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The Influence of Farmers' Perceptions and Facilities on Service Quality and Its Impact on the Effectiveness of Subsidized Fertilizer Distribution in the Area Served by the Geragai District Agricultural Extension Center, East Tanjung Jabung Regency

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Abstract: This study aims to analyze the influence of farmers' perceptions and facilities on service quality, as well as their impact on the effectiveness of subsidized fertilizer distribution in the area served by the Extension Implementation Center (BP3) of Geragai District, East Tanjung Jabung Regency. The study focuses on farmers' perceptions and facilities regarding service quality and their impact on the effectiveness of subsidized fertilizer distribution in Geragai District, East Tanjung Jabung Regency, utilizing a sample of 120 farmers drawn from a total population of 1,097. The research employs descriptive, verificative, and quantitative statistical methods; questionnaire responses were tabulated to serve as the basis for descriptive statistics and quantitative analysis using the Structural Equation Model (SEM) via the Smart PLS 4.9 software tool. An overview of the assessments regarding farmers' perceptions, facilities, service quality, and the effectiveness of subsidized fertilizer distribution in Geragai District, East Tanjung Jabung Regency, indicates that the farmers' perception variable achieved a total score of 5,311 (categorized as "good"). The facility variable showed a total score of 4,016 ("good"), while the service quality variable recorded a total score of 7,552 ("good"). Finally, the variable representing the effectiveness of subsidized fertilizer distribution showed a total score of 7,320 ("good"). Analysis using Smart PLS 4.9 reveals that farmers' perceptions have a significant influence on service quality and on the effectiveness of subsidized fertilizer distribution. Facilities have a positive and significant influence on service quality and on the effectiveness of subsidized fertilizer distribution. Furthermore, farmers' perceptions significantly influence distribution effectiveness through service quality, and facilities significantly influence the effectiveness of subsidized fertilizer distribution through service quality.

Keyword: Analysis of Farmers' Perceptions, Facilities, Service Quality, Effectiveness, Subsidized Fertilizer.

INTRODUCTION

Public service management is a crucial aspect of modern governance, as it involves meeting the public's basic needs and fulfilling the state's responsibility to ensure well-being. In today's era of information openness, the public primarily demands services that are effective, efficient, transparent, and accountable. Citizens expect not only rapid service delivery but also high-quality services that meet established standards.

According to Robbins (2017), perception is the process by which individuals organize and interpret their sensory impressions to give meaning to their environment. In the context of subsidized fertilizer distribution, farmers' perceptions are shaped by their experiences; when they receive service that is accurate, transparent, and responsive to their needs, they form a positive perception regarding the quality of the distribution service. Farmers' perceptions are crucial, as they can influence the level of trust and satisfaction farmers have regarding government programs.

Facilities encompass the infrastructure and resources used to support the service and distribution processes for subsidized fertilizer to farmers. These facilities may include fertilizer storage warehouses, transportation access, administrative equipment, service areas, information technology systems, and other supporting resources that facilitate fertilizer distribution activities. Adequate facilities help ensure the service process is faster, more organized, and more efficient. Conversely, inadequate facilities can hinder the fertilizer distribution process, leading to service delays, administrative errors, and inconvenience for farmers in obtaining subsidized fertilizer.

According to Sinambela (2016), the effectiveness of public service is measured by the government's ability to provide services that are well-targeted, rapid, and aligned with the community's needs. The effectiveness of subsidized fertilizer distribution refers to the degree of success in distributing fertilizer to achieve established objectives. This effectiveness can be measured by the accuracy of recipient targeting, the precision of quantities, the timeliness of distribution, and the ease with which farmers can access subsidized fertilizer.

Meanwhile, Kotler (2012) defines service as any act or activity that one party can offer to another that is essentially intangible. The primary objectives of public service include improving public welfare, ensuring public satisfaction, realizing social justice, and enhancing public trust in the government.

According to Walgito (2010), the definition of perception as "an individual's cognitive process of understanding, interpreting, and assigning meaning to information received through the senses" is most frequently associated with perception theory in cognitive psychology. Perception is also the process by which an individual organizes and interprets sensory impressions to give meaning to their surrounding environment.

