

THE INFLUENCE OF BULOG'S ROLE ON COMMUNITY FOOD SECURITY THROUGH THE EFFECTIVENESS OF THE SPHP PROGRAM (FOOD SUPPLY AND PRICE STABILITY) AS A MEDIATING VARIABLE IN THE CITY OF JAMBI

Muhammad Aqshal Zorif ¹⁾, Syahmardi Yacob ²⁾

^{1,2)} Faculty of Economics and Business, Universitas Jambi, Jambi, Indonesia

Corresponding author: aqshal1122@gmail.com

Abstract

This study analyzes the influence of the role of Perum BULOG on community food security in Jambi City, with the effectiveness of the Food Supply and Price Stabilization Program (SPHP) as a mediating variable. Food security is determined not only by food availability but also by people's economic access to food at stable and affordable prices. In Jambi Province, limited local rice production and dependence on interregional supply make rice prices vulnerable to fluctuations, which can threaten household food security, especially among low-income groups. Therefore, BULOG plays a strategic role in procurement, storage, distribution, and price control of rice to maintain supply and price stability. This research applies a quantitative approach using proportional random sampling. Data were collected through questionnaires distributed to residents of Jambi City and analyzed using the Partial Least Squares (PLS) method with SmartPLS software. The study is based on Entitlement Theory and Program Effectiveness Theory, which explain how government intervention and program performance affect community access to food. The results show that the role of BULOG has a positive and significant effect on the effectiveness of the SPHP program and on community food security, while the effectiveness of the SPHP program significantly affects food security at the 10% significance level but does not mediate the influence of BULOG's role. These findings indicate that food security in Jambi City is directly influenced by BULOG's operational functions than by the indirect mechanism of SPHP effectiveness.

Keywords: Role of BULOG, Food Security, SPHP Program Effectiveness, Price Stabilization, Jambi City

Introduction

In recent years, the national food situation has shown an increasing level of instability, particularly in rice, which is a primary food source for the Indonesian population. Price fluctuations of rice in the market have the potential to weaken people's purchasing power and increase the risk of food insecurity, especially for low-income groups. This condition aligns with findings that food price volatility directly affects the purchasing power of poor households and increases the risk of food insecurity in developing countries (Gilbert & Morgan, 2010). In response to these conditions, the government implemented the Food Supply and Price Stability Program (SPHP) which aims to maintain affordable rice prices and ensure a sustainable supply for the public (Ginting et al., 2025; Ifa et al., 2025).

However, conditions on the ground show that the implementation of the SPHP Program has not been fully effective, both in stabilizing supply and controlling prices. The limited availability of SPHP rice in the market, the imbalance between supply and demand in various regions, and uneven distribution indicate challenges in the implementation of this policy (Mahdi & Rianzani, 2025; Rulinawaty et al., 2023). The problems of distribution and supply imbalance are also common obstacles in food price stabilization policies in various developing countries (Poulton et al., 2006).

Although SPHP has become the government's main instrument in maintaining rice price stability, various obstacles are still frequently encountered in its implementation. Delays in distribution and discrepancies between the supply quantity and community needs mean that SPHP rice is not always available in traditional markets or retail outlets. This condition results in the effectiveness of the government's intervention in curbing price fluctuations not being felt evenly by the public (Aprilian et al., 2025; Harmaini, 2024; Tamara et al., 2025; Winata & Farida, 2024).

In Jambi Province, the challenge of stabilizing rice prices is more complex due to the limited local rice production, which has not been able to meet the consumption needs of the population. Low rice production results in dependence on supplies from outside the region, making the stability of supply and prices very vulnerable to distribution disruptions and market dynamics.

These conditions have a direct impact on the community's food security, particularly in terms of availability, access, and affordability of food. When rice supply is disrupted and prices rise, people's ability to consistently meet their staple food needs weakens, thereby increasing the risk of food insecurity (Rachman et al., 2024; Wandra et al., 2023).

In this context, Perum BULOG has a strategic role as a government food logistics agency responsible for the procurement, storage, distribution, and price monitoring of rice. Optimizing BULOG's role is an important factor in maintaining the stability of rice supply and prices, especially in areas with high dependence on supplies from outside the region.

The effectiveness of the SPHP Program greatly depends on BULOG's ability to carry out its operational functions optimally. Smooth distribution, sufficient stock, and accurate allocation of supplies to the areas in need are the key to the program's success in curbing price fluctuations and maintaining public access to affordable rice.

