

The Impact of BAZNAS's "Lumbung Pangan" Program on Farmer Productivity and Economic Welfare in South Kalimantan: Evidence from Agricultural Training and Support

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ABSTRACT

Agriculture plays a crucial role in the livelihoods of rural populations, particularly in developing regions such as South Kalimantan, where many farmers face challenges including low productivity, limited access to quality inputs, and financial instability. These issues hinder their economic growth and welfare, making targeted interventions essential for improving farm productivity and income. This study evaluates the impact of BAZNAS's "Lumbung Pangan" program in South Kalimantan on farmer welfare, with a focus on 80 farmers who received training and support in organic fertilizer production. Under the guidance of agricultural experts, these farmers were assisted throughout the planting to harvesting stages. The findings reveal significant improvements in crop yields and income among the participating farmers. Farmers reported an increase in crop productivity, which was statistically validated through a paired t-test. Results indicated a correlation coefficient of 0.229 ($p = 0.041$), and a paired sample test showed a significance of 0.000, thus rejecting the null hypothesis and affirming the influence of agricultural assistance from BAZNAS experts. This study highlights the effectiveness of targeted agricultural interventions on rural welfare, showcasing how support in organic farming practices can lead to economic advancement among beneficiaries.

Keywords: *Muzakis, Farmer, Welfare, Agricultural*

INTRODUCTION

Agriculture remains a cornerstone of the Indonesian economy, especially in rural areas, where it serves as the primary source of livelihood for millions of people. Despite its importance, farmers in many parts of the country (Hansen, 1981), particularly in rural regions like South Kalimantan, face significant challenges that inhibit their ability to increase productivity and improve their overall economic well-being. These challenges include limited access to quality seeds, fertilizers, and modern farming technologies, as well as insufficient technical knowledge regarding sustainable farming practices (Ajayi, 2007). Furthermore, many farmers face financial constraints, which prevent them from investing in improvements to their agricultural systems. As a result, farmers often struggle with low yields, poor income,

and a lack of resources to overcome these issues (Altieri, 2002).

In response to these challenges, several initiatives have been implemented to support the agricultural sector and improve the livelihoods of farmers. One of the key solutions that have emerged in recent years is the use of zakat—an obligatory form of almsgiving in Islam—as a tool for social and economic development. In Indonesia, where Islam is the dominant religion, zakat has been utilized not only as a means of poverty alleviation but also as a resource for broader community development (Laldin & Djafri, 2021). BAZNAS (Badan Amil Zakat Nasional), the national zakat agency, has spearheaded efforts to channel zakat funds into various development programs, focusing on helping vulnerable populations, including farmers, improve their livelihoods (Hasan, 2021).

One of the most notable programs launched by BAZNAS is the “Lambung Pangan” (Food Barn) program in South Kalimantan. This initiative is designed to assist farmers by providing them with training in organic fertilizer production and promoting sustainable farming practices. The program aims to help farmers increase their productivity and income by equipping them with the knowledge and resources to improve soil health and enhance crop yields. It is particularly focused on organic farming techniques, which are more environmentally sustainable and cost-effective compared to conventional farming methods that rely heavily on chemical fertilizers and pesticides (BAZNAS RI, 2024).

The "Lambung Pangan" program is not only about increasing crop yields but also about fostering a long-term shift toward more sustainable agricultural practices. By training farmers to produce their own organic fertilizers, the program empowers them to reduce their reliance on external inputs, which can be costly and environmentally harmful. Moreover, the training is complemented by ongoing guidance from agricultural experts, who provide farmers with the technical support needed throughout the entire agricultural cycle—from planting to harvesting. This comprehensive approach ensures that farmers are equipped with both the skills and the confidence to adopt these new practices and incorporate them into their daily farming activities.

This study aims to evaluate the impact of the “Lambung Pangan” program on the productivity and economic welfare of 80 farmers in Barito Kuala, a region in South Kalimantan. The research specifically focuses on examining changes in crop yields and income before and after the program’s implementation, using both qualitative feedback and quantitative methods to assess the program's effectiveness. The study employs paired t-tests to analyze data on farmers' income and productivity, providing statistical validation of any observed improvements. The research also seeks to understand the broader implications of the

program, exploring how it contributes to poverty reduction and rural development through capacity-building and the promotion of sustainable agricultural practices.

The significance of this study lies in its potential to demonstrate how zakat can be mobilized effectively for rural development, especially in regions where traditional agricultural practices are no longer sufficient to meet the needs of farmers. By assessing the impact of a zakat-funded agricultural program, this research adds to the growing body of literature on the intersection of philanthropy, agriculture, and poverty alleviation. It also highlights the importance of integrating technical knowledge with community-based support mechanisms to achieve lasting improvements in farmer welfare (Ajayi, 2007; Mashur et al., 2022; Nafiah, 2015). Given the challenges facing rural farmers in Indonesia and other developing countries, such programs offer a promising avenue for achieving sustainable development and poverty reduction (Herianingrum et al., 2024; Marsden & Sonnino, 2008).

