Jurnal Agrinika: Jurnal Agroteknologi dan Agribisnis
Volume 08, Issue 02 (2024)
E-ISSN: 2721-2807

Analysis of Rice Farming Competitiveness in Bojonegoro Regency

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Keywords:
Competitiveness;
Paddy;
PAM.

Submited:
28-07-2024

Accepted:
23-09-2024

Published:
29-09-2024

ABSTRACT

Rice plants are one of the leading commodities in Bojonegoro Regency and become a rice producing area in East Java. This observe objectives to determine the competitiveness of rice farming in Bojonegoro Regency. The willpower of the sample region of the district in Bojonegoro Regency is done deliberately through choosing the sample area of the district that has the most important amount of rice production in Bojonegoro Regency. This study used more than one stage of sampling called multistage random sampling. The Data used are primary data and secondary data. The records evaluation used is the policy analysis Matrix (PAM) version. The results showed that rice farming in Bojonegoro is feasible because it has competitive advantages and comparative advantages. This is evidenced by the average value of PCR and DRCR is worth less than 1. The PCR value of 0.67 while the DRCR value of 0.58. Thus, it can be concluded that rice farming in Bojonegoro Regency shows excellent performance, both in terms of competitiveness in the market and the efficiency of domestic resource use. This shows that Bojonegoro Regency has positive indicators for the sustainability and development potential of the sector in the future. Therefore, government and farmers must maintain and improve the competitiveness of rice farming in order to obtain maximum profits.

1. Introduction

Rice plants are one of the cultivated plants that have played a crucial role in the history of human civilization, being an important source of carbohydrates after cereals such as corn and wheat for the majority of the world's population (Food and Agriculture Organization, 2018). The high vitality of rice plants in maintaining the survival of the world community is widely reflected, especially in Indonesia where the majority of the population depends on rice as a staple food source (Antriyandarti, 2015; Rosyada *et al*., 2022; Widyatami & Wiguna, 2018). Therefore, rice plants have a strategic and important role for the people of Indonesia. Efforts to achieve rice self-sufficiency become a major focus in National Food Policy, which is reflected through a series of policies to increase rice production (Adriani *et al*., 2024). East Java, which is known to have an important role in national rice production because it contributes to the amount of rice production reaching millions of tons, is the main support for rice supply in Indonesia (Setiyanto & Pabuayon, 2020). The rice farming sector remains a crucial element in the Indonesian economy, especially in Bojonegoro Regency, which plays a

role in improving farmers ' welfare and food supply stability. Although Bojonegoro Regency is vulnerable to flooding, the region remains a storehouse of food, energy, and one of the 3rd leading rice production centers in East Java. This shows that the agricultural sector there contributes greatly to the local economy and food supply, especially rice, despite facing production risks due to the flooding of the Bengawan Solo River. In Bojonegoro Regency, the competitiveness of paddy farming is influenced by way of enter and output charges. Income in the agricultural sector, related to input costs, also plays a role in determining the level of income and profitability of the business. Efficient use of costs is the key to increasing the competitiveness of agricultural businesses, both in the production of local and imported commodities. This study aims to analyze the competitiveness of rice farming in Bojonegoro Regency.

2. Methodology

This research was carried out in Bojonegoro Regency which coincided in five districts, namely Kepohbaru District, Sumberrejo District, Kalitidu District, Kedungadem District, and Dander District, from February to March 2024. The dedication of the pattern area of the district in Bojonegoro Regency is done deliberately through selecting the sample vicinity of the district that has the biggest quantity of rice manufacturing in Bojonegoro Regency. Bojonegoro Regency has five districts with the highest planting area and total rice production, namely Kepohbaru District, Sumberrejo District, Kalitidu District, Kedungadem District, and dander District. This study uses two data, namely primary facts and secondary records. number one data had been obtained from direct interviews with farmers and secondary information were obtained from BPS Bojonegoro, Department of Food Security and Agriculture Bojonegoro, BPP Kepohbaru District, BPP Sumberrejo District, BPP Kalitidu District, BPP Kedungadem District and BPP dander District.

This study used more than one stage of sampling called multistage random sampling. Of the five sub-districts, one village was chosen with the highest planting area and the highest amount of rice manufacturing. The Total population of rice farmers from the five districts is 6,345 farmers. Then using random sampling method with Slovin components received a sample of 100 respondents with details of 20 respondents from the five districts.The method of information evaluation on this study is quantitative descriptive analysis. Quantitative analysis is used to analyze the income and competitiveness of rice farming. Data analysis and hypothesis were conducted using Policy Analysis Matrix (PAM) to measure the level of competitiveness and sensitivity analysis was used to measure changes in input and output prices in rice farming in Bojonegoro Regency.

