

COMPARISON OF VALUE ADDED OF WHITE PEPPER AND BLACK PEPPER IN EAST LUWU

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ABSTRACT

Pepper is the main commodity South Sulawesi and is the main source of income for farmers. Potential that is owned, has the opportunity to increase product competitiveness in obtaining added value. The method used is a case study on the pepper business in South Sulawesi Province, Indonesia. Data were analyzed using value-added analysis using Hayami's value-added method. The results of the analysis show that the value added generated by processing pepper seeds into powdered white pepper is IDR 197,218/kg, which means that for every 1 kg of raw material for white pepper seeds will be added IDR 197,218/kg, while the value added of ground black pepper is IDR 202,474/kg, which means that for every 1 kg of black pepper seed raw material, an value added of Rp.202,474/kg will be generated. The resulting profitability for white pepper is 56.35 percent and for black pepper is 57.85 percent. This shows that the processing of peppercorns into powdered pepper can generate profits of 56.35 percent white pepper and 57.85 percent black pepper respectively. The policy to increase ground pepper production has contributed positively to improving the regional economy, with the value added of black pepper and white pepper above 55 percent.

Keywords: White Pepper Powder, Black Pepper Powder, Business Value Added.

INTRODUCTION

In the era of globalization, the enactment of the free market creates an increasingly complex market, causing uncertainty in agricultural commodities if agricultural products are unable to compete following market demands. This is getting worse because most agricultural products are still distributed in raw form.

Due to this condition, efforts are needed to increase the bargaining position to obtain a higher value to improve the regional economy (Hamidi & Elida, 2018). The process of agricultural production is a theoretical set of market activities carried out to preserve and manage agricultural products to make them useful as food, feed, fiber, energy, or raw materials (Shen et al., 2022).

The existence of an industry that changes the primary form into a new product has higher economic value after going through the processing process, it will be able to provide value-added due to the issuance of costs, therefore a new price is formed which is higher, the profit is greater when compared to without going through the processing process (Hannum et al., 2018; Rosmawati, 2020; Septiaji et al., 2017). Historically, value added involved considering the manufacture of food, or simply changing the state of a raw food ingredient (Clark et al., 2021). Value added can also increase the efficiency of production and circulation of agricultural products, and encourage increased farmer incomes and rural economic growth (Fan et al., 2021). Currently, the agricultural development approach is directed at product development and no longer focuses on commodity development. Product development is focused on providing value-added through the development of industries that process primary agricultural products into processed products, semi-finished products, and final products (Epage et al. al., 2019)

One of the sub-sectors that has quite a large potential is the plantation sub-sector. The contribution of the plantation sub-sector to GDP is around 3.52% in 2021 or the first place in the Agriculture, Livestock, Hunting, and Agricultural Services sectors. One of the plantation commodities that are the mainstay of Indonesia's exports is pepper. Pepper is an important commodity in the plantation sub-sector (Lestari et al., 2019; Pitono, 2019). Pepper is divided into two types, namely black pepper and white pepper. The difference between the two types of pepper is the processing time. Black pepper is produced from unripe green peppercorns which form a dark brown pepper. Meanwhile, white pepper is processed from pepper seeds that ripen and flower, it's allowed to soften to form dried, cream-colored pepper seeds (Ojalere et al., 2018). There have been no previous studies that have compared white pepper

and black pepper in one study, especially in the aspect of added value, this research will present the opportunities and potential for the development of these two commodities in accordance with market demand.

East Luwu Regency is one of the largest pepper-producing regions in South Sulawesi with an area of pepper plants. Paper plants reached 5,710.38 hectares with total production reaching 2,908.37 tons in 2020 (BPS Luwu Timur, 2021). The development of agro-industry for production centers or raw material production areas needs attention. With the emerging agro-industry, it is hoped that the food diversification program can be achieved so that the country can reduce dependence on products made from imported raw materials (Apriliani et al., 2020). There are still a few local industries in East Luwu Regency that produce products derived from the pepper. The factors causing delays in the development of the small and medium-scale pepper processing industry need to be identified. Several factors that can be analyzed are analysis of income and value-added. In the East Luwu district, which utilizes peppercorns as the main raw material for making ground pepper products, they are scattered in several districts (Table 1).

In Table 1, Towuti is the largest pepper-producing district with total pepper production in 2020 reaching 2,254.42 tons (BPS Luwu Timur, 2021). Processing of agricultural products that will produce new products and have a higher selling value by changing the shape, taste, and packaging to be more innovative. This further encouraged researchers to find out more about the value-added of pepper as a raw material for making pepper powder in the East Luwu Regency. There are many studies on value-added, some of which are (Apriyani et al., 2020; Salsabilla et al., 2019; Yulianti & Prihtanti, 2020). However, related studies that specifically address the pepper commodity have not varied. On this basis, this study aims to analyze the value added of ground pepper

and to analyze how much value added is in one production and annually as well as a compare of income and value-added of the products produced if they have the same inputs.

