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The Impact of the Implementation of the Minister of Agriculture Regulation No. 15 of 2021 on Income *Rice Milling Unit* (RMU) in Tabanan Regency

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Abstract
The aim of this study is to assess the impact of the implementation of Minister of Agriculture Regulation No. 15 of 2021 on the income of rice milling units (RMUs) in Tabanan Regency. The study was conducted in Tabanan Regency because it is the district with the highest rice farming productivity in Bali Province, amounting to 160,000 tons per year. The population for this study is 550 business units. The sample size was determined using the Slovin formula. Based on that population, a sample of 85 rice milling units (RMUs) was obtained. The result of this study shows that Minister of Agriculture Regulation No. 15 of 2021 concerning business activity standards and product standards in the rice milling sector has a significant impact on the economic performance of Rice Milling Units (RMUs) in Tabanan Regency. The implementation of the standards stipulated in the regulation not only focuses on improving product quality but also includes better business management, which directly affects efficiency and productivity. The recommendations from this study include increased dissemination and training for RMU entrepreneurs, provision of access to financing for technology investments, and periodic evaluation and updating of the standards.

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1. INTRODUCTION

The very large and ever-increasing needs in the business world along with the increasing development activities, also increases the need for standardization of agricultural products for economic actors, both government and society, both individuals and legal entities, so that it requires the availability of large funds.

Standardization of agricultural products is an important instrument in realizing food security because it creates a guarantee of quality, safety and consistency of agricultural products that are acceptable in domestic and international markets, while protecting consumers from products that are not fit for consumption. (Martos et al., 2021). In a scientific context, according to the National Standardization Agency (BSN) and FAO (Food and Agriculture Organization), agricultural standardization includes a series of technical guidelines covering the production, harvest, post-harvest, packaging, and distribution processes, which aim to ensure that agricultural products meet food quality and safety requirements. Food security, as defined by FAO, includes four main pillars, namely food availability, access, utilization, and stability; and standardization contributes directly to the safe utilization and stability of products through sustainable quality assurance. In

practice, the application of standards such as the Indonesian National Standard (SNI) on food commodities encourages farmers and agribusiness actors to implement*Good Agricultural Practices*(GAP) and*Good Handling Practices*(GHP), which is scientifically proven to increase production efficiency, reduce yield loss, and increase the shelf life and added value of agricultural products. Standardization also facilitates supervision and quality control by certification bodies and strengthens the national food logistics and distribution system. In addition, in the context of trade globalization, agricultural standards that are harmonized with international standards such as Codex Alimentarius are crucial so that Indonesian agricultural products can compete in the export market without technical barriers. With clear and measurable quality standards, consumers gain certainty about food quality, while producers gain market incentives to improve their production performance. However, the challenges of implementing standards at the smallholder farmer level are still significant, especially due to limited knowledge, capital, and access to technology and guidance from the government or private sector.(Shukla et al., 2021). Therefore, supportive public policies are needed, including technical training, certification incentives, and strengthening extension institutions and partnerships between farmers, cooperatives, and the private sector. Scientific studies from the Ministry of Agriculture and various agricultural journals show that regions that have successfully adopted agricultural standardization tend to have higher levels of local food security, both in terms of stock availability and consumption safety. Thus, agricultural product standardization is not only a tool to increase competitiveness and efficiency, but also an important foundation for a sustainable national food system, adaptive to climate change, and able to guarantee access to healthy and sufficient food for the entire community.(Velasco-Muñoz et al., 2021).

Indonesia as an agricultural country characterized by the vastness of agricultural land and the dominance of the agricultural sector in the economic structure of rural communities, government policies in the agrarian sector have a strategic role in encouraging food security, improving farmer welfare, and maintaining national economic stability. The Indonesian government has formulated various agrarian policies through a multifaceted approach, including through*agrarian reform*, which includes land redistribution to small farmers and legalization of land assets to create agrarian justice and reduce land ownership inequality. In addition, fertilizer subsidy policies, assistance for superior seeds, and agricultural financing through the People's Business Credit (KUR) for agriculture are part of the government's strategy to increase the productivity of small farmers and encourage technology-based agricultural modernization. The government is also developing a program*food estate*as part of the long-term strategy for national food security by opening up new land in various regions such as Central Kalimantan and North Sumatra, although its implementation often faces environmental and social challenges.(Wheat et al., 2021). On the institutional side, the existence of the Ministry of Agriculture, the National Land Agency (BPN), and local institutions such as farmer groups show that agrarian policies in Indonesia are implemented through synergy between the central and regional governments. However, the realization of these policies often faces structural challenges such as agrarian conflicts, weak legal certainty over land ownership, conversion of agricultural land into industrial or residential areas, and low access for farmers to markets and modern agricultural technology. Therefore, although Indonesia historically and geographically has great potential as an agricultural country, the transformation of this sector into sustainable and globally competitive agriculture requires consistent policies that favor small farmers, and are supported by bureaucratic reform, infrastructure strengthening, and adequate budget allocation. In the context of globalization and climate change, Indonesia's agrarian policies are also required to be adaptive to new challenges such as the food crisis, environmental degradation, and commodity price fluctuations, so that synergy between

national policies, local wisdom, and community participation are the main keys to the success of inclusive and sustainable agrarian development.(Popovic & Minceva, 2021).

