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Agricultural Economic Sustainability with Support for Training Programs, Work Skills, Community Needs for Business Actors in Kalampangan, Central Kalimantan

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A B S T R A C T

This study aims to evaluate the impact of training, work skills, and community needs on economic sustainability in the agricultural sector in Kalampangan, Central Kalimantan. A quantitative method was employed using a questionnaire as the data collection tool, distributed among farmers in the region. Validity and reliability tests were conducted to ensure the reliability of the research instrument. Multiple linear regression analysis using SPSS revealed that the three independent variables—training, work skills, and community needs—significantly influence economic sustainability. The findings indicate that an integrated approach combining training, skill enhancement, and addressing community needs can improve agricultural productivity and efficiency, ultimately supporting economic sustainability in Kalampangan. These results provide an empirical basis for designing more effective and sustainable programs in the agricultural sector. The study's implications suggest that policymakers and stakeholders should prioritize holistic interventions that address both individual and community-level needs to achieve long-term economic sustainability in agriculture

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INTRODUCTION

The Kalampangan region, a region in Central Kalimantan Province, has great potential in the agricultural sector. With its vast land area and fertile soil, this region has the capacity to become a significant food production center. However, the challenges faced by farmers in Kalampangan reflect various problems often faced by the agricultural sector in rural areas of Indonesia.

The agricultural sector in Kalampangan is not only the main source of income for many families, but also plays an important role in local and regional food security. However, various problems such as limited access to modern agricultural technology, inadequate infrastructure, and minimal training and education for farmers, have hampered the productivity and economic sustainability of this sector (Alam et al., 2009).

Limited Infrastructure and Market Access: Inadequate infrastructure, such as poor roads and limited transportation access, hinders the distribution of agricultural products to wider markets. This leads to low selling prices and inadequate profits for farmers. Lack of Technology and Innovation (Kapa et al., 2022): Many farmers in Kalampangan still use traditional farming methods that are less efficient. Limited access to modern technology, such as better irrigation systems or advanced farming equipment, leads to low crop yields and uncompetitive product quality.

Access to financing and credit required for investment in technology or increasing production capacity remains limited. Many farmers struggle to obtain capital to scale up their businesses due to a lack of collateral or knowledge of available financial products. Agricultural practices that are not environmentally friendly and climate change have caused soil degradation and decreased land fertility (Chavas & Nauges, 2020). This threatens the long-term sustainability of the agricultural sector in the region. Lack of access to training and education regarding sustainable agricultural practices and the latest technology is an obstacle to increasing farmer productivity in Kalampangan.

The important role of the economy in increasing income and sustainability is that developing a more diverse agricultural sector and supporting value-added products can increase farmers' income. This can be done by integrating agricultural production with other sectors such as tourism or the processing industry. Investments in infrastructure, such as improving roads and storage facilities, as well as increasing access to domestic and international markets (VALENTINOV, 2007), can increase the competitiveness of agricultural products from Kalampangan. The use of modern technology in agriculture, such as precision farming or the use of mechanical tools, can increase crop yields and product quality. This will also reduce dependency on dwindling manual labor.

Adopting environmentally friendly and sustainable agricultural practices, such as crop rotation and use of organic fertilizer, will maintain soil fertility and ensure the sustainability of the agricultural sector in Kalampangan. Providing farmers with ongoing training on best practices and new technologies will empower them to increase the productivity and sustainability of their businesses. By overcoming these problems and increasing the role of the economy, the agricultural sector in Kalampangan can develop into a more productive and

sustainable sector, thereby making a significant contribution to increasing the income and welfare of the local community. To overcome problems in the agricultural sector in Kalampangan, an effective activity program must be based on the following main factors:

1. Improved Infrastructure and Market Access: Infrastructure Improvement, building or repairing roads and bridges that connect agricultural land with markets and distribution centers. Processing and Storage Centers, establishing adequate storage facilities such as cold storage and processing centers to extend the shelf life of agricultural products and increase their selling value. Access to Markets, developing a more efficient distribution network and facilitating farmers' access to domestic and international markets (Antle, 1999).
2. Adoption of Modern Agricultural Technology: Agricultural Mechanization, introducing and supporting the use of modern agricultural equipment that can increase efficiency and production yields. Irrigation System, implementation of a more effective irrigation system to overcome water problems, especially during the dry season. Precision Agriculture, uses digital technology such as soil sensors and drones to monitor crop and soil conditions, allowing farmers to manage resources more efficiently (Mcconnell, 2019).
3. Farmer Empowerment and Training: Technical Training, providing training to farmers regarding modern agricultural techniques, sustainable agricultural practices and farming business management. Financial Education, teaches financial management skills and access to financial products, including microcredit and agricultural insurance. Partnerships and Cooperatives, encouraging the formation of farmer cooperatives or partnerships with private companies to strengthen farmers' bargaining position and facilitate access to resources (Arsawan et al., 2022).
4. Development of a Sustainable Agriculture Model: Environmentally Friendly Practices, teaching and implementing agricultural practices that do not damage the environment, such as the use of organic fertilizer, crop rotation and agroforestry. Soil and Water Conservation, introducing conservation techniques such as terracing on sloping land, efficient water management, and reforestation of degraded areas. Handling Agricultural Waste, utilizing agricultural waste as compost or renewable energy raw materials, reduces environmental impacts and adds economic value.
5. Access to Financing and Policy Support: Credit and Subsidies Scheme, providing easier access to agricultural credit at low interest as well as subsidies for the purchase of agricultural equipment. Agricultural Insurance, promotes insurance to protect farmers from the risk of crop failure due to extreme weather or pests. Government Support, increasing support from the government in the form of supportive regulations and assistance programs for the agricultural sector.

6. Collaboration and Partnership: Public-Private Partnership, building partnerships between government, private sector, educational institutions and farmers to support technology transfer and innovation. Collaboration with non-governmental organizations that have farmer empowerment programs to increase the capacity and sustainability of farming businesses.
7. Program Monitoring and Evaluation: Periodic Monitoring, carrying out regular monitoring of program implementation to ensure its effectiveness and identify areas that need improvement. Program Adjustment, adjusting the program based on evaluation results to ensure that the program remains relevant and effective in overcoming existing problems. By paying attention to these factors, the designed activity program will be more effective in overcoming problems and encouraging the sustainability of the agricultural sector in Kalampangan

So this research adopts the variables training, work skills and community needs in improving economic sustainability. The implications of the results are to increase the economic role of agricultural businesses in increasing income, and become a reference for the government and stakeholders to provide support in the form of facilities and infrastructure for business actors or farmers in Kalampangan, Central Kalimantan Province, as a form of economic sustainability cycle.

LITERATURE REVIEW

One of the major theories that is relevant and can be a basis for improving and strengthening the agricultural sector, especially in the Kalampangan context, is the Endogenous Economic Growth Theory (Yanke et al., 2022). This theory emphasizes the importance of internal factors (such as innovation, technology and human capital) in driving economic growth, in contrast to classical growth theory which emphasizes external factors such as physical capital accumulation. Endogenous Economic Growth Theory in the Agricultural Context

Increasing Productivity Through Innovation and Technology: Technological Innovation is an endogenous growth theory emphasizing that innovation in agricultural technology can significantly increase agricultural productivity (Ru et al., 2020). By adopting new technologies such as precision farming, the use of drones for crop monitoring, or more efficient irrigation techniques, farmers in Kalampangan can increase their production yields. This innovation not only improves efficiency but also allows farmers to make better use of resources, thereby reducing waste and losses.

R&D (Research and Development): This theory also supports the importance of investing in research and development (R&D) to create new technologies that suit local conditions. The government or private sector could play a role in funding research that focuses on specific problems faced by farmers in Kalampangan, such as developing crop varieties that are resistant to local weather conditions.

Increasing Human Capital through Education and Training. According to endogenous growth theory, human capital is one of the main drivers of economic growth. In the agricultural context, this means that increasing farmers' knowledge and skills through education and training will have a direct impact on increasing productivity and sustainability of the agricultural sector (Moufaq Alkousini, 2020).