Table 1. Tabel Policy Analisis Matrix (PAM)

Cost	Acceptability	Factor Of Production		Advantage
		Tradeable	Non-Tradeable	
Privat Cost	A	B	C	D = A – (B + C)
Social Cost	E	F	G	H = E – (F + G)
Divergence	I = A - E	J = B - F	K = C - G	L = D – H

Description: A = Private Reception; B = Private Tradeable Input Costs; C = private non-tradable Input costs; D = Private Profit; E = Social Acceptance; F = Social Tradeable Input Costs; G = Social Non-tradeable Inout costs; H = Social Benefits; I = Transfer Output; J = Tradeable Input Transfer; K = Transfer Factor; L = Net Transfer
(Monke anad Pearson, 1995)

Based on the analysis of PAM above the first line is the financial benefit (private). Private profit in PAM analysis is the distinction between non-public revenue and personal fee. Economic (Social) profit is to use the identity of profit. Social gain is the difference between social receipts and social costs. The second line presents figures that are valued at social prices. Social advantage is used to measure economic advantage and competitiveness (comparative advantage) or farm efficiency of an agricultural commodity. The third line is also referred to as the impact of divergences line (Afifah *et al*., 2019; Murdy *et al*., 2021; Suharyati *et al*., 2016). Divergence occurs as a result of marketplace failure or policy distortion Analysis by the PAM method includes indicators:

1. Private Cost Ratio (PCR) = C/(A-B)

   If the PCR value < 1 indicates that the commodity under study has a competitive advantage and vice versa if the PCR value > 1 means that the commodity does not have a competitive advantage

2. Domestic recourse Cost Ratio (DRCR) = G/(E-F)

   If the value of DRCR < 1 indicates that the commodity under study has a comparative advantage and vice versa if the value of DRCR > 1 means that the commodity does not have a comparative advantage

3. Results and Discussion

Shorting used to measure the competitiveness of a commodity can be seen from its competitive and comparative advantages. The results of the analysis of competitiveness of rice farming Bojonegoro analyzed using the method of Policy Analisys Matrix (PAM) that Bojonegoro has competitive advantages and Comparative Advantages. An explanation of the results is presented in the following sub-chapters.

Table 2. Matrix Analysis of Rice Farming Policy In Bojonegoro Regency

Description	Acceptability	Input Cost		Advantage
		Tradable	Non-tradable	
Privat Cost	44,140,820	2,868,489	27,463,660	13,808,671 (PP)
Social Cost	46,311,680	8,232,555	21,991,244	16,087,881 (SP)
Divergence	-2170860 (OT)	5,364,066 (IT)	5,472,416 (TF)	2,279,210 (NT)

Source: Processed primary Data, 2024

3.1 Competitive Advantage (PCR)

Competitive advantage in a commodity, in this study is rice commodity, which is determined by the value of private Profitability (PP) and private Cost Ratio (PCR). From the results of matrix analysis in the table above shows that rice farming in Bojonegoro has a competitive advantage. The value of private Profitability (PP) on rice farming in Bojonegoro Regency is IDR13,808,671 per Ha which shows positive and profitable values. In addition, the value of the private Cost Ratio (PCR) obtained from the calculation of non-tradable input costs at private costs of IDR27,463,660 which is then divided by private receipts worth IDR44,140,820 and after that subtracted by tradable input costs private costs of IDR2,868, 489 obtained a result of 0.67. The value of Private Cost Ratio (PCR) of 0.67 means that to

get an additional output of one at a private unit price requires additional costs from domestic or non-tradable factors of 0.33.

Apart from that, Bojonegoro Regency also has geographical and climatic conditions that support rice farming, such as temperature, rainfall and soil quality in Bojonegoro Regency which can provide an ideal environment for rice growth. The use of modern technology in rice cultivation such as combine machines, efficient irrigation systems, superior rice varieties, and good agricultural practices can increase the yield and quality of rice products. As well as government support and government programs that support farmers such as subsidies, training, etc. can increase the competitiveness of rice farming. These are several aspects that support the condition of rice farming in Bojonegoro Regency to have a competitive advantage

3.2 Comparative Advantages (DRCR)

The comparative advantage of Pam matrix analysis is decided through the value of Social Profitability (SP) and Domestic recourse cost Ratio (DRCR). The results of the analysis showed that rice farming in Bojonegoro Regency has a social benefit of IDR16,087,881 per hectare. This shows that rice farming in Bojonegoro is worth trying because it has a positive value. The value of Social Profitability (SP) is more than the fee of private Profitability (PP) which is IDR13,808,671. The value of DRCR in rice farming in Bojonegoro Regency is acquired from the calculation of social non-tradable inputs of IDR21,991,224 divided by using the difference between social receipts of IDR46,311,680 and then reduced by way of social tradable inputs of IDR8,232, 555. From these calculations obtained the value of the Domestic Recourse Cost Ratio (DRCR) of 0.58. The value of Domestic Recourse Cost Ratio (DRCR) shows that the value is less than sati (DRCR < 1), so it could be interpreted that rice farming in Bojonegoro Regency has a comparative advantage, where to get one unit of added value, a domestic cost of 0.42 is needed in the rice farming unit. Apart from that, conditions in the field support that rice farming in Bojonegoro Regency has a comparative advantage, namely high productivity. Higher rice yields compared to other regions indicate superiority in terms of production efficiency.

4. Conclusion

Rice farming in Bojonegoro Regency has a comparative advantage with PCR value < 1 which is 0.67 and rice farming in Bojonegoro Regency also has a comparative advantage with DRCR value < 1 which is 0.58. Thus, it can be concluded that rice farming in Bojonegoro Regency shows excellent performance, both in terms of competitiveness in the market and the efficiency of domestic resource use. This shows that Bojonegoro Regency has positive indicators for the sustainability and development potential of the sector in the future.

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