The Indonesian government's policy in regulating food product standardization is a strategic effort to ensure the quality, safety, and suitability of food consumption for the community while strengthening product competitiveness in the global market, as mandated in various national regulations such as the Minister of Agriculture Regulation No. 15 of 2021 concerning Business Activity Standards and Product Standards in the Implementation of Risk-Based Business Licensing in the Agricultural Sector. This policy is implemented through the implementation *Indonesian National Standard*(SNI) voluntarily or mandatory on various strategic food commodities in order to create a healthy, competitive, and sustainable national food system. The government, through coordination between BSN, the National Food Agency, the Ministry of Agriculture, and the Food and Drug Supervisory Agency (BPOM), determines the technical quality and food safety parameters that must be met by food business actors from production to distribution.(Popovic & Minceva, 2021). This standardization not only covers the chemical, biological and physical aspects of food, but also production procedures such as the implementation of*Good Agricultural Practices* (GAP), *Good Manufacturing Practices* (GMP), and *Hazard Analysis and Critical Control Points*(HACCP) which is the basis for food safety and quality scientifically. In a global context, the government also encourages harmonization of national standards with international standards such as Codex Alimentarius so that Indonesian food products can be accepted in the export market without facing technical trade barriers. In addition, the food standardization policy also aims to protect consumers from products that are not fit for consumption and provide legal certainty for business actors(Garske et al., 2021). The government provides training facilities, technical assistance, and certification incentives, especially for micro, small, and medium enterprises (MSMEs) so that they can meet the established standards. However, the challenges in implementing this policy are still quite large, especially related to the gap in production capacity between large industries and small farmers or MSMEs, limited access to quality testing laboratories, and low literacy on the importance of standards at the producer level. To overcome these obstacles, the government also involves product certification institutions, inspection institutions, and agricultural training and extension institutions spread across various regions. Based on scientific studies from LIPI (now BRIN) and national food policy journals, it is known that regions with a high level of SNI implementation show stability in the provision of quality food and significant increases in market access, especially in the horticulture and processed food sectors. Thus, the policy on food product standardization in Indonesia is not only aimed at protecting consumers, but also as an instrument for agricultural-based economic development that is oriented towards quality, competitiveness, and sustainability, as well as an integral part of the national food security system that is adaptive to global dynamics and the risk of food crises in the future.(Rosati et al., 2021).

Rice milling business or*Rice Milling Unit*(RMU), as part of the food processing sector in the agricultural sector, has experienced a direct impact from the issuance of the Regulation of the Minister of Agriculture (Permentan) Number 15 of 2021 concerning Standards for Business Activities and/or Products in the Implementation of Risk-Based Business Licensing in the Agricultural Sector, which is a derivative of the Job Creation Law and aims to simplify the business licensing process. In this regulation, rice milling businesses are categorized based on risk levels, which determine the types of permits that must be held by business actors, starting from the Business Identification Number (NIB) to the Standard Certificate(Rosado et al., 2021). For small and medium enterprises in the rice milling sector, this regulation provides opportunities for accelerated licensing and easy access to legality, but also brings challenges because it requires business actors to meet

certain technical requirements, such as sanitation standards, milling quality, and environmental management. RMUs that previously operated informally must now adapt to this risk-based licensing system, including inputting business data into the OSS system (*Online Single Submission*)(Rosado et al., 2021). On the one hand, this regulation encourages improvements in food quality and safety, and creates a more orderly and competitive business climate; but on the other hand, small milling businesses that do not yet have adequate administrative and financial capacity may experience difficulties in meeting the new requirements, including in terms of certification and periodic reporting.(Wicaksana et al., 2020). Therefore, although Permentan No. 15 of 2021 provides a clearer and more integrated legal framework, its implementation needs to be accompanied by technical support and assistance from the regional government so that rice milling businesses, especially micro and small scale ones, are not marginalized in the transformation of the agricultural sector to be more modern and legal.(Martos et al., 2021).

