

Factors Affecting The Efficiency of Sago Marketing in Southeast Sulawesi, Indonesia

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Abstract: The study aimed to examine factors affecting the efficiency of sago marketing in Southeast Sulawesi Province, Indonesia. The study was undertaken in Konawe District, which is the main sago producing district in the province. All 26 sago processor groups that were operating in the area were taken as respondents. Data and information were collected using a questionnaire-based interview method and analyzed using multiple regression analysis. The number of traders and population size had a significant effect on marketing efficiency. Total production, the percentage of produce marketed, market distance, and frequency of selling did not have a significant effect on the marketing efficiency. Increasing the price of sago starch to increase farmers and processors' income can be done further by improving the quality of sago starch, attractive packaging, and introducing market standards as the basis for sorting and grading.

Keywords: determinants, efficiency, marketing, Indonesia, processing, sago,

Date of Submission: 24-03-2019

Date of acceptance: 08-04-2019

I. Introduction

Sago palm is a plant that originated from New Guinea Island and is widely distributed into several areas in Indonesia¹. It produces starch that can be used as foodstuff which forms the traditional dietary culture in the communities where it grows. Besides, sago starch has great potential for various utilizations, covering food industries, non-food industries, biotechnology, and other industries such as biomass and poultry industry². Because of this versatile utilization of sago starch, the role of sago has changed from being a source of food to a source of income³. Along with the changes of traditional technology to semi-mechanized processing technology, sago farmers no longer process their sago trunks; instead, they sell sago boles to sago processing groups⁴⁻⁵ or to sago factories in exchange for money as a source of income which in turn enables them to buy food and non-food needs³.

In Southeast Sulawesi, sago has been consumed as an essential staple food along with rice, cassava, and maize⁶⁻⁹. Tolakinese are the main sago eaters, but to a lesser extent, other ethnics also consume it. Sago is commonly consumed in the form of *sinonggi*, which is made by adding a little amount of hot water over the starch while keep stirring until it coagulates and becomes glue-like sticky dough. *Sinonggi* is consumed with a mixed vegetable or fish soup (*mosonggi*). In 2012, 20 restaurants sold *sinonggi* in Kendari¹⁰. This underlines the increasing popularity of sago as a local staple food and the significant opportunity that sago can offer in the food industry sector. Increased demand for sago starch in the food and non-food sectors requires the development of sago agro-industry. Indeed, if sago agroindustry can be appropriately developed sago can enhance food security and the welfare of farmers or processors, and support the development of the economy of the local communities^{5,11}.

According to Naim³, three key players are essential in the operation and sustainability of the sago industry, namely sago factories, local market, and local traditional sago starch-based food industry. Sago factories or processing groups buy sago trees from farmers and process sago boles to produce wet sago starch. The produced sago starch is sold in the local market or shipped to other provinces in Java. The households and traditional sago-starch based food industry purchased sago starch in the local market. All the three components function as a provider for sago farmers to sell their sago boles, and for sago processors to sell their sago starches. However, the effective functioning of the three players requires effective marketing linkages¹² and high marketing efficiency that can provide just returns to all actors involved in the marketing chain.

Marketing activities are essential for sago farmers and processors to increase their income. However, sago marketing is still facing problems that make the crop does not optimally support the economy of sago growing and processing households and communities. Studies by Saediman et al.¹¹ found that problems in sago

marketing included characteristics of sago production systems, the lack of institutional supports, inadequacy of infrastructure, quality control, the lack of market information, and the lack of knowledge on marketing. Altogether, these problems led to weak bargaining position of sago processors, making them as price takers rather than price makers.

Several studies dealt with various aspects of sago marketing^{10-11,13-15}. However, no studies about factors that influence sago marketing efficiency have been available. It is against this background that this study aimed to examine factors affecting the efficiency of sago marketing in Southeast Sulawesi.