The findings of this study have implications not only for the future of agricultural development in South Kalimantan but also for similar initiatives in other parts of Indonesia and beyond. By demonstrating the potential of zakat-funded programs to improve agricultural outcomes, this research offers valuable insights into how religious philanthropy can contribute to broader socio-economic goals. Ultimately, the study aims to provide evidence of how targeted agricultural interventions, when aligned with sustainable practices and community support, can create long-term positive changes in the lives of rural farmers.

LITERATURE REVIEW

The role of zakat in improving the welfare of disadvantaged communities has been widely studied, with increasing interest in how it can be leveraged for economic development. Zakat, one of the five pillars of Islam, has traditionally been used for poverty alleviation, yet its potential for

broader socioeconomic impact, particularly in rural agricultural settings, remains underexplored. The current literature highlights the potential of zakat-funded programs to enhance welfare through targeted interventions in various sectors, including agriculture.

A number of studies have demonstrated the effectiveness of agricultural interventions in increasing farmer productivity and income. According to von Braun and Dollahite et al., (2005), capacity-building programs that provide farmers with the necessary tools and knowledge to improve their agricultural practices have proven to be effective in increasing food security and income levels. Similarly, studies by Djomo & Sikod (2012) indicate that agricultural training and access to resources, such as improved seeds and fertilizers, lead to substantial gains in productivity and income for smallholder farmers (Anisah et al., 2023; Opolot et al., 2018). These interventions often include elements such as training on sustainable farming techniques and organic farming, which are also components of the "Lumbung Pangan" program.

The effectiveness of organic farming practices in improving farm productivity has also been well documented. According to Schrama et al., (2018), organic farming can yield comparable or higher results than conventional farming, especially in developing countries where resources are limited, and inputs like chemical fertilizers are less accessible. Organic farming methods not only improve yields by maintaining soil health but also reduce costs and promote sustainability in the long term. These findings align with the core objectives of the "Lumbung Pangan" program, which trains farmers in organic fertilizer production as a sustainable alternative to chemical inputs.

The relationship between agricultural extension services and farmer welfare has been another focus of research. Agricultural extension services, including expert advice, training, and technical support, have been shown to significantly

increase farm productivity. According to previous research (Danso-Abbeam et al., 2018; Ferris et al., 2014), extension services improve farmers' technical knowledge and provide them with better access to markets and credit, resulting in higher productivity and income. The support provided by BAZNAS Kassel's agricultural experts in the "Lumbung Pangan" program mirrors these findings, emphasizing the importance of ongoing assistance in promoting long-term improvements in productivity.

Furthermore, the role of zakat in community development is increasingly being recognized. Zakat has been found to support poverty alleviation and foster community resilience by funding educational programs, health services, and livelihood interventions. Zakat funds, when properly managed, can play a significant role in fostering social and economic development by targeting poverty reduction and enhancing community capacity (Ahmad Malik, 2016; Ibrahim Atah et al., 2018). Zakat-based programs, like "Lumbung Pangan," that focus on sustainable livelihood creation through agriculture are in line with this vision of zakat as a tool for economic empowerment and long-term poverty reduction.

Finally, studies on rural development and welfare programs emphasize the importance of integrating both economic and social development strategies. The combination of agricultural development and social welfare goals in zakat-funded programs offers a comprehensive approach to improving the lives of rural populations. The success of similar programs, such as those in the Philippines (Gamon & Tagoranao, 2018) and Bangladesh (Anis & Kassim, 2016), further supports the hypothesis that well-structured agricultural interventions can effectively reduce poverty and improve welfare in rural communities.

This literature review demonstrates the significant body of research supporting the idea that targeted agricultural interventions, such as those provided by BAZNAS Kassel through its "Lumbung Pangan" program, can

lead to substantial improvements in farm productivity, income, and overall welfare. The findings of this study contribute to the growing body of knowledge on the role of zakat in rural development and the potential

of agricultural capacity-building programs to create lasting socio-economic impacts. Further the conceptual framework can be described in the following figure:

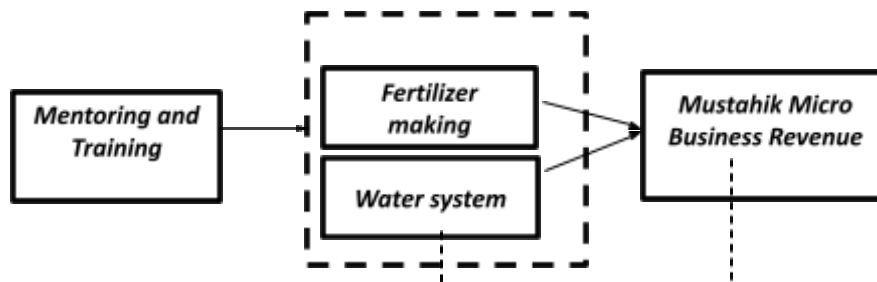


Figure 1. Conceptual framework

Source: Data Processed (2024)

METHODOLOGY

This study employs a quantitative research approach to evaluate the impact of BAZNAS's "Lambung Pangan" program on the productivity and economic welfare of farmers in South Kalimantan, Indonesia. The research is based on a sample of 80 respondents, all of whom are farmers participating in the program. These farmers received comprehensive training in organic fertilizer production and continued support from agricultural experts throughout the planting and harvesting stages of their crops. The primary goal of the study is to assess the extent to which participation in the program has contributed to improvements in income levels and productivity, both of which are key indicators of farmers' economic welfare. To evaluate these impacts, the study compares data on income and productivity collected before and after the intervention, using a pre- and post-program design.

The sample for this study is specifically drawn from 80 farmers in Barito Kuala, a region in South Kalimantan, where the "Lambung Pangan" program has been implemented. These respondents were selected because they represent a diverse cross-section of farming households who are beneficiaries of the program,

ensuring that the results reflect a broad spectrum of experiences. The farmers in this study received similar levels of training and support, providing consistency in the intervention delivered. The training provided by agricultural experts covered a range of topics related to organic farming practices, with a focus on producing and applying organic fertilizers. The intervention aimed not only to enhance productivity by improving soil health and boosting crop yields but also to promote sustainable agricultural practices that reduce dependence on chemical inputs. By receiving this training and guidance throughout the entire agricultural cycle—from planting through to harvest—the farmers were better equipped to improve their farming practices and achieve better economic outcomes.

To assess the impact of the program, the study employed SPSS software for statistical analysis. Two key statistical techniques were used to analyze the data: the paired t-test and correlation analysis. The paired t-test was used to compare the income and productivity levels of the farmers before and after the program. This test is particularly useful in determining whether there is a statistically significant difference between the two sets of data, allowing the researchers to evaluate whether

the intervention had a meaningful impact on the farmers' economic outcomes. The paired t-test analysis was conducted on various economic indicators, such as income levels, crop yields, and productivity per hectare, before and after the program's implementation. A significant difference between these two measurements would suggest that the program had a positive impact on the farmers' livelihoods.

In addition to the paired t-test, correlation analysis was also performed to examine the relationship between program participation and improvements in income and productivity. This analysis aimed to identify whether there is a positive correlation between involvement in the "Lambung Pangan" program and the observed changes in income and productivity. A positive correlation would suggest that as participation in the program increases, so too does the improvement in economic outcomes.

The hypotheses for this study are framed as follows: the null hypothesis (H_0) posits that there is no significant difference in the income and productivity of farmers before and after participating in the "Lambung Pangan" program, implying that the program has no effect on the farmers' economic outcomes. Conversely, the alternative hypothesis (H_a) states that there is a significant difference in the income and productivity of farmers before and after the program, indicating that the intervention has had a measurable impact.

The acceptance criteria for the hypotheses are based on the p-value obtained from the statistical tests. If the p-value from the paired t-test is greater than 0.05, the null hypothesis (H_0) is accepted, and the alternative hypothesis (H_a) is rejected, indicating that the program did not have a statistically significant effect on farmers' income and productivity. On the other hand, if the p-value is less than or equal to 0.05, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_a) is accepted, meaning that the program has had a significant impact on improving the economic outcomes of farmers.

This approach, using quantitative methods and rigorous statistical testing, allows for an objective evaluation of the effectiveness of the "Lambung Pangan" program in enhancing farmer welfare. By comparing pre- and post-program data and analyzing the statistical significance of any changes, this study provides robust evidence on the efficacy of the program. Furthermore, the study's findings can offer valuable insights for policymakers and organizations involved in rural development, particularly those seeking to replicate or expand such programs to improve the livelihoods of farmers in other regions. The results of this study may also contribute to the broader discourse on the role of philanthropic programs, such as zakat-funded initiatives, in fostering sustainable agricultural practices and promoting economic development in rural areas.

