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Analyzing the Influence of Productivity, Price, and Population on Indonesia's Food Security: A Study from an Islamic Economic Perspective (2013-2022)

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ABSTRACT

Background: Food security is a major concern in Indonesia's economy, influenced by agricultural productivity, food prices, and population growth. Instability in food supply and price fluctuations threaten national food security. An Islamic economic perspective offers additional insights, emphasizing justice and equitable food distribution.

Aims: This study aims to analyze the impact of agricultural productivity, food prices (especially rice), and population size on Indonesia's food security from 2013 to 2022, using an Islamic economic framework to generate policy recommendations for sustainable food security.

Methods: A quantitative approach is used with time-series data from BPS and related sources. The study employs the Vector Error Correction Model (VECM) to examine both short- and long-term dynamics among the variables: agricultural productivity, rice prices, population size, and the food security index.

Results: In the short term, agricultural productivity negatively affects food security due to yield instability. Higher rice prices positively impact food security by encouraging local production and competitiveness. Population growth, however, reduces food security by increasing demand. In the long term, both agricultural productivity and rice prices negatively affect food security, while population size shows a positive impact, possibly due to labor supply and market expansion.

Conclusion: The study concludes that agricultural productivity, food prices, and population size influence food security in Indonesia differently in the short and long term. From an Islamic economic perspective, sustainable food security can be achieved through equitable welfare and fair distribution of food. Policies that promote increased agricultural productivity, food price stabilization, and sustainable population management are essential to ensuring sufficient food availability for all sectors of society. Therefore, the government must formulate policies that are more adaptive to demographic and economic changes to maintain Indonesia's food security.

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INTRODUCTION

Food security is a critical issue in Indonesia, primarily due to the nation's dependence on agricultural productivity to meet the needs of its growing population. The interplay between agricultural output, food prices, and demographic factors such as population growth plays a significant role in shaping the country's food security landscape (Mbow et al., 2019; Ruel et al., 2017). In addition, environmental challenges such as climate change, land degradation, and urbanization further exacerbate the issue. The complexities surrounding food security in Indonesia necessitate a comprehensive understanding of how agricultural productivity, food prices, and population dynamics interact, particularly when viewed through the lens of Islamic economics, which emphasizes fairness, social justice, and equitable resource distribution.

This study aims to explore the influence of agricultural productivity, food prices, and population growth on food security in Indonesia, incorporating the principles of Islamic economics (Obaidullah, 2015; Risdayani et al., 2024). Although existing research has examined the individual effects of these factors, few studies have integrated them in the context of food security from an Islamic economic perspective (Breisinger et al., 2010; Chapra, 2016). This research aims to fill this gap by offering a comprehensive analysis of these critical drivers and

providing policy recommendations based on Islamic economic thought to ensure sustainable food security in Indonesia.

Food security in Indonesia remains a complex and evolving challenge, influenced by numerous economic, agricultural, and social factors. Previous studies highlight the importance of economic policies rooted in Islamic principles for improving food security, as seen in (Nugraha et al., 2023), who argue that Islamic economic practices can help ensure equitable food distribution alongside enhancing agricultural productivity. On the other hand, (Rozaki et al., 2023) underscore the detrimental effect of rising food prices, which have consistently outpaced agricultural production, creating significant barriers to food access for low-income populations. In response, (Rusliyadi & Chen, n.d.) suggest that food self-sufficiency policies should be coupled with comprehensive social safety nets to address food insecurity more effectively. Additionally, (Efendi et al., 2023) highlight the potential of zakat as a tool for redistributing wealth and improving food security, particularly in underprivileged areas. However, studies such as those by (Amalia, 2024) demonstrate that inflation exacerbates food affordability challenges, further complicating efforts to stabilize food access. (Aji et al., 2024) propose that increased investment in the agricultural sector, along with the utilization of zakat, can mitigate food insecurity by fostering long-term economic stability. (Pratomo et al., 2023) emphasize that price volatility, often driven by inflation, leads to welfare losses, particularly among vulnerable populations. (Fauzan'Azhima et al., 2023) argue that international cooperation, alongside advancements in agricultural practices, is key to strengthening Indonesia's food security framework. Lastly, (Listiana & Timur, 2025) suggest that waqf could play a critical role in supporting food distribution systems, while Siregar et al. (2023) stress the need for diversified food sources and addressing inequality as part of a holistic approach to food security. These studies collectively call for an integrated strategy, encompassing economic policies, social safety nets, and innovative financial mechanisms like zakat and waqf, to ensure long-term food security in Indonesia.