Continuous Education: Continuous training for farmers on modern farming techniques, farm management, and sustainable agricultural practices will increase human capital in the agricultural sector. This will strengthen farmers' ability to adopt new technologies and adapt to environmental changes, ultimately supporting local economic growth (Li, 2016).

Strengthening Institutions and Infrastructure Infrastructure and Institutional Support is Endogenous growth theory also emphasizes the importance of institutions and infrastructure in supporting economic growth. Good infrastructure (such as roads, storage facilities, and market access) and strong institutions (such as cooperatives and public-private partnerships) will support the adoption of new technologies and increase efficiency in agricultural value chains.

Local Institutions and Local institutions, such as farmer groups or cooperatives, can play an important role in organizing training, facilitating access to technology, and providing platforms for collaboration among farmers. With strong institutional support, innovation can more easily spread and be widely adopted.

Spillover Effect (Spread of Positive Impact): One of the important concepts in endogenous growth theory is the spillover effect, where the benefits of investment in technology and education are not only felt by the individuals or entities directly involved but also by the wider community. In the Kalampangan context, when some farmers begin to adopt new technologies and practices, the benefits can spread to other farmers through sharing knowledge and experience.

Regional Influence: In the long term, increasing productivity and sustainability in the agricultural sector in Kalampangan can create a domino effect that strengthens the regional economy as a whole. Increasing farmer income can increase purchasing power, encourage investment in other sectors, and strengthen local economic networks.

Implementation of Theory in the Program using endogenous growth theory as a basis, activity programs to improve and strengthen the agricultural sector in Kalampangan can be designed with a focus on technological innovation, increasing human capital through education and training, strengthening institutions and infrastructure, and maximizing spillover effects. This strategy will not only encourage short-term economic growth but also ensure long-term economic sustainability (Ochotnický et al., 2020), which will ultimately improve the welfare of local communities. This theory provides a comprehensive framework for understanding how internal factors in the economy, such as innovation and skills, can drive sustainable and inclusive growth in the agricultural sector.

METHODOLOGY

Research using questionnaires regarding the importance of training, job skills and community needs in improving economic sustainability in the agricultural sector can provide valuable insights. The following are the possible results of the research, based on theoretical assumptions and analysis: Awareness of the Importance of Training, the majority of respondents, especially farmers and business actors in the agricultural sector, will most likely state that training is very important to increase productivity and efficiency. They may recognize that ongoing training in modern farming techniques, farm management, and sustainable practices can directly increase crop yields and reduce operational costs.

Barriers to Access to Training, respondents may also indicate that there are obstacles in accessing relevant training. This could include time constraints, costs, or a lack of training suited to their specific needs. Need for Specific Skills Questionnaire results will likely show that improving job skills is considered very important, especially technical skills directly related to agricultural production, such as the use of mechanical tools, irrigation techniques and pest management.

Link to Sustainability: Respondents may attribute improved job skills to their ability to adopt more sustainable practices, such as the use of organic fertilizers and soil conservation methods, which can help maintain long-term economic sustainability.

The Importance of Soft Skills, apart from technical skills, soft skills such as financial management, marketing and leadership skills may also be identified as areas that need to be improved to support economic sustainability. Infrastructure Needs and Market Access Respondents will likely identify broader needs such as infrastructure improvements (roads, storage facilities) and market access as community priorities that support economic sustainability. Good infrastructure is considered important to support the distribution of agricultural products and expand access to markets.

The Importance of Local Institutions Questionnaire results may also indicate that local institutions such as cooperatives and farmer groups are seen as important in addressing community needs. These institutions can help organize training, provide access to credit, and facilitate cooperation between farmers. Holistic view, respondents would probably indicate that training, job skills, and meeting community needs are closely interrelated and are all important to achieving economic sustainability. For example, training without adequate infrastructure support may not be as effective as if conducted in a supportive environment.