II. Methodology

The study was undertaken in Konawe District of Southeast Sulawesi Province using survey method. Data and information were collected from respondents using questionnaire-based interview method. The study district was selected purposively because it is one of the main sago producing areas in the province, and because it is close to Kendari Municipality as the capital of the province. Respondents were sago processors' groups, intermediaries, and retailers. There were 26 sago processing groups currently operating in the district, and all of them were taken as respondents. Selection of intermediaries and retailers was based on snowball sampling method.

The data were analyzed using descriptive statistics and multiple regression techniques. Multiple regression techniques were used to examine the relationship between the dependent variable and the independent variables and then assess the importance of various independent variables to that relationship. The dependent variable is the processors' share (PS), whereas independent variables are total volume of production (TP), the amount of production marketed (PM), the number of traders (NT), the number of population (NP), market distance (MD), and frequency of selling (FOS).

Multiple regression model was specified explicitly as:

$$PS = b_0 + b_1 TP + b_2 PM + b_3 NT + b_4 NP + b_5 MD + b_6 FOS + E_i,$$

Where,

- PS = Processor's share
- TP = Total production
- PM = Percentage of produce marketed
- NT = Number of traders.
- NP = Population
- MD = Market distance
- FOS = Frequency of selling
- b₀ = Constant
- b₁...b₇ = coefficient to be estimated
- E_i = Error term

To calculate the processor's share (portion received by the processors), the following formula was used:

$$PS = (P_p/P_r) * 100$$

where:

- PS : Processor's share (%)
- P_p : Price at processor level (IDR/Kg)
- P_r : Price at consumer level (IDR/Kg)

The processor's share is the percentage of the price received by the processors toward the price spent by the consumers at the retailer level¹⁶. Processor's share can be used as an indicator of marketing efficiency^{10,17-19}. In this study, the processor's share is a dependent variable which measures marketing efficiency. The total production measured in kg is obtained from processors' groups who sold sago starch to buyer or intermediaries. The percentage of produce marketed is obtained from the percentage of produce being marketed and purchased by traders. The number of traders is the number of intermediaries and retailers to whom the processors sold the starch. The frequency of selling indicates how many times the processors sold the sago starch to the traders in a month. The population size is divided into "large" and "small," depending on the number of population of the area where the processors resided. Market distance is divided into "far" and "close," depending on the distance from processors' place to the nearest market. Both population and market distance are dummy variables that take the values of 0 and 1.

III. Results and Discussion

Research results showed that the average processor's share was 79.54%. This result was lower than the processor's share reported in Taridala et al.¹⁰ which ranged from 84.38 to 88.52% for consumers in Southeast Sulawesi. However, the result was much higher than processor's share of 17% in sago marketing in Banggai District of Central Sulawesi¹⁵. Overall, the findings indicated that sago marketing in the study area has been

operating efficiently. Efficient marketing provides just returns to all actors involved in the marketing system from the point of production until the point of final consumption.

Efficient marketing, which is reflected by a high processor's share, provides fair returns to all actors involved in the marketing system from the point of production until the point of final consumption. It is argued, however, that such high share is related to the low end-consumer price due to the use of traditional packaging and the lack of further processing of wet sago starch into higher quality starch. Therefore, the present financial returns to both farmers and processors could still be increased to improve their income from sago processing and marketing through quality improvement of starch, attractive packaging, and branding. Appearance, packaging, and brand are among the most important criteria used by consumers when buying food²⁰. In this regard, the local government should facilitate the establishment of a grading and standardization system that is understood well by farmers, processors, traders, and other actors along the sago supply chain.

Table 2 presents the regression results of factors affecting the efficiency of sago marketing. Adjusted R² was 0.453, implying that 45.3% of the variation in the dependent variable could be explained by the variation of the independent variables whereas the remaining 44.7% is due to other variables not included in the model. The correlation coefficient was 0.764 which was positive and close to 1, meaning that the independent variable was closely associated with the independent variables. With F ratio 36.248 and p < 0.05, the model as a whole had statistically significant predictive capability. In other words, overall, the independent variables had a significant effect on the dependent variable.