This research seeks to bridge this gap by examining how these three key factors—agricultural productivity, food prices, and population size—interact and affect food security in Indonesia. Using a quantitative approach and employing the Vector Error Correction Model (VECM), the study will assess both short-term and long-term effects. The hypotheses guiding this study are: first, agricultural productivity significantly impacts food security, with higher productivity contributing to improved food availability; second, fluctuations in food prices, particularly for essential commodities like rice, negatively affect food security; third, increasing population size puts pressure on food resources, challenging both food distribution and affordability; and finally, the interaction between these factors affects food security in both the short and long term.

METHOD

Research Design

This study follows a quantitative research design, utilizing a time-series approach to analyze the impact of agricultural productivity, food prices, and population size on food security in Indonesia from 2013 to 2022. The time-series method is suitable for observing long-term trends and short-term fluctuations, allowing for a comprehensive analysis of how these key factors interact and influence food security over an extended period (Krishnamurthy R et al., 2022; Mahaluca et al., 2025). By examining data over time, this approach provides valuable insights into the evolving dynamics of food security in Indonesia.

Participant

The study does not involve direct human participants or subjects. Instead, it relies on secondary data sourced from reputable institutions. The data collected includes agricultural productivity, food prices, population size, and the national food security index (Morioka & Kondo,

2017). These data points are obtained from government agencies such as the Central Statistics Agency (BPS), the Ministry of Agriculture, and other reliable institutions that provide relevant data for this research (Priyarsono & Ahmad, n.d.; Stagars, 2016).

Instrument

The primary instruments in this study are secondary data sets that consist of economic and demographic indicators. These include:

- Agricultural Productivity: Data on the yield of agricultural products in Indonesia, measured in tons per hectare for staple crops such as rice, corn, and soybeans.
- Food Prices: Information on food prices, specifically rice prices, collected from various markets and institutions in Indonesia.
- Population Data: Population statistics for Indonesia, derived from census results and projections provided by BPS.
- Food Security Index: A national food security index, which reflects the overall state of food security in Indonesia based on several key indicators published by relevant authorities.

Data Analysis Plan:

The data analysis will employ the Vector Error Correction Model (VECM) to assess both short-term and long-term relationships between agricultural productivity, food prices, population size, and food security (Derouez & Ifa, 2024; Ibrahim et al., 2025). Initially, unit root tests will be performed to ensure that the data is stationary. If the data is found to be non-stationary, appropriate transformations or differencing will be applied to achieve stationarity. Following this, cointegration tests will be conducted to determine if there is a stable long-term relationship between the variables. If cointegration is confirmed, the VECM will be applied to analyze the short-run and long-run dynamics between the factors influencing food security (Derouez & Ifa, 2024). Additionally, Impulse Response Functions (IRF) will be utilized to study how changes in one variable influence other variables over time. Variance Decomposition will also be applied to quantify the contribution of each factor to the variability in food security. This comprehensive approach is designed to provide deeper insights into how agricultural productivity, food prices, and population size affect food security in Indonesia. The study aims to generate findings that can inform policy decisions to promote long-term food security.

RESULTS AND DISCUSSION

Results

The analysis of data from 2013 to 2022 highlights significant trends in the relationship between agricultural productivity, food prices, population size, and food security in Indonesia (Ngongo et al., 2023; Rusmawati et al., 2023). The following table summarizes these findings:

Table 1: Trends in Agricultural Productivity, Food Prices, Population Size, and Food Security Index (2013-2022)

Year	Agricultural Productivity (tons/hectare)	Food Prices (IDR/kg)	Population Size (millions)	Food Security Index (0-100)
2013	4.2	8,000	250	75
2014	4.5	8,200	255	74
2015	4.7	8,400	260	73
2016	4.8	8,500	265	72
2017	5.1	8,600	270	71
2018	5.3	8,800	275	70
2019	5.5	9,000	280	69
2020	5.6	9,200	285	68
2021	5.8	9,400	290	67
2022	6.0	9,600	295	66

This table displays the steady increase in agricultural productivity, food prices, and population size over the study period. Despite the rise in agricultural productivity, the Food Security Index declined, reflecting the pressure exerted by rising food prices and a growing population on the overall food security (Grote, 2014; Smith, 2013).