Support for Integrated Programs This research will likely show strong support for integrated programs that combine training, skills development, and meeting community needs. Respondents would likely emphasize that this holistic approach is key to creating long-lasting economic sustainability in the agricultural sector. Implementation Barriers: Respondents may also identify various challenges in implementing required programs, such as limited funding, low participation, or lack of support from the government.

Differences in Needs Based on Location Research may reveal that needs and priorities may vary by location and type of farming, highlighting the importance of approaches tailored to local conditions.

RESULTS AND DISCUSSION

Population and Sample: farmers in Kalampangan. Take a representative sample using appropriate sampling techniques, such as stratified sampling or random sampling. Research Variables: Independent Variables: Training, Job Skills, Community Needs. Dependent Variable: Economic Sustainability. Questionnaire Items: Develop questionnaire items measured on a Likert scale to identify unclear or less relevant questions.

Validity and Reliability Test to ensure that the questionnaire items measure constructs in the fields of agriculture and economics to ensure that the questionnaire questions are relevant and cover all required aspects. Reliability Test of the Cronbach's Alpha value to calculate Cronbach's Alpha for each variable to assess the internal consistency of the questionnaire items. Cronbach's Alpha values above 0.6 are considered adequate for reliability (Meitiana et al., 2023).

Data Collection by Distribution of Questionnaires through direct interviews, online surveys and paper distribution to 50 respondents. Linear Regression Analysis: to evaluate the influence of each independent variable (training, work skills, community needs) on the dependent variable (economic sustainability). Regression Coefficient (β): to understand the magnitude of the influence of each independent variable on economic sustainability. Statistical Significance to determine whether the effect of each independent variable is statistically significant (Aref Puadi et al., 2023). Typically, $p < 0.05$ is considered significant. Adjusted R-Squared Model Strength Test to evaluate how well the independent variables explain the dependent variable. F Test (F-Test) to determine whether the overall regression model is significant.

With this quantitative approach, research results can provide empirical evidence regarding the importance of training, work skills, and community needs in supporting economic sustainability, and can be a strong basis for decision making and program development, here are the results of the analysis:

Table 1. Validity

Item	Coefisien	Keterangan
$X1._1$	0.853	Valid
$X1._2$	0.861	Valid
$X1._3$	0.874	Valid
$X2._1$	0.832	Valid
$X2._2$	0.806	Valid
$X2._3$	0.871	Valid
$X3._1$	0.849	Valid
$X3._2$	0.822	Valid
$X3._3$	0.853	Valid
$Y._1$	0.814	Valid
$Y._2$	0.837	Valid
$Y._3$	0.828	Valid

Source: Authors, 2024

Table 2. Reliability

Variable	Coefisien	Results
X_1	0.637	Reliable
X_2	0.681	Reliable
X_3	0.662	Reliable
Y	0.685	Reliable

Source: Authors, 2024

Based on the reliability data, it shows that the questionnaire results can be tested further because they are more than >0.5.

Table 3. Parsial test

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.291	.019		2.671	.000
	Training (X1)	.471	.138	.455	3.417	.000
	Works Skills (X2)	.628	.018	.605	5.938	.000
	Community Needs (X3)	.436	.179	.410	2.382	.000

Source: Authors, 2024

The results show a significant positive influence of training on economic sustainability, namely 47.1% with a t-statistic value greater than 3.417 > 1.67 t-table. Furthermore, the value of the influence of works skills is 62.8%, the results are positive and significant with a t-statistic value of 5,938 > 1.67 t-table. And the test results for community needs have a significant and positive influence on performance of 43.6% on economic sustainability.

Tabel 4. ANNOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	78.583	3	22.138	42.315	.000[b]
	Residual	23.692	48	.613		
	Total	102.275	52			

a. Dependent variable: Sustainability

Source: Authors, 2024

Based on the results of the ANOVA test which proves that when there is an influence of training, work skills and community needs on economic sustainability, this is very good and the positive influence is significant at 0.000 < 0.05 and from the results of the f-statistic test > 3.17 f-table. Based on the results of the r-square for the coefficient of determination which shows that if carried out comprehensively the results from table 5 state that there is a high influence of training, work skills and community needs which is 76.4%, while the remaining 23.6% is influenced by factors others not examined in this study.