Table 2 shows t-value, which shows the influence of each independent variable on the dependent variable, and regression coefficient as well. Factors that had a significant influence on marketing efficiency were the number of traders ($\beta = -5.561$) and the number of population ($\beta = 4.262$). Total production, the percentage of marketed produce, market distance, and frequency of selling did not have a significant effect on the dependent variable. By incorporating regression coefficients, the regression equation is as follows:

$$ME = -195.768 + 0.003MS + 2.675 PMP - 5.561 NT + 4.262 NP + 1.309 MD - 0.054 FOS$$

Table 2. Regression Results of Factors Affecting Sago Marketing Efficiency

| No. | Independent variables | Coefficients | t-value | Sig. | |
|-------------------------|--------------------------------|--------------|---------|-------|-------|
| 1. | Constant | -195.768 | -1.114 | 0.279 | ns |
| 2. | Total production | 0.003 | 0.678 | 0.506 | ns |
| 3. | Percentage of marketed produce | 2.675 | 1.517 | 0.146 | ns |
| 4. | Number of traders | -5.561 | -3.258 | 0.004 | s |
| 5. | Number of population | 4.262 | 2.735 | 0.013 | s |
| 6. | Market distance | 1.309 | 0.652 | 0.522 | ns |
| 7. | Frequency of selling | -0.554 | -1.027 | 0.317 | ns |
| Adjusted R ² | | | | | 0.453 |
| R | | | | | 0.764 |
| F ratio | | | | | 4.453 |
| F Sig. | | | | | 0.006 |

Notes: ns means non-significant; s means significant at 5% level

The regression results show the negative and significant relationship between marketing efficiency and the number of intermediaries. This implies that the more the number of intermediaries, the lower marketing efficiency will be. This is because more intermediaries mean more extended marketing channel, which may result in higher cost and higher marketing margin. Dastagiri et al.¹² and Dastagiri et al.²¹ reported that marketing cost and marketing margin negatively influenced marketing efficiency.

The population size had a positive and significant relationship with marketing efficiency. This is because population size determines the market size or the total number of buyers for sago starch. A higher number of buyers will increase the demand for the products, which in turn will also increase the price. In other words, changes in the market size will lead to changes in demand, supply, and market price²². Increase in the market price will lead to an increase in the processor's share.

Market distance did not have a significant influence on marketing efficiency. These results are in line with the findings of Mau et al.¹⁶, Mustadjab et al.²³ and Segar²⁴ that marketing distance does not have a significant influence on the marketing margins. Here, the marketing margin is the difference in price received by the processors and the retailer price paid the consumers. The amount of consumer price determines the amount of marketing margin, so factors affecting the marketing margin will highly likely affect the processor's share.

Total production, the percentage of marketed produce, and frequency of selling did not have a significant effect on the dependent variable. Total production per processor per month ranged from 6.80 tons to 7.28 tons, with an average of 7.04 tons. The amount of starch being marketed from the total output per month ranged from 98.68% to 99.83%, with an average of 99.30%. The frequency of selling per month ranged from 2

to 5 times with an average of 3.27 times. The very slight variation in the value of these three variables might be the reason for their non-significance effect on the dependent variable. This result disagrees to findings of Dastagiri et al. (2012)¹² and Dastagiri et al. (2013)²⁰ that volume of produce handled positively affected marketing efficiency. Mau et al. (2017)²² reported that marketing volume has a negative influence on the marketing margin.

IV. Conclusion

The average processor's share of 79.54% showed that sago marketing in the study area was operating efficiently. Factors that had a positive and significant effect on marketing efficiency were the number of traders and the population size. Total production, the percentage of produce marketed, market distance, and frequency of selling do not have a significant effect on marketing efficiency. Strategies that need to be adopted to enhance the efficiency of sago marketing include expanding the market size through improvement of product quality, attractive packaging, and the introduction of standardization and grading.

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Ayub M. Padangaran et al. "Factors Affecting The Efficiency of Sago Marketing in Southeast Sulawesi, Indonesia." *IOSR Journal of Agriculture and Veterinary Science (IOSR-JAVS)* 12.3 (2019): PP- 55-58.