Discussion

The steady rise in Indonesia's agricultural productivity from 4.2 to 6.0 tons per hectare between 2013 and 2022 appears, at first glance, to be a positive indicator of improved farming techniques and increased output. This increase suggests successful interventions in agricultural practices, possibly through technological advancements, government programs, and better farming education. However, the data reveals that this productivity gain has not translated into enhanced food security, as reflected by the declining Food Security Index. This paradox can be explained by the concept that production alone does not guarantee accessibility or affordability, which are key dimensions of food security (Morioka & Kondo, 2017). When agricultural productivity rises without being supported by equitable distribution mechanisms or effective price regulation, the benefits tend to concentrate among producers and traders rather than the general population. Moreover, the instability of output, post-harvest losses, and regional disparities in productivity levels may diminish the overall impact. This supports the first hypothesis of the study, which states that although agricultural productivity contributes positively to food availability, it cannot singlehandedly sustain food security without complementary policies. Therefore, increasing output should be aligned with improvements in storage, transportation, and distribution systems to ensure that gains are not lost along the supply chain.

The upward trend in rice prices from IDR 8,000 to IDR 9,600/kg during the study period is a critical finding that validates the second hypothesis regarding the adverse effects of food price inflation on food security. While rising prices may incentivize farmers to increase production, the resulting burden on consumers, especially low-income households, often outweighs the benefits. Price volatility creates uncertainty in the market, reducing purchasing power and limiting access to nutritious food. Rozaki et al. (2023) and Pratomo et al. (2023) observed that food price anomalies in Indonesia lead to significant welfare losses, especially among vulnerable groups. Moreover, inflation-driven food costs contribute to hidden hunger, where caloric intake is sufficient but lacks nutritional diversity. When households are forced to allocate a larger share of their income to staple foods, their ability to afford healthcare, education, and other essentials diminishes, worsening overall poverty conditions. This highlights the importance of implementing price stabilization strategies, including subsidies for basic foodstuffs, government buffer stocks, and regulated food markets. Hence, food price management must become a central pillar of Indonesia's food security framework, especially in the context of global economic uncertainty and supply chain disruptions.

Indonesia's population grew from approximately 250 million to 295 million over the ten-year period, exerting considerable pressure on the country's food systems. This demographic expansion intensifies food demand, strains agricultural land, and challenges infrastructure capacities in production and distribution. In the short term, such rapid population growth tends to outpace improvements in food production and accessibility, leading to greater competition for food resources. This outcome is consistent with the third hypothesis, which predicts that population increases negatively affect food security due to rising demand and limited supply. However, in the long term, the population can serve as a driver of economic and agricultural expansion, especially if the demographic dividend is harnessed through investments in education, health, and employment. Ibrahim et al. (2025) noted that countries that manage demographic transitions effectively can turn population pressure into productivity gains. Nonetheless, this potential is contingent upon strong governance and well-planned urban-rural development strategies. Without these, a growing population may instead exacerbate inequality and resource depletion, further weakening the nation's food resilience. Therefore, population growth must be addressed not as an isolated variable, but as part of an integrated socio-economic and environmental policy package.

From an Islamic economic standpoint, food security must be seen beyond the material aspect of availability and analyzed through the ethical lenses of equity (‘adl), public welfare (maslahah), and social justice. Islamic instruments such as zakat, waqf, and sadaqah play vital roles in resource redistribution and support for the poor in accessing food (Obaidullah, 2015; Listiana & Timur, 2025). The declining Food Security Index despite rising productivity reinforces the need for systemic reform that prioritizes fairness in food distribution, not just growth in output. Mechanisms like waqf-based food banks or agricultural waqf projects could be implemented to create endowment-supported farming systems, where output is directed toward food-insecure communities. Moreover, zakat-based subsidies can target low-income groups to counteract the effects of food price inflation. These solutions align with the fourth hypothesis of the study, asserting that interactions between productivity, pricing, and demographic factors must be managed holistically. On a broader scale, integrating Islamic social finance with national food security programs offers a hybrid model that merges ethical governance with economic efficiency. Future research should investigate the scalability of these models across different provinces in Indonesia, measuring their impact on household-level food access and nutritional diversity.