According to Robbins & Judge (2017), perception is the process by which individuals organize and interpret their sensory impressions to give meaning to their environment. In the context of subsidized fertilizer distribution, farmers' perceptions are shaped by their experiences with the service—such as procedural ease, timely distribution, staff friendliness, information clarity, and fertilizer availability. If farmers experience service that is fast, transparent, and responsive to their needs, they will form a positive perception regarding the quality of the subsidized fertilizer distribution service.

In the context of agriculture, Rogers (2003) explains that farmers' perceptions of innovation are a key determinant of the adoption rate of agricultural technology. This means that a positive perception fosters acceptance, whereas a negative perception can act as a barrier. Thus, farmers' perception can be defined as their view or assessment of a policy, program, or service, which influences their attitudes and behavioral actions.

Zeithaml & Berry (1988) state that service quality is measured across five dimensions: physical facilities (kiosks, warehouses, HET signage, scales, and transport speedboats); reliability (the ability of the UPTD BPPP to fulfill promises, such as timely fertilizer delivery

and accurate e-RDKK data); and responsiveness (the speed at which Field Agricultural Extension Officers PPL address e-RDKK corrections and complaints regarding the HET).

According to Siagian (2019), effectiveness refers to the degree of success in achieving predetermined goals or objectives. In the context of subsidized fertilizer distribution, effectiveness indicates the extent to which the program meets farmers' needs in alignment with government objectives specifically, ensuring that farmers receive fertilizer with the right targeting, quantity, timing, price, type, and location. The higher the level of achievement regarding these indicators, the more effective the implementation of the subsidized fertilizer program is considered to be.

METHOD

The object of this study is the influence of farmers' perceptions and facilities on service quality, as well as the impact on the effectiveness of subsidized fertilizer distribution at the Geragai District Agricultural Extension Center (BPP) in East Tanjung Jabung Regency. In this study, the independent variables are farmers' perceptions (X1) and facilities (X2), the intervening variable is service quality (Y), and the dependent variable is the effectiveness of fertilizer distribution (Z).

Data represents a measure of value. Data that has been processed is referred to as information. The criteria for quality data include accuracy, relevance, and currency (being up-to-date) (Sudirman, Osrita, and Zahari, 2020).

The population of this study consists of 1,097 farmers registered with the UPTD BPPP in Geragai District, East Tanjung Jabung Regency. The sample for this study was drawn from the total population, comprising 120 respondents.

The verification analysis tool employed by the researcher is Partial Least Squares (PLS). According to Nusrang (2023), PLS is a variance-based structural equation modeling technique capable of simultaneously testing both the measurement model and the structural model. The measurement model is used to assess validity and reliability, whereas the structural model is used to test causality (hypothesis testing via a predictive model).

RESULTS AND DISCUSSION

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Based on data collected via questionnaires regarding the "farmer perception" variable, the score fell within the "good" category. This result indicates that farmers hold a highly positive perception of the subsidized fertilizer distribution process in the study area. Such a favorable perception reflects the farmers' view that the services, procedures, and distribution mechanisms for subsidized fertilizer have operated satisfactorily and met their needs.

Based on the frequency analysis of respondent responses regarding the facilities variable (X2), a score of 4.016 was obtained, placing it in the "good" category. This result indicates that respondents rated the available facilities very positively in terms of supporting the execution of the activities or services under study.

Based on the research questionnaire results, the service quality variable obtained a score of 7,552, placing it in the "good" category. These results indicate that respondents perceived the service provided as effective and capable of meeting the needs and expectations of service recipients. This assessment reflects a positive perception among respondents regarding service aspects such as accuracy, speed, friendliness, staff competence, and ease of service.

Based on data gathered via questionnaires, the variable representing the effectiveness of subsidized fertilizer distribution (Z) obtained a score of 7,320, placing it in the "good" category.

This result indicates that respondents perceive the subsidized fertilizer distribution process as effective and aligned with the program's intended objectives. The assessment reflects a view that the distribution system successfully meets farmers' needs regarding the accuracy of quantity, timing, type, price, location, and intended recipients.

Analysis Results

The analysis in this study employs Structural Equation Modeling with Partial Least Squares (SEM-PLS)—an alternative SEM technique that does not require the data to follow a multivariate normal distribution—thereby yielding a structural model that aligns with the study's design.