RESEARCH METHODS

The Location and Time

Study method *case* on the ground pepper business. The case study method is a method that emphasizes the analysis of specific cases that are more specific (Epaga et al., 2019). Case research covers a narrow area or subject, but in terms of the nature of the research, case research is more specific. The selection of businesses

in this study was carried out deliberately with the consideration that the largest ground pepper research location was in East Luwu Regency, South Sulawesi.

The Data Collection

The data collection used in this study is primary data and secondary data. Primary data was obtained through direct observation and interviews using questionnaires, interviews were conducted with company owners. While secondary data obtained from literature through documents, publications, or research results from various institutions or agencies support and relate to the research topic being carried out.

Table 1. Production of Peppercorn Producing Smallholder Plantations in East Luwu Regency, 2020.

Number	District	Pepper Production (tonnes)
1	Bureau	60.40
2	Wotu	13.10
3	Tomoni	73.09
4	Angkona	28.71
5	Malili	207.60
6	Towuti	2,254.42
7	Nuha	14.75
8	Wasuponda	247.10
9	Mangkutana	6.35
10	Kalaena	2.40

Source: BPS Luwu Timur (2021).

Data Analysis

Added value describes the ability of an industry to create income, both for business actors, regions and countries. Besides that, the higher added value can also increase the competitiveness of the commodity in question in global and local markets because the quality is higher in accordance with consumer tastes. The data analysis used in this study is a value-added analysis using the Hayami value-added method. Value added is calculated by taking into account the interactions between actors and their respective goals

(Pamungkassari et al., 2018). Calculation of value added will be carried out in two ways, namely using different inputs and using the same input. Hayami's (1987) value-added analysis is a method that estimates changes in the value of raw materials after receiving treatment.

The value added that occurs in the processing process is the difference between the value of the product and the cost of raw materials and other inputs. According to Hayami (1987), the category of value added is determined by the yield criteria, namely, a ratio of <15% means

low value-added, the value of the ratio ranges from 15-40% including moderate value added, and a ratio value of >40% means high value-added (Table 2). Meanwhile, according to (Febriyanti et al., 2017) the criteria for value-added are: (a) if value added (NT) > 0, it means that the processing of ground pepper provides value-added; and (b) if value added (NT) < 0, it means that pepper powder processing does not provide value-added.

RESULTS AND DISCUSSION

Analysis Value Added of Pepper Powder

The value added of a product or commodity due to processing, transportation, or storage in a production (Hendriawan et al., 2020; Widiastuti et al.,

2020). The value-added analysis is carried out to determine the amount of value added obtained from processing raw materials into a product (Salsabilla et al., 2019). The value-added analysis carried out in this study starts from the procurement of pepper raw materials to the processing of powdered pepper products that are ready to be marketed.

In this study, the analysis of value added in the ground pepper business is divided into three parts, namely (1) output, input, and price, (2) revenue and profits, and (3) remuneration for the owners of production factors. The results of the analysis of the value-added of processing pepper seeds into white pepper and black pepper powder shown in Table 3.

Table 2. Calculation of Value Added (Hayami).

Number	Variable	Information
I. Output, Input, and Price		
1.	Output (kg/Production Process)	(1)
2.	Raw Material Input (kg/Production Process)	(2)
3.	Labor Input (labor day/Production Process)	(3)
4.	Conversion Factor	(4) = (1) : (2)
5.	Labor Coefficient (labor day)	(5) = (3) : (2)
6.	Output Price (Rp/kg)	(6)
7.	Labor Wages Work (Rp/ labor day)	(7)
II. Revenue and Profit		
8.	Input Price of Raw Materials (Rp/kg)	(8)
9.	Contribution of Other Inputs (Rp/kg)	(9)
10.	Output Value (Rp/kg)	(10) = (4) x (6)
11.	a. Value Added (Rp/kg)	(11a) = (10) - (8) - (9)
	b. Value Added Ratio (%)	(11b) = (11a)/(10) x 100
12.	a. Labor Income (Rp/Hour)	(12a) = (5) x (7)
	b. Share of Labor (%)	(12b) = (12a)/(11a) x 100
13.	a. Profit (Rp/kg)	(13a) = (11a) - (12a)
	b. Profit Rate (%)	(13b) = (13a)/(10) x 100
III. Compensation for Production Factor Owners		
	Margin (Rp/kg)	(14) = (10) - (8)
14.	a. Labor Income (%)	(14a) = (12a)/(14) x 100
	b. Contribution of Other Inputs (%)	(14b) = (9)/(14) x 100
	c. Company Profit (%)	(14c) = (13a) / (14) x 100

Source: Hayami, Kawagoe, Marooka, and Siregar, 1987.