RESULT AND DISCUSSION

This study examines the impact of BAZNAS Kalsel's "Lambung Pangan" program on the income and productivity of 80 farmers in South Kalimantan. The program aims to address the common challenges faced by farmers in rural areas, such as low crop yields, poor soil quality, and limited access to agricultural knowledge and resources. By providing farmers with hands-on training in organic fertilizer production and ongoing support from agricultural experts throughout the planting and harvesting phases, the program seeks to improve both the quantity and quality of crop yields, thus enhancing farmers' economic welfare. Organic farming techniques, which emphasize the use of natural inputs rather than chemical fertilizers, were a core component of the intervention. This approach not only improves productivity but also promotes long-term sustainability in farming practices. As part of the study, the income and productivity levels of the farmers were compared before and after their participation in the program, using a paired t-test to assess the statistical significance of the changes.

Table.1 Paired Sample Correlations

Total Respondents	Correlations	Sig.
80	0,229	0,041

Source: SPSS Result (2024)

The results of the analysis reveal a statistically significant improvement in both income and productivity among the farmers who participated in the program. The paired t-test analysis yielded a correlation coefficient of 0.229 with a p-value of 0.041, suggesting a moderate positive correlation between participation in the program and an increase in productivity. This indicates that farmers who received training and support as part of the "Lumbung Pangan" program experienced meaningful improvements in crop yields and economic outcomes.

Table.2 Paired Sample Test

Total Respondents	Sig. (2-tailed)
80	0,000

Source: SPSS Result (2024)

Furthermore, the paired sample test produced a significance value of 0.000, leading to the rejection of the null hypothesis (H_0), which suggested no impact from the program, and the acceptance of the alternative hypothesis (H_a), which affirmed that the program had a significant effect. This finding demonstrates that the training and expert guidance provided by BAZNAS Kassel's agricultural experts directly contributed to the improved performance of the farmers.

In practical terms, the farmers reported a noticeable increase in their crop yields, which they attributed to the use of organic fertilizers and the expert guidance they received during the farming process. Organic fertilizers, in particular, played a crucial role in improving soil health, enhancing crop growth, and reducing reliance on costly synthetic fertilizers. The transition to organic farming not only resulted in higher productivity but also contributed to more environmentally sustainable farming practices. This is especially significant in a region where soil quality and environmental degradation have historically posed challenges to farmers. The

adoption of organic practices aligns with broader environmental goals by reducing the negative impact of chemical fertilizers and promoting sustainable farming that is more resilient to climate change.

The success of the "Lumbung Pangan" program highlights the effectiveness of targeted agricultural interventions that combine skill development with resource support. It demonstrates how well-designed programs can have a tangible, positive impact on rural livelihoods by equipping farmers with the tools and knowledge needed to enhance their productivity and income. The findings of this study are consistent with existing research on agricultural capacity-building programs, which emphasize the importance of hands-on training, access to expert guidance, and resource support in improving the economic outcomes of farmers. Studies by previous finding (Danso-Abbeam et al., 2018; Elias et al., 2016; K et al., 2024) have shown that agricultural extension services and training in sustainable farming practices can significantly boost crop yields and income levels among farmers, which is supported by the results of this study.

Moreover, the findings suggest that zakat funds, when effectively channeled through programs such as "Lumbung Pangan," can make a substantial contribution to rural development. Zakat, traditionally viewed as a form of charity, has been increasingly recognized as a tool for social and economic development. This study underscores the potential of zakat to not only address immediate economic needs but also to create long-term benefits by promoting self-reliance, sustainable practices, and capacity-building. The integration of Islamic philanthropic principles with development goals offers a unique approach to poverty alleviation and rural development, ensuring that interventions are aligned with both economic and social objectives.

This research also points to the broader potential of zakat-funded programs in fostering sustainable, self-reliant communities. By empowering individuals

with the skills and resources necessary for long-term economic stability, these programs contribute to reducing poverty and improving overall quality of life. Further research could explore additional factors influencing program outcomes, such as variations in crop types, farm sizes, and regional conditions, to provide a more comprehensive understanding of the program's effectiveness across different agricultural settings. By doing so, future studies could help refine and expand such programs, ensuring that they benefit a broader range of farmers and contribute to the long-term development of rural communities.

CONCLUSION

This study demonstrates the significant positive impact of BAZNAS Kalsel's "Lambung Pangan" program on the income and productivity of farmers in South Kalimantan. Through targeted interventions, including training on organic fertilizer production and ongoing agricultural support, the program successfully enhanced crop yields and improved farmers' economic welfare. The statistical analysis confirmed a significant relationship between program participation and increased productivity, as evidenced by the paired t-test results. The findings highlight the potential of zakat funds to drive meaningful change in rural communities, offering a model for how faith-based philanthropy can contribute to sustainable agricultural development. Overall, the "Lambung Pangan" program not only improved the livelihoods of farmers but also supported sustainable farming practices, aligning with broader development goals. Further studies could explore the long-term effects of such programs and the factors that influence their success in different agricultural contexts.

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