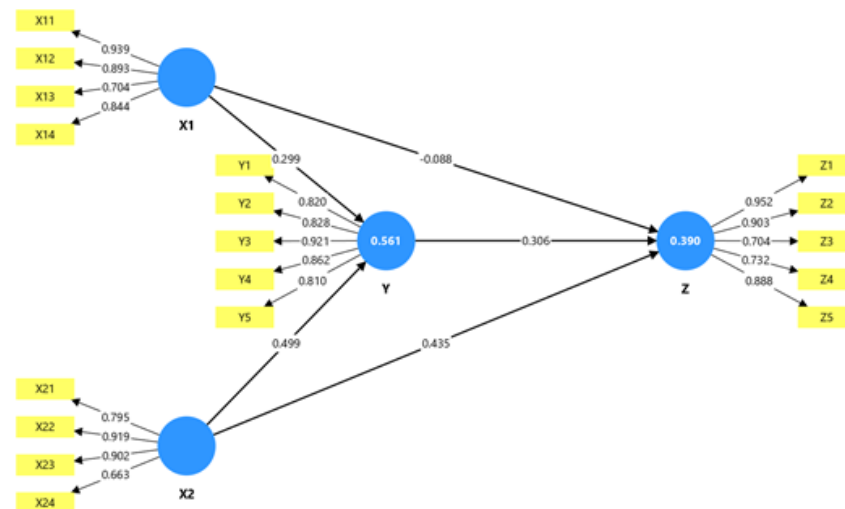


Figure 1. PLS-SEM Path Analysis Model for Research

The evaluation of the measurement model in the study titled "The Influence of Farmers' Perceptions and Facilities on Service Quality and Its Impact on the Effectiveness of Subsidized Fertilizer Distribution in the Operational Area of BPP Satker, Geragai District, East Tanjung Jabung Regency" consists of three stages: a convergent validity test, a discriminant validity test, and a composite reliability test.

Based on the loading factor values from the SEM-PLS model for the study on the influence of farmers' perceptions and facilities on service quality—and their subsequent impact on the effectiveness of subsidized fertilizer distribution—it is evident that all indicators for each variable meet the criteria for convergent validity. In SEM-PLS analysis, an indicator is considered valid if its loading factor exceeds 0.70; however, some experts consider values between 0.60 and 0.70 acceptable for research involving model development.

Regarding the Farmers' Perception variable (X1), the loading factor values are 0.939 for X11, 0.893 for X12, 0.704 for X13, and 0.844 for X14. These values indicate that all indicators effectively explain the Farmers' Perception variable, with X11 serving as the most dominant indicator in reflecting this variable.

For the Facilities variable (X2), the loading factor values are 0.795 for X21, 0.919 for X22, 0.902 for X23, and 0.763 for X24. All indicators are deemed valid as they exceed the 0.70 threshold. Indicator X22 is the strongest indicator in defining the Facilities variable, as it possesses the highest loading factor value.

Regarding the Service Quality variable (Y), the loading factor values are 0.820 for Y1, 0.828 for Y2, 0.921 for Y3, 0.862 for Y4, and 0.810 for Y5. These results demonstrate that all indicators meet the convergent validity requirements and effectively represent the Service Quality variable, with Y3 acting as the most dominant indicator in explaining this variable. Furthermore, regarding the Distribution Effectiveness variable (Z), indicator Z1 has a loading

factor of 0.952, Z2 is 0.903, Z3 is 0.704, Z4 is 0.732, and Z5 is 0.888. All indicators are considered valid as they possess loading factor values above 0.70. Indicator Z1 is the most dominant indicator in reflecting the Distribution Effectiveness variable.

For the "Farmers' Perception" variable (X1), indicator X11 (Understanding) has the highest outer loading value at 0.939, interpreted as very high or ideal. This indicates that the "Understanding" indicator is the strongest factor in shaping the farmers' perception variable. Subsequently, indicator X12 (Fairness) has a value of 0.893, indicator X13 (Benefits) is 0.704, and indicator X14 (Ease of Use) is 0.844. All these indicators fall into the very high/ideal category in terms of their ability to explain the variable.

For the "Facilities" variable (X2), indicator X22 (Transparency) has the highest outer loading value at 0.919, followed by indicator X23 (Responsiveness) at 0.902, indicator X21 (Frequency) at 0.795, and indicator X24 (Stakeholders) at 0.763. These values indicate that all indicators within the facilities variable have a strong relationship with the latent construct. Although the "Stakeholders" indicator has the lowest value compared to the others, it remains above the minimum threshold of 0.70; thus, it is still considered valid and robust for measuring the facilities variable.