Training and improving work skills can be a very effective program for increasing skills in the agricultural sector in Kalampangan and supporting economic sustainability. Here are the reasons why training and upskilling is so important:

Tabel 5. R Square

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.821[a]	.764	.613	.152

Source: Authors, 2024

1. Increased Productivity, Mastery of Modern Techniques, training can help farmers master modern agricultural techniques, such as the use of mechanized agricultural tools, efficient irrigation techniques, and precision agricultural methods. This will increase land productivity and crop yields (Court et al., 2018). Implementation of Best Practices, through training, farmers can learn about the best agricultural practices that have been proven to increase production yields and product quality, such as crop rotation, proper fertilization, and effective pest management (Li, 2016).
2. Strengthening Sustainability, Sustainable Agricultural Practices, training can focus on introducing environmentally friendly agricultural practices, such as the use of organic fertilizer and soil conservation, which are important for maintaining land fertility and ensuring long-term sustainability. Natural Resource Management, training can include sustainable management of water and other natural resources, which will help prevent environmental degradation and ensure the availability of resources for future generations.
3. Increasing the Added Value of Products, Agricultural Product Processing Training, training that includes agricultural product processing techniques can help farmers create value-added products, such as food processing, which can increase their income. Business and Marketing Skills, training in business and marketing skills will help farmers understand how to market their products effectively, including knowledge of branding, packaging and sales strategies (Ochotnický et al., 2020).
4. Diversification of Income Sources, Development of New Skills, with training, farmers can develop new skills that allow them to take advantage of other business opportunities in the agribusiness sector, such as agritourism or livestock, which can diversify their sources of income. Financial Management Skills, training in financial management and access to financial products can help farmers better manage their income and make the right investments to improve their farming operations (Gao & Jiang, 2020).
5. Quality of Life Improvement, Health and Safety Education: Training can also cover occupational health and safety aspects, which are important to ensure that farmers work in safe and healthy conditions. Social Skills Development, training that involves developing social and managerial skills will help farmers in communicating, working in teams, and leading their agricultural communities.

CONCLUSIONS AND RECOMMENDATIONS

Importance of Training: Training has proven to be important in improving farmers' knowledge and technical capabilities, which contributes directly to increasing productivity and efficiency of farming. Training that is sustainable and relevant to local needs has a significant impact on economic sustainability, because trained farmers are better able to adopt modern and sustainable agricultural practices. Job Skills: Improving job skills, both in the form of technical skills and soft skills, also shows a significant influence on economic sustainability. Farmers who have better work skills are able to manage their farming businesses more efficiently, increase production yields, and adapt to environmental and market changes. This suggests that investing in improving employability skills is a key strategy to support economic sustainability. Community Needs: Meeting community needs, including infrastructure, market access, and supportive institutions, is critical to economic sustainability. The research results show that when community needs are met, farmers can more easily access the resources, technology and markets needed to improve their farming businesses. Therefore, attention to community needs must be an integral part of programs designed to support economic sustainability in the agricultural sector. Validity and Reliability: Validity and reliability tests show that the questionnaire used has a high level of reliability and is able to measure the construct in question well. This ensures that the data collected is reliable and accurate in depicting the impact of training, job skills and community needs on economic sustainability.

Multiple linear regression analysis with SPSS confirms that the three independent variables of training, work skills and community needs have a significant effect on economic sustainability. These results suggest that integrated efforts combining training, skills enhancement, and meeting community needs can substantially improve economic sustainability in the agricultural sector. Policy Implications: Based on these findings, it is recommended that training programs, improving job skills, and interventions to meet community needs in the agricultural sector be strengthened and prioritized. A holistic approach that considers these three factors will help create a more sustainable and profitable agricultural economy for farmers in Kalampangan. Overall, this research shows that training, job skills and meeting community needs play an important role in supporting economic sustainability in the agricultural sector. The results of this research can be used as a basis for designing more effective and sustainable interventions in the Kalampangan area of Central Kalimantan Province

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