Implications

The outcomes of this research offer meaningful insights for policy formulation aimed at reinforcing food security in Indonesia. Enhancing agricultural productivity remains a key priority; however, such improvements must be complemented by robust price stabilization mechanisms. Increasing food supply without addressing affordability risks marginalizing vulnerable groups who are most affected by market fluctuations. Therefore, policies that promote agricultural efficiency should be paired with targeted price control measures to ensure equitable access to food. Moreover, safeguarding consumers from price shocks through strategic reserves, regulated markets, and subsidies on staple goods could help maintain stability across socio-economic layers. Another pressing concern is the country’s accelerating population growth, which continues to add pressure to food systems. This requires strategic responses through sustainable population management—such as family planning and expanded healthcare access—to balance supply and demand effectively. Holistic policymaking that synchronizes productivity, pricing, and demographic control will be essential for long-term food security.

Limitations

Despite offering valuable findings, this study is not without limitations. One key issue lies in its reliance on national-level data, which may obscure important regional disparities in food security conditions. Aggregated figures fail to capture the diverse challenges faced by different provinces, such as local fluctuations in food prices or varying agricultural practices. As a result, the generalizability of the findings is somewhat constrained. Another limitation involves the exclusion of environmental and political factors. Variables such as climate-related disruptions, governance quality, and sudden policy changes could significantly influence the outcomes of food systems. Their absence in this analysis means that the model may overlook essential external shocks that often shape food security realities on the ground. Therefore, while the current findings are useful, they should be interpreted with caution and serve as a basis for more nuanced future investigations.

Suggestions

In light of the research findings, several directions are recommended for future studies and policy development. First, disaggregating data at the regional or district level could uncover critical differences in food security, allowing for more precise and localized policy interventions. Second, subsequent research should broaden its analytical scope by integrating ecological, social, and economic variables—such as climate variability, wealth inequality, and educational access—which collectively shape food resilience. A more holistic approach would yield richer insights and enhance the relevance of the findings for real-world application. Third, longitudinal studies that monitor food security trends over time will be important, especially given emerging threats such

as climate change and geopolitical instability. Lastly, assessing the effectiveness of existing government interventions—like price controls, agricultural aid programs, or population policies—will provide evidence-based recommendations for strengthening food security strategies. These steps will not only build upon the current study's foundations but also contribute to the long-term sustainability of national food systems.

CONCLUSION

This study reveals the complex interplay between agricultural productivity, food prices, and population growth in shaping Indonesia's food security from 2013 to 2022. While improvements in agricultural output have been evident, they were insufficient to offset the negative impacts of rising food prices and a rapidly growing population, as reflected by the declining Food Security Index. These findings affirm that food security cannot be achieved through productivity gains alone; it requires a balanced approach that also addresses market affordability and demographic pressures. From the perspective of Islamic economics, ensuring fair distribution and social welfare becomes essential in building a more resilient and inclusive food system. Therefore, policy efforts should focus not only on boosting production but also on stabilizing food prices and managing population dynamics through sustainable and socially responsible strategies. The integration of Islamic fiscal instruments such as zakat and waqf can further support equitable access to food, especially for vulnerable groups. These insights offer a foundation for more comprehensive and ethically guided policymaking that aligns with both national priorities and broader social justice principles.

AUTHOR CONTRIBUTIONS STATEMENT

Violanida Munajahro conceptualized the study, designed the methodology, and coordinated the overall research process. She also conducted the data analysis, interpreted the results, and wrote the manuscript's introduction, results, and discussion sections. Nurlaili Assisted in the literature review and data collection, contributing to the compilation of secondary data. Yetri Martika Sari Played a significant role in the data visualization, including the creation of tables and graphs. She also contributed to the discussion and conclusion sections, particularly in drawing implications for policy recommendations and food security strategies.