Although the SPHP Program makes a tangible contribution to maintaining rice price stability, its effectiveness still needs to be strengthened so that the impact is more evenly distributed and sustainable. Without support for equitable distribution and consistent price monitoring, the price stabilization program tends to only have a short-term effect on the community's food security.

For the people of Jambi City, the presence of BULOG and the implementation of the SPHP Program play an important role in maintaining the availability and affordability of rice. However, various problems in the program's implementation indicate the need for an evaluation of how effectively BULOG's role can enhance the SPHP in supporting the community's food security.

Based on these conditions, this study is important to examine the influence of the role of Perum BULOG on community food security, with the effectiveness of the Food Supply and Price Stability Program (SPHP) as a mediating variable in the city of Jambi. This research is expected to provide an empirical overview of BULOG's role and the effectiveness of SPHP in maintaining the stability of rice supply and prices at the regional level.

Literature Review

Food Security

Food security is the condition in which the food needs of the entire population are continuously met, in terms of availability, access, utilization, and stability of food. This concept refers to the definitions by FAO (1992) and the World Food Summit (1996), which state that food security is achieved when every individual has physical and economic access to sufficient, safe, and nutritious food at all times. In Indonesia, food security is regulated under Law Number 18 of 2012, which emphasizes the importance of equitable, affordable food availability that meets the needs of the population.

Food security is not only determined by sufficient production, but also by the community's ability to access food at affordable prices. Therefore, price stability and smooth food distribution are key factors in maintaining food security, especially for low-income groups (Gallegos et al., 2023; Hardianto, 2017).

The Role of Perum BULOG

Perum BULOG is a government food logistics agency that plays a strategic role in maintaining the stability of national food supply and prices, particularly rice as the main staple food of the Indonesian population. Since its establishment, BULOG has been mandated to carry out procurement, storage, distribution, and price monitoring of rice to ensure food availability and protect the purchasing power of the people (Harmaini, 2024). Conceptually, state grain reserve agencies play an important role in stabilizing prices and ensuring the supply of staple foods (Dorosh & Rashid, 2012).

In the context of food security, the role of BULOG is very important in managing the government's rice reserves and intervening in the market when there are price spikes or supply shortages. Maximizing BULOG's role in rice procurement and distribution can reduce the risk of food insecurity and maintain price affordability at the consumer level (Arenta, 2023; Harahap, 2024).

Food Supply and Price Stabilization Program (SPHP)

The Food Supply and Price Stabilization Program (SPHP) is a government policy implemented through Perum BULOG by utilizing the Government Rice Reserve (CBP). This program aims to maintain rice availability, stabilize consumer prices, and protect the purchasing power of the public from food price fluctuations (Ginting et al., 2025; Ifa et al., 2025). Price stabilization policies through public reserves and market interventions have been widely used to reduce food price volatility (Bank, 2012).

The effectiveness of the SPHP Program is determined by the adequacy of rice stocks, price affordability, ease of public access to SPHP rice, and equitable distribution across regions. If effectively implemented, the SPHP can enhance public access to food and directly contribute to improving food security (Harmaini, 2024; Saminen, 2025).

Methods

The research design used in this study is descriptive, statistical, and survey-based. The descriptive aim is to describe the Role of BULOG, the Effectiveness of the Food Supply and Price Stabilization Program (SPHP), and Community Food Security in Jambi City. Meanwhile, the statistical aim is to explain the cause-and-effect relationship between the variables involved in the study, namely the role of BULOG on community food security through the effectiveness of the SPHP Program as a mediating variable. In this study, the researcher distributed questionnaires offline to the residents of Jambi City as research respondents.

The population in this study is the community residing in Jambi City. The sampling technique used is proportional random sampling, which is a sampling method that gives each member of the population an equal chance of being selected as a sample according to the proportion of the area. The number of samples used in this study is adjusted to the needs of Partial Least Square (PLS) analysis. One of the respondent

criteria in this study is that they are 18 years or older, reside in Kota Baru, Jambi City, and are aware of or have purchased SPHP rice distributed by Perum BULOG.