For the "Service Quality" variable (Y), indicator Y3 (Competence) has the highest outer loading value at 0.921, interpreted as very high or ideal. This indicates that competence is the dominant indicator in shaping service quality. Next are indicator Y4 (Attention) at 0.862, indicator Y2 (Accuracy) at 0.828, indicator Y5 (Dissemination/Outreach) at 0.810, and indicator Y1 (Kiosk Facilities) at 0.820. All these indicators have outer loading values above 0.70, meaning they are valid and effectively explain the service quality variable. For the Distribution Effectiveness variable (Z), indicator Z1 (Price) has the highest outer loading value at 0.952, indicating a very strong relationship with the distribution effectiveness construct. This is followed by indicator Z2 (Quantity) at 0.903, indicator Z5 (Target) at 0.888, indicator Z4 (Type) at 0.732, and indicator Z3 (Timing) at 0.704. All indicators exceed the standard value for convergent validity, rendering them valid and suitable for use.

Significance testing in the PLS-SEM model aims to determine the influence of exogenous variables on endogenous variables. Hypothesis testing using the PLS-SEM method was conducted via the bootstrapping process in SmartPLS 4.9 to establish the influence of exogenous variables on endogenous variables. The study's bootstrapping results analyze the influence of farmers' perceptions and facilities on service quality, as well as the impact of subsidized fertilizer distribution effectiveness in Geragai District, East Tanjung Jabung Regency.

Regarding the t-statistic value: if it exceeds 1.96, the effect is deemed significant; alternatively, comparing it against the t-table value for a 95% confidence level ($\alpha = 5\%$) also indicates a significant effect. A p-value of less than 0.05 likewise signifies a significant effect. The analysis explains the influence of farmers' perceptions and facilities on service quality—and the subsequent impact on the effectiveness of subsidized fertilizer distribution—within the operational area of the Geragai District Agricultural Extension Center (BPP Satker), East Tanjung Jabung Regency, in relation to the study's established hypotheses. Hypothesis testing was conducted for each relationship between the latent variables.

The bootstrapping significance test results from SmartPLS version 4.9 indicate that all direct effects between variables yielded t-statistics greater than 1.96 and p-values less than 0.05. This demonstrates that all direct relationships between the variables in this study are significant, and the research hypotheses are accepted.

A t-statistic value of 3.071 was obtained, with a p-value of 0.002. These results indicate that farmers' perceptions have a positive and significant effect on service quality. This means that the more favorable the farmers' perceptions, the higher the quality of service in the distribution of subsidized fertilizer.

CONCLUSION

Based on the research findings titled "The Influence of Farmers' Perceptions and Facilities on Service Quality and Their Impact on the Effectiveness of Subsidized Fertilizer Distribution in the Area of the Extension Implementation Center, Geragai District, Tanjung Jabung Timur Regency," the following conclusions address the established objectives: 1. Descriptive analysis indicates that the Extension Implementation Center in Geragai District, Tanjung Jabung Timur Regency, is characterized by positive farmer perceptions, good facilities, high service quality, and a high level of effectiveness in subsidized fertilizer distribution. 2. Farmers' perceptions have a positive and significant influence on service quality at the Extension Implementation Center in Geragai District, Tanjung Jabung Timur Regency.

This indicates that the more positive the farmers' perceptions are, the higher the quality of service provided by the officers. 3. Farmers' perceptions have a positive and significant influence on the effectiveness of subsidized fertilizer distribution at the Extension Implementation Center in Geragai District, Tanjung Jabung Timur Regency. This indicates that the more positive the farmers' perceptions are, the greater the effectiveness of subsidized fertilizer distribution in Geragai District. 4. Work facilities have a positive and significant influence on service quality. This indicates that the availability of adequate, comfortable, and suitable work facilities supports the delivery of high-quality service in the performance of duties. 5. Work facilities have a positive and significant influence on the effectiveness of subsidized fertilizer distribution.