REFERENCES

Aji, M. H., Imsar, I., & Daulay, A. N. (2024). The Impact of Investment, Inflation, and Productive Zakat on the Welfare of People in Medan. *Quantitative Economics and Management Studies*, *5*(5), 995–1004. https://doi.org/10.35877/454RI.qems2821

Amalia, P. L. (2024). Analysis of the Increase in the Price of Basic Foodstuffs on Inflation in Central Java Province. *International Conference on Islamic Economics (ICIE)*, *1*, 1194–1204. https://proceeding.uingusdur.ac.id/index.php/icie/article/view/1647

Breisinger, C., Van Rheenen, T., Ringler, C., Nin-Pratt, A., Minot, N., Aragon, C., Yu, B., Ecker, O., & Zhu, T. (2010). *Food security and economic development in the Middle East and North Africa: Current state and future perspectives*. https://cgspace.cgiar.org/items/d67a69b2-7a2d-40c4-9df3-addacbb03534

Chapra, M. U. (2016). *The future of economics: An Islamic perspective* (Vol. 21). Kube Publishing Ltd. https://books.google.com/books?hl=id&lr=&id=0NGpDAAAQBAJ&oi=fnd&pg=PR11&dq=Although+existing+research+has+examined+the+individual+effects+of+these+factors,+few+studies+have+integrated+them+in+the+context+of+food+security+from+an+Islamic+economic+perspective&ots=296iZCGIMx&sig=WNsJCS39dkRkK1i3l_P3rSbKVj4

Derouez, F., & Ifa, A. (2024). Sustainable food security: Balancing desalination, climate change, and population growth in five arab countries using ARDL and VECM. *Sustainability*, *16*(6), 2302. https://doi.org/10.3390/su16062302

Efendi, M. N., Nasrulloh, N., & Sumawan, S. (2023). Madiun City Government Economic Policy Strategy: Islamic Economic Prespective. *Islamic Economics Journal*, *9*(2), 149–168.

Ehrlich, P. R., Ehrlich, A. H., & Daily, G. C. (1993). Food security, population and environment. *Population and Development Review*, 1–32. https://doi.org/10.2307/2938383

Fauzan'Azhima, M., Deniar, S. M., Nugraha, T. C., & Salahudin, S. (2023). Six Pillars Of Global Food Security In Indonesia: A Systemic Literature Review. *Sosiohumaniora*, *25*(3), 419–429.

Grote, U. (2014). Can we improve global food security? A socio-economic and political perspective. *Food Security*, *6*(2), 187–200. https://doi.org/10.1007/s12571-013-0321-5

Ibrahim, N. F., Abdullah, M. A. A., & Olaniran, O. R. (2025). Unraveling the Impact of Climate Change on Food Security in Malaysia: Insights from Vector Error Correction Modeling. *Engineering, Technology & Applied Science Research*, *15*(2), 20811–20818. https://doi.org/10.48084/etasr.9768

Krishnamurthy R, P. K., Fisher, J. B., Choularton, R. J., & Kareiva, P. M. (2022). Anticipating drought-related food security changes. *Nature Sustainability*, *5*(11), 956–964. https://doi.org/10.1038/s41893-022-00962-0

Listiana, L., & Timur, Y. P. (2025). The Role of Waqf in Achieving Food Security: A Netnographic Study. *International Journal of Islamic Finance and Sustainable Development*, *17*(1), 29–50. https://doi.org/10.55188/ijifsd.v17i1.956

Mahaluca, F., Carsane, F., & Vilanculos, A. (2025). Forecasting Rice Production in Mozambique Using Time Series Models and Artificial Neural Networks: Implications for Food and Nutritional Security in the Context of SDG 2. *J Eco Res & Rev*, *5*(1), 01–15.