The data analysis technique used is quantitative data analysis, which is used to examine the effect of BULOG's role on community food security through the effectiveness of the SPHP program as a mediating variable. The research instrument used is a questionnaire with a five-point Likert scale format, which is used to measure respondents' attitudes, opinions, and perceptions regarding the research variables. The Likert scale is scored from 1 to 5, where a score of 1 indicates strongly disagree and a score of 5 indicates strongly agree.

The statistical analysis used is inferential statistics, which is the type of statistics used to draw conclusions from a sample to the population (Sugiyono, 2013). The data were processed using the Partial Least Square (PLS) method with the help of SmartPLS software. The PLS method was chosen because it can be used on various data scales, does not require many assumptions, and can be applied to relatively small sample sizes (Ghozali & Kusumadewi, 2023).

Model testing was conducted through a measurement model test (outer model) to examine the validity and reliability of the instrument, as well as a structural model test (inner model) to determine the relationships between variables. The mediation effect test was conducted by looking at the indirect effect through the bootstrapping procedure, where a variable is said to be a mediating variable if it is able to influence the relationship between the independent variable and the dependent variable (Ghozali & Kusumadewi, 2023).

Results and Discussion

The results of the bootstrapping hypothesis test are used to determine the direct effect between variables for each hypothesis. This is done by looking at the path coefficient values for each hypothesis and the t-statistic values. A good coefficient value should exceed >0.10 . This coefficient comes from the column 'original sample estimate.' The t-statistic value comes from the 't-statistic' column in the 'results for inner weights' table. A t-statistic value above 1.65 indicates a significant direct effect for each hypothesis.

Table 1. Hypothesis Testing

Relationship of Variables	Original Sample (O)	Sample Mean (M)	STDEV	T-Statistics	P-Value	Decision
The Role of BULOG → Food Security	0.773	0.744	0.141	5.493	0.000	Significant
The role of BULOG → SPHP	0.759	0.788	0.060	12.687	0.000	Significant
SPHP → Food Security	0.237	0.263	0.141	1.684	0.092	Significant
SPHP x BULOG's Role → Food Security	0.086	0.070	0.064	1.345	0.179	Not Significant

Based on the table above, the following are the results of hypothesis testing using bootstrapping.

1. H1: The role of BULOG has a positive and significant effect on Food Security. Based on the hypothesis test calculation table, the t-statistic value obtained was $5.493 > 1.65$. In addition, the p-value of $0.000 < 0.10$ indicates that the role of BULOG has a significant effect on Food Security. Therefore, H1 is accepted.
2. H2: The role of BULOG has a positive and significant effect on SPHP. Based on the hypothesis test calculation table, the t-statistic value obtained was $12.687 > 1.65$. Furthermore, the p-value of $0.000 < 0.10$ indicates that this effect is significant. Therefore, H2 is accepted.
3. H3: SPHP has a positive and significant effect on Food Security. Based on the hypothesis test calculation table, the t-statistic value obtained is $1.684 > 1.65$. In addition, the P-value of $0.092 < 0.10$ indicates that the effect is significant. Thus, H3 is accepted.
4. H4: SPHP mediates the effect of BULOG's Role on Food Security. Based on the hypothesis test calculation table, the t-statistic value obtained is $1.345 < 1.65$. In addition, the P-value of $0.179 > 0.10$ indicates that the effect is not significant. Therefore, H4 is rejected, meaning SPHP is not able to mediate the relationship between BULOG's Role and Food Security.

Discussion

The Influence of BULOG's Role on Food Security

Based on the results of the statistical tests, it can be concluded that BULOG's role has a positive and significant effect on community food security ($p < 0.10$). BULOG's role, reflected through its functions in procurement, storage, and distribution of food, is able to increase food availability and maintain price

stability at the community level. Considering the positive and significant coefficient values, it can be concluded that the more optimal BULOG's role is, the better the level of community food security.

The results of this study are in line with the research conducted by (Dijaya et al., 2021), which states that strategic food institutions play an important role in maintaining supply stability and reducing the risk of food shortages in the region. Furthermore, this study also aligns with the review by (Timmer, 2015), which emphasizes that the presence of government institutions in managing food reserves and market interventions is a key factor in maintaining food security.

The difference between this study and Timmer's research lies in the scope and analytical approach. (Timmer, 2015) was conducted in a national and global context using a macro approach, whereas this study focuses on the regional level, specifically Jambi City, using primary data and a quantitative approach. The difference in location and unit of analysis allows for variations in the magnitude of the effects, but conceptually, it still shows a similar direction in the relationships between variables.