This indicates that the availability of adequate, comfortable, and suitable work facilities positively impacts the effectiveness of subsidized fertilizer distribution, leading to greater efficiency. 6. Service quality has a positive and significant influence on the effectiveness of subsidized fertilizer distribution at the Extension Implementation Center in Geragai District, Tanjung Jabung Timur Regency. This indicates that the quality of the systems employed in the operations of the Extension Implementation Center in Geragai District plays a crucial role. 7. Farmers' perceptions have a significant indirect influence on the effectiveness of subsidized fertilizer distribution through the mediation of service quality in Geragai District. This indicates that a positive perception of service quality can foster highly effective subsidized fertilizer distribution, making the process more precise and efficient. 8. Facilities have an indirect, significant impact on the effectiveness of subsidized fertilizer distribution through service quality in Geragai District. This highlights the crucial role of facilities in ensuring the quality required for effective subsidized fertilizer distribution.

Recommendation

Based on the study's conclusions, the following recommendations are offered regarding the research titled "The Influence of Farmers' Perceptions and Facilities on Service Quality and Their Impact on the Effectiveness of Subsidized Fertilizer Distribution in the Area of the Agricultural Extension Implementation Center (BPP), Geragai District, East Tanjung Jabung Regency": 1. The Agricultural Extension Implementation Center (BPP) of Geragai District is encouraged to enhance service quality for farmers by improving the capabilities of extension workers, ensuring information accuracy, facilitating easy access to services, and increasing responsiveness in addressing issues related to subsidized fertilizer distribution. High-quality service will foster trust and cultivate a positive perception among farmers regarding the subsidized fertilizer program. 2. Local government and relevant stakeholders are expected to improve facilities supporting subsidized fertilizer distribution—such as transportation, storage warehouses, digital administrative systems, information networks, and the availability of authorized fertilizer kiosks. Adequate facilities will ensure smooth distribution, resulting in timely delivery, correct quantities, and accurate targeting.

3. Farmers are encouraged to participate more actively in extension activities, farmer groups, and the *e-RDKK* (Electronic Definitive Plan of Group Needs) data collection process

to ensure that subsidized fertilizer distribution operates effectively and aligns with the farmers' actual needs in the field. 4. Service quality requires periodic evaluation through farmer satisfaction surveys so that obstacles in subsidized fertilizer distribution can be promptly identified and rectified. Evaluating service quality is crucial, as the effectiveness of fertilizer distribution is heavily influenced by the quality of service and the efficiency of the distribution system.

REFERENCE

- Akadji S. and Insani N. (2025). Effectiveness of Subsidized Fertilizer Distribution to the Community. **Journal of Law, Politics, and Humanities**, Volume 2, Number 2, June 2025. Faculty of Law, Universitas Ichsan Gorontalo.
- Asia R.P., Faradilla S.P., and Rizki F.S. (2024). The Influence of GRDP and the Productive-Age Population on Labor Absorption in the Demographic Bonus Era. Faculty of Economics and Business, Universitas Negeri Surabaya. Surabaya.
- Agustina S. (2025). Farmers' Perceptions Regarding the Effectiveness of Subsidized Fertilizer Distribution Using E-PKB in Metro Barat District, Metro City, Lampung. Faculty of Agriculture, Universitas Lampung. Bandar Lampung.
- Statistics Indonesia (BPS) of Tanjung Jabung Timur Regency. (2024). **Tanjung Jabung Timur Regency in Figures 2024**. Jambi: BPS. Subsidized [Fertilizer]. Jakarta: PSP Pertanian (psp.pertanian.go.id).
- Davis, F.D. (1989). Perceived usefulness, perceived ease of use... **MIS Quarterly**, 13(3), 319-340.
- Denhardt, J.V., & Denhardt, R.B. (2003). **The New Public Service: Serving, Not Steering**. New York: M.E. Sharpe.
- Dorward, A., & Chirwa, E. (2011). The Malawi agricultural input subsidy programme. **International Journal of Agricultural Sustainability**, 9(1), 232–247.
- Duncan, R. B. (1972). Characteristics of organizational environments and perceived environmental uncertainty. **Administrative Science Quarterly**.
- Feder, G., & Umali, D. L. (1993). The adoption of agricultural innovations: A review. **Technological Forecasting and Social Change**, 43(3–4), 215–239.
- Gunawan E. and Pasaribu S. (2022). Farmers' Perceptions Regarding the Implementation of the Farmer Card Program in Support of Subsidized Fertilizer Distribution. Center for Agricultural Socio-Economic and Policy Studies, Ministry of Agriculture, Jakarta.
- Hair, J.F., et al. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*.
- Hair, J.F., et al. (2022). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Sage.
- Hair, J.F., et al. (2022). *A Primer on PLS-SEM (4th ed.)*. Sage.