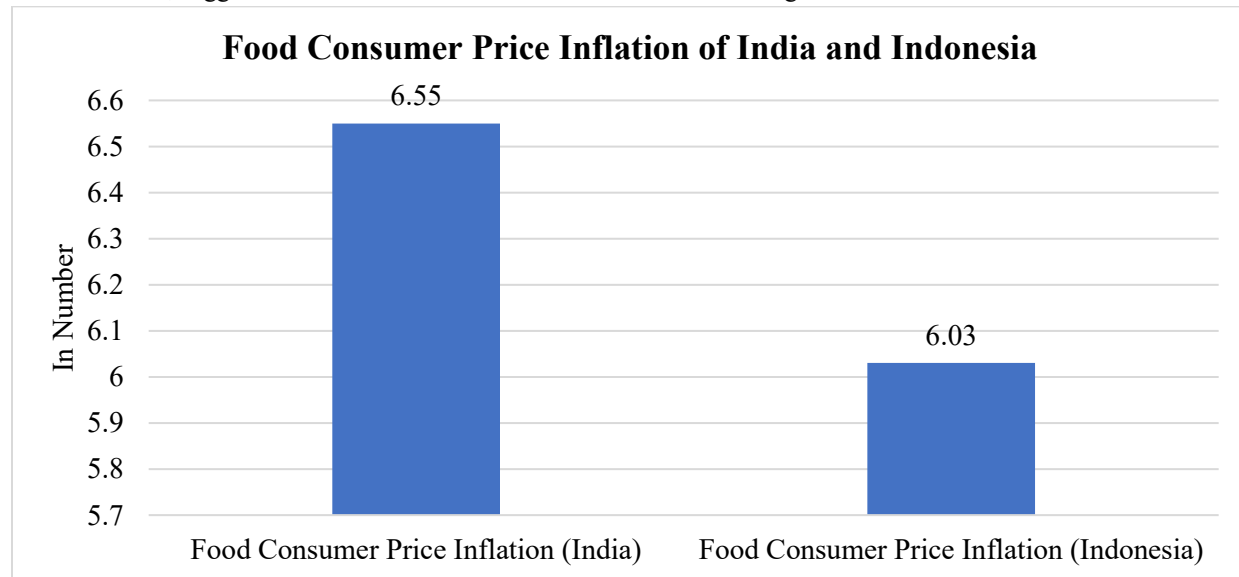
IV. CONCLUSION

The comparative analysis reveals that while India and Indonesia share a strong positive correlation in their food inflation trends, suggesting a common exposure to global economic factors, there is no statistically significant difference in the average rates of inflation between the two countries over the 14-year period. India's food inflation is found to be more volatile, influenced by factors such as MSP policies and pandemic-induced supply shocks, while Indonesia's inflation appears more stable due to targeted subsidies and export bans. The findings underscore the importance of context-specific yet globally informed policy responses, highlighting the role of coordinated fiscal, monetary, and structural interventions in managing food inflation and ensuring food security.

BIBLIOGRAPHY

[1] Chand, R. (2010). Understanding the nature and causes of food inflation. Economic and Political Weekly, 45(9), 10–13.

[2] Balakrishnan, P. (2010). Inflation and the macroeconomy: The role of food prices. Indian Economic Review, 45(1), 1–20.

[3] Bandara, J. S. (2013). What is driving India's food inflation? A survey of recent evidence. South Asia Economic Journal, 14(1), 127–156. https://doi.org/10.1177/1391561413477944

[4] Lahiri, H. (2013). Food inflation in India and role of middlemen: The case of speculative buffering and government intervention. Developing Country Studies. https://iiste.org/Journals/index.php/DCS/article/view/1009

[5] Allo, G. A., Satriawan, E., & Arsyad, L. (2014). The impact of rising food prices on farmers' welfare in Indonesia. Journal of Indonesian Economy and Business. https://jurnal.ugm.ac.id/jieb/article/view/17303

[6] Sasmal, J. (2015). Food price inflation in India: The growing economy with sluggish agriculture. Journal of Economics, Finance and Administrative Science, 20(38), 30–40.

[7] Anand, R., Kumar, N., & Tulin, V. (2016). Understanding India's food inflation: The role of demand and supply factors (IMF Working Paper No. 2016/002). International Monetary Fund. https://doi.org/10.5089/9781513581347.001

[8] Bhattacharya, R., & Sen Gupta, A. (2018). Drivers and impact of food inflation in India. Macroeconomics and Finance in Emerging Market Economies, 11(2), 146–168. https://doi.org/10.1080/17520843.2017.1351461

[9] Gopakumar, K. U., & Pandit, V. (2017). Food inflation in India: Protein products. Indian Economic Review, 52, 157–179. https://doi.org/10.1007/s41775-017-0006-7

[10] Malhotra, A., & Maloo, M. (2017). Understanding food inflation in India: A machine learning approach. arXiv preprint arXiv:1701.08789. https://doi.org/10.48550/arXiv.1701.08789

[11] Huria, S., & Pathania, K. (2018). Dynamics of food inflation: Assessing the role of intermediaries. Journal of Indian Business Research. https://doi.org/10.1177/0972150918788763

[12] Ayu, T. K. (2020). Global crude oil price and domestic food commodity prices: Evidence from Indonesia (2010–2017). ResearchGate. https://www.researchgate.net/publication/259978807

[13] Pratikto, R., Ikhsan, M., Mahi, B., & Dartanto, T. (2022). Uniting a diverse Indonesia: Tackling food price disparity through domestic port connectivity. ResearchGate. https://www.researchgate.net/publication/279212141

[14] Anwar, C. J., Suhendra, I., Srimulyani, A., Zahara, V. M., & others. (2023). Food price and inflation volatilities during Covid 19 period: Empirical study of a region in Indonesia. ResearchGate. https://www.researchgate.net/publication/373083530

[15] Manogna, R. L., & Kulkarni, N. (2025). Does the financialization of agricultural commodities impact food security? An empirical investigation. arXiv preprint arXiv:2502.05560. https://doi.org/10.48550/arXiv.2502.05560