The Influence of BULOG's Role on the Effectiveness of the SPHP Program

The research results indicate that the role of BULOG has a significant impact on the effectiveness of the SPHP Program ($p < 0.10$). This suggests that the success of the SPHP Program is highly determined by BULOG's ability to manage the supply chain, conduct targeted distribution, and monitor price stability in the market. Thus, an optimal role of BULOG will enhance the effectiveness of the SPHP Program's implementation.

This study aligns with research by (Harmaini, 2024), which states that the performance of implementing institutions is a determining factor in the success of food price stabilization policies. Additionally, these findings are also in line with research by (Poulton & Dorward, 2003), which concluded that the effectiveness of food stabilization programs is greatly influenced by the capacity of public institutions in logistics and distribution management.

However, the difference between this research and the study by (Poulton & Dorward, 2003), lies in the regional context and the type of policy examined. Dorward and Poulton's research was conducted in several developing countries with a focus on general food policy, whereas this study specifically examines the SPHP Program implemented by BULOG in Jambi City. These differences in policy context and region cause the research results to have different characteristics, even though they show the same direction of influence.

The Influence of SPHP Program Effectiveness on Food Security

Statistical tests show that the effectiveness of the SPHP Program has a positive and significant effect on community food security ($p < 0.10$). The SPHP Program plays a role in maintaining the purchasing power of the community by providing rice at affordable prices, thus reducing the risk of food insecurity, especially for low-income communities.

The results of this study are in line with the research by (Saminem, 2025), which states that food price stabilization programs are effective in preventing food insecurity among communities. In addition, this study also aligns with the FAO report in 2018, which emphasized that government interventions in food prices play an important role in maintaining food access and availability.

The difference between this study and the FAO report lies in the scale of analysis. The FAO examined food security on a global and national scale, whereas this study was conducted at the regional level, focusing on the community in Jambi City. This difference in scale leads the FAO study to emphasize macro-level policies, while this study highlights the direct impact of programs on the local community.

The Influence of the Effectiveness of the SPHP Program in Mediating BULOG's Role in Food Security

Based on the mediation test results, the SPHP Program is unable to mediate the relationship between BULOG's role and community food security ($t < 1.65$, $p > 0.10$). Thus, it can be concluded that BULOG's role has a direct effect on food security without going through the effectiveness of the SPHP Program as an intermediary variable.

This research aligns with the study by (Saragih, 2016), which stated that food security stability is more influenced by the strength of the food system and the role of strategic institutions rather than by a particular policy program. However, this study differs from several food policy studies that found that price stabilization programs could act as a mediating variable. The differences are suspected to be due to variations in regional characteristics, distribution effectiveness, and the intensity of program implementation in each area.

Conclusion

Based on the results of the analysis and discussion, this study concludes that the role of Perum BULOG has a positive and significant effect on the effectiveness of the SPHP Program, where the optimization of procurement and distribution functions can strengthen the stability of supply and food prices. In addition, the role of Perum BULOG also has a positive and significant effect on Community Food Security, particularly in ensuring the availability and affordability of food for the public. The effectiveness of the SPHP Program itself contributes significantly to improving Community Food Security through the creation of rice price stability in the market. However, the SPHP Program has not been proven to mediate the influence of

BULOG's role on Food Security. This indicates that BULOG's contribution to food security in Jambi City is direct and does not depend on the effectiveness of the SPHP Program as an intermediary variable.

Based on the research findings, it is practically recommended that Perum BULOG continues to strengthen its role in supply management and price stabilization by improving the effectiveness of distribution as well as implementing stricter field supervision. Local governments also need to enhance cross-agency coordination so that food stabilization policies are implemented in an integrated manner, supported by efforts to increase community purchasing power and strengthen sustainable local food production. Academically, future research is expected to expand the coverage area and sample size so that the research results are more representative, as well as add other variables relevant to food security. In addition, the use of a mixed research method (quantitative and qualitative) is highly recommended to gain a deeper understanding of the dynamics of the role of food institutions and the effectiveness of programs in the field.

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Authors' Bibliography

Muhammad Aqshal Zorif was born in Jambi, Indonesia, on June 26, 2004. He obtained his Bachelor's degree in Management from the Faculty of Economics and Business, Universitas Jambi, Indonesia. His academic interests focus on food security, public policy, price stabilization, and regional economic development