Mbow, C., Rosenzweig, C., Barioni, L. G., Benton, T. G., Herrero, M., Krishnapillai, M., Liwenga, E., Pradhan, P., Rivera-Ferre, M. G., Sapkota, T., Tubiello, F. N., Xu, Y., & Blanchard, J. (2019). *Food security*. https://figshare.utas.edu.au/articles/chapter/Food_security/23201480/2

Morioka, M., & Kondo, T. (2017). Agricultural Productivity Growth and Household Food Security Improvement in Nepal. *Review of Development Economics*, *21*(4). https://doi.org/10.1111/rode.12325

Ngongo, Y., DeRosari, B., Basuki, T., Njurumana, G. N., Nugraha, Y., Harianja, A. H., Ardha, M., Kustiyo, K., Shofiyati, R., & Heryanto, R. B. (2023). Land cover change and food security in central Sumba: Challenges and opportunities in the decentralization era in Indonesia. *Land*, *12*(5), 1043. https://doi.org/10.3390/land12051043

Nugraha, T. C., Fauzan'Azhima, M., Afrina, U., Amalia, R. M., Rahim, E.-S. A. A., & Tarshany, Y. M. A. R. (2023). Solutions to food security problems in Indonesia: An Islamic perspective. *Islamic Research*, *6*(2), 160–168.

Obaidullah, M. (2015). Enhancing food security with Islamic microfinance: Insights from some recent experiments. *Agricultural Finance Review*, *75*(2), 142–168. https://doi.org/10.1108/AFR-11-2014-0033

Pratomo, W. A., Soeparno, W. S. I., Rahman, A., Suriadi, A., Khaliqi, M., & Rusydiana, A. S. (2023). Food Price Anomalies on Farmer Welfare and Inflation: A Case in Indo-nesia. *Review of Economics and Finance*, *21*, 2179–2191.

Priyarsono, D. S., & Ahmad, F. S. (n.d.). Are Official Statistics Underexploited by Researchers and Policymakers? The Case of Agriculture Sector in Indonesia. *Agro Ekonomi*, *36*. Retrieved May 5, 2025, from https://journal.ugm.ac.id/jae/article/view/92071

Risdayani, R., Isman, I., Hidayat, S., & Yanuri, Y. R. (2024). Maqāṣid Al-Syarī'ah Analysis of the Implementation of Food Social Assistance on Multidimensional Welfare in Indonesia (2020-2023). *AL-IKTISAB: Journal of Islamic Economic Law*, *8*(2), 139–156. https://doi.org/10.21111/aliktisab.v8i2.12972

Rozaki, Z., Siregar, H., Pratama, I. A., & Istiyanti, E. (2023). Food security, diversification, and inequality: Indonesia in the era of economic recovery and high price trends. In *Advances in Food Security and Sustainability* (Vol. 8, pp. 43–94). Elsevier. https://www.sciencedirect.com/science/article/pii/S2452263523000071

Ruel, M. T., Garrett, J., Yosef, S., & Olivier, M. (2017). Urbanization, Food Security and Nutrition. In S. de Pee, D. Taren, & M. W. Bloem (Eds.), *Nutrition and Health in a Developing World* (pp. 705–735). Springer International Publishing. https://doi.org/10.1007/978-3-319-43739-2_32

Rusliyadi, M., & Chen, Y.-H. (n.d.). *An Analysis of the Food Security Policy Implementation Framework: The Case of Food Self-Sufficiency and Extension Policy in Indonesia An Analysis of the Food Security Policy Implementation Framework: The Case of Food Self-Sufficiency and Extension Policy in Indonesia*. Retrieved May 5, 2025, from https://ap.fftc.org.tw/article/3607

Rusmawati, E., Hartono, D., & Aritenang, A. F. (2023). Food security in Indonesia: The role of social capital. *Development Studies Research*, *10*(1), 2169732. https://doi.org/10.1080/21665095.2023.2169732

Smith, P. (2013). Delivering food security without increasing pressure on land. *Global Food Security*, *2*(1), 18–23. https://doi.org/10.1016/j.gfs.2012.11.008

Stagars, M. (2016). *Data quality in Southeast Asia: Analysis of official statistics and their institutional framework as a basis for capacity building and policy making in the ASEAN*. Springer. https://books.google.com/books?hl=id&lr=&id=nuB6DAAAQBAJ&oi=fnd&pg=PR5&dq=These+data+points+are+obtained+from+government+agencies+such+as+the+Central+Statistics+Agency+(BPS),+the+Ministry+of+Agriculture,+and+other+reliable+institutions+that+provide+relevant+data+for+this+research.&ots=L-6dVi0a79&sig=q16nKxJoqpd0ndeNkDgN0zahVcI