Standardization by the government does not always have a direct impact on food sector business income because its main objective is to guarantee product quality and safety, not to increase profits instantly.(Popovic & Minceva, 2021). For many businesses, especially small-scale ones, the standardization process requires additional investment in equipment, training, and certification, which actually adds to the cost burden without guaranteeing an increase in selling price or direct market demand. In addition, not all consumers value certified products more highly, so the economic benefits are often long-term and not immediately felt after the implementation of the standard.

Government policies on standardization, although positively aimed at ensuring product quality and safety, can be an obstacle for companies in the agricultural sector to develop, especially for small and medium-sized businesses.(Akkaya et al., 2020). Standardization often requires the fulfillment of certain technical, administrative, and infrastructure aspects such as the use of modern tools, documentation of production processes, and laboratory testing that require a lot of money, time, and human resources. For small companies with limited capital, these demands can be an additional burden that hinders innovation, business expansion, or even the sustainability of its operations.(Shukla et al., 2021). In addition, certification processes and compliance audits are often complicated and bureaucratic, making it difficult for business actors who do not yet have adequate technical understanding or access to information. As a result, instead of encouraging progress, standardization policies that are not balanced with concrete guidance and support can create a gap between large businesses that are able to meet standards and small businesses that are left behind, and slow down the growth of the agricultural sector as a whole.(Qu et al., 2023). Based on the problems above, the purpose of this study is the effect of the implementation of the Minister of Agriculture Regulation No. 15 of 2021 on the income rice *milling unit*(RMU) in Tabanan Regency.

2. RESEARCH METHOD

1. Location and Time of Research

The research was conducted in Tabanan Regency because it is a regency with the highest rice farming productivity in Bali Province of 160,000 tons/year. Tabanan Regency has the largest irrigated rice fields in Bali Province with an area of 21,089 or around 27% of the total irrigated land area in Bali Province. Tabanan Regency has the largest harvest area in Bali Province with an area of 26,607 Ha(BPS, 2025).

2. Population and Research Sample

The population of this study was 550 business units.(BPS, 2025). Determination of the sample using the Slovin formula. Based on the population, a sample of 85 business

units was obtained.*rice milling unit* (RMU). The respondent is determined using simple *random sampling assuming* the business unit*rice milling unit* (RMU) has an equal opportunity to be a research sample.

3. Data Analysis

The data analysis used is descriptive statistics and a quantitative approach.*Partial Least Square*(PLS) with the help of the application*smart*PLS 3.0. According to(P. M. A. Paramarta & Karyati, 2024), PLS is an alternative approach that shifts from the covariance-based SEM approach to variance. Covariance-based SEM generally tests theories, while PLS is more of a predictive model. This analysis method has powerful properties because it is not based on many assumptions. PLS data does not have to be normally distributed and samples do not have to be large. In addition to being used to confirm theories, PLS can also be used to explain whether or not there is a relationship between latent variables. The SEM-PLS diagram from this study is as follows.

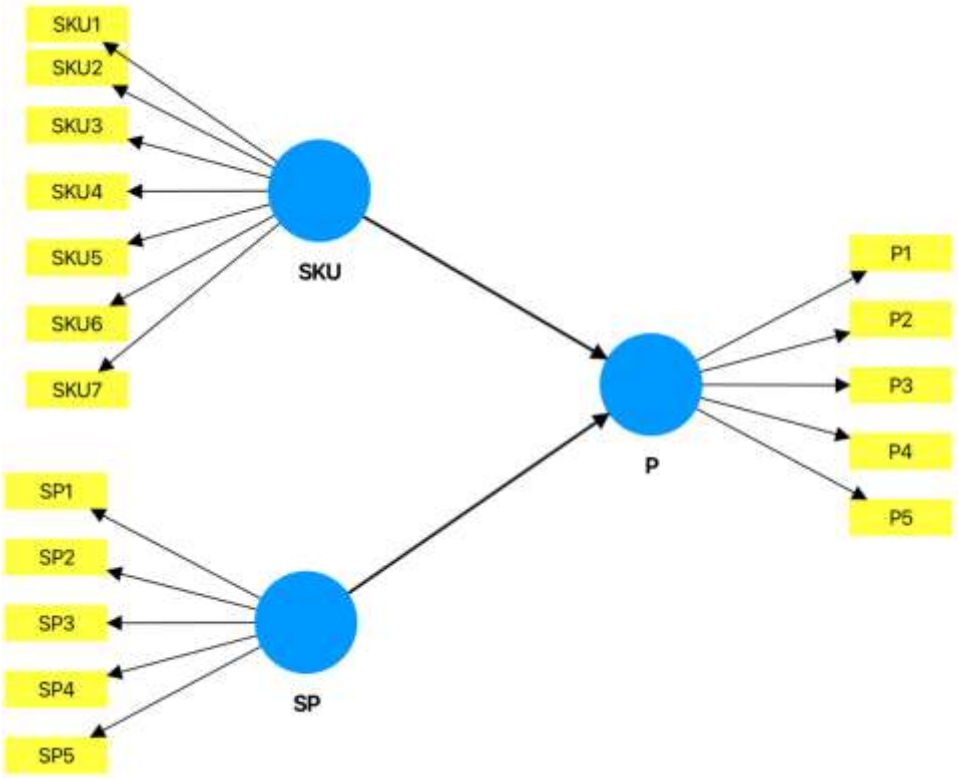

Figure 1. SEMPLS Diagram of the Impact of Implementation of the Minister of Agriculture Regulation No. 15 of 2021 on Income*Rice Milling Unit*(RMU) In Tabanan Regency

3. RESEARCH RESULTS AND DISCUSSION

The results of this study are that the variables of business activity standards and product standards regulated in the Regulation of the Minister of Agriculture No. 15 of 2021 have a determination coefficient of 0.943, which means that these variables are able to interpret the income variable by 94.3% and the remaining 5.7% is explained by variables outside the model.

Table 1.*Path Coefficient*

Variables	*p-value*

	Original Sample (O)	*Sample Mean (M)*	*Standard Deviation (STDEV)*	*t-statistic (O/STDEV)*	
Business activity standards > Income	0,765	0,765	0,012	8,987	0,000
Product standards > Revenue	0,876	0,897	0,076	8,976	0,002

Source: Primary Data Processing, 2025

According to (P. M. A. A. Paramarta, 2024)Structural testing is carried out to evaluate the impact of causal relationships and hypothesis testing using bootstrapping techniques with significance level criteria (*p-value*) 5% and t-statistic is greater than 1.96. Based on Table 1, the variables of business activity standards and product standards regulated in the Regulation of the Minister of Agriculture No. 15 of 2021 are stated to have a significant positive effect on income.*rice milling unit*(RMU), so the hypothesis is accepted.

Minister of Agriculture Regulation No. 15 of 2021 which regulates business activity standards and product standards in the rice milling sector has a significant impact on economic performance.*Rice Milling Unit*(RMU) in Tabanan Regency. Based on the research conducted, it was found that the implementation of the standard had a positive effect on RMU income.(Diemuodeke et al., 2021). This regulation provides clear guidelines regarding the quality of the products produced and the operational procedures that must be followed by rice milling entrepreneurs. In this case, the business activity standards include operational aspects related to rice processing techniques, efficient use of machines, and an organized management system. Meanwhile, the product standards regulate the quality of the rice produced, starting from grain uniformity, water content, to product cleanliness. By referring to these standards, RMU can produce higher quality products and meet increasingly stringent market demands, both in terms of quality and quantity. This ultimately contributes to increasing RMU income in Tabanan Regency.

The implementation of the standards set out in the regulations not only focuses on improving product quality, but also includes better business management, which has a direct impact on efficiency and productivity.(Wheat et al., 2021). In the field, RMUs that have followed this standard have proven to be more capable of optimizing the use of technology and production processes, which leads to reduced operational costs. This efficiency helps RMUs to maintain competitiveness in local and regional markets, as well as provide added value to the products produced.(Popovic & Minceva, 2021). In addition, by meeting the applicable standards, RMU can also more easily access a wider market and more assured consumer trust. In this context, the implementation of standards in the Regulation of the Minister of Agriculture No. 15 of 2021 can be seen as an important factor in encouraging increased RMU income in Tabanan Regency. This finding supports the proposed hypothesis, which states that the business activity standards and product standards regulated in the regulation have a positive effect on RMU income, so the hypothesis can be accepted.

4. CONCLUSION

The conclusion of this study is that the Regulation of the Minister of Agriculture No. 15 of 2021 which regulates business activity standards and product standards in the rice milling sector has a significant impact on economic performance.*Rice Milling Unit*(RMU) in Tabanan Regency. The implementation of standards set out in the regulation not only focuses on improving product quality, but also includes better business management, which has a direct impact on efficiency and productivity.

The suggestions from this research include:

1. Increasing socialization and training for RMU entrepreneurs so that the implementation of business activity and product standards is more effective, it is important to strengthen socialization and provide training to RMU entrepreneurs in Tabanan Regency.
2. Providing access to financing for technology investment is one of the important factors in the effective implementation of standards is the use of appropriate technology.
3. Periodic evaluation and updating of standards considering the ever-changing market dynamics and technological developments, it is very important to periodically evaluate and update the Regulation of the Minister of Agriculture No. 15 of 2021.

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