Table 3. Analysis of Value added from Processing Pepper Seeds into Powdered Pepper, 2021.

Number	Variable	Description	White Pepper Powder	Black Pepper Powder
I. Output, Input, and Price				
1.	Output (kg/Production Process)	1	56	28
2.	Raw Material Input (kg) /Production Process)	2	60	30
3.	Labor Input (labor day /Production Process)	3	43.40	37.20
4.	Conversion Factor	4 = 1:2	0.93	0.93
5.	Labor Coefficient (labor day)	5 = 3:2	0.72	1.24
6.	Output Price (Rp/kg)	6	375,000.00	375,000.00
7.	Labor Wages (Rp/ labor day)	7	50,000.00	50,000.00
II. Income and profit				
8.	Raw material input prices (Rp/kg)	8	75,000.00	55,000.00
9.	Other input contributions (Rp/kg)	9	77.782,43	92.525,98
10.	Output value (Rp/kg)	10=4x6	350,000.00	350,000.00
11.	a. Value Added (Rp/kg)	11a=10-8-9	197,217.57	202,474.02
	b. Value Added Ratio (%)	11b=11a/10x100	56.35	57.85
12.	a. Labor Income (Rp/kg)	12a=5x7	36,000.00	62,000.00
	b. Labor Share (%)	12b=12a/11ax100	18.25	30.62
13.	a. Profit (Rp/kg)	13a=11a-12a	161,217.57	140,474.02
	b. Profit Rate (%)	13b= 13a/10x100	46.06	40.14
III. Compensation for Production Factor Owners				
	Margin (Rp/kg)	14=10-8	275,000.00	295,000.00
14.	a. Labor Income (%)	14a=12a/14x100	13.09	21.02
	b. Other Input Contribution (%)	14b=9/14x100	28.28	31.36
	c. Company Profit (%)	14c=13a/14x100	58.62	47.62

Source: Results of Hayami method analysis, 2021.

Output, Input, and Prices

The use of raw materials (pepper seeds) per production period uses an average of 60 kg of white pepper and 30 kg of black pepper. The amount of different raw materials is based on the market demand for processed white pepper powder and black pepper, where the demand for white pepper output is always higher than black pepper and according to P. Balqis and R. Yanuar (2021), the demand for white pepper for export is sufficient. because the white pepper produced by Indonesia has competitiveness or comparative advantage in Germany, the Netherlands, France, Italy, and Belgium which is indicated by an average RCA Index value of more than one, and based on the ISP indicator, Indonesia has an average value of 0.95 per year.

The use of raw material inputs produces an output of 56 kg of ground white pepper or 1,400 bottles of 40 gr and 28 kg of ground black pepper or 700 bottles of 40 gr. The reduction in output is due to the depreciation of raw pepper materials during processing including sorting, drying, and milling. The yield of pepper was calculated by comparing the weight of the final product to the weight of the pepper fruit. The results of S. Usmiati and N. Nurdjannah's research (2004) showed that the yield of processing peppercorns into ground pepper ranged from 20.0-20.8%, which is relatively the same as the yield of traditionally processed white pepper (average 20%).

The labor input used is different for each product produced because the more inputs used, the more labor and time are needed in one production process. Powdered white pepper requires a labor input of 43.40 HOK, while ground black pepper is 37.20 HOK. The conversion factor shows how much the input ability in the form of pepper raw materials is used to produce output in the form of powdered white pepper and ground black pepper products. The conversion factor for powdered white pepper and ground black pepper is the same, namely 0.93, which means that by processing 1 kg of

peppercorns, an output of 0.93 kg of ground pepper will be produced.

The value of the labor coefficient indicates how much labor contribution is needed to process 1 kg of pepper into the final product. The labor coefficients are respectively 0.72 HOK for white pepper and 1.24 HOK for black pepper, which means that to produce 1 kg of ground pepper it takes 0.72 HOK for white pepper with a smaller value than black pepper of 1.24 HOK. This figure shows that the labor required to process 100 kg of black peppercorns into ground pepper is 124 HOK greater than the labor required to process 100 kg of white peppercorns into ground pepper which is only 72 HOK. This figure also shows that the use of labor in black pepper processing is not as efficient as the use of labor in white pepper processing.

The Revenues and Profits

The average input price of white peppercorns is higher (Rp.75,000.-) per kg than the input price of black peppercorns (Rp.55,000.-) per kg, but the demand for powdered white pepper is higher than white pepper. Black powder is not an obstacle for business actors to buy raw materials used by farmers spread across the region. Other input contributions are obtained from the sum of all costs except raw material and labor costs, divided by the number of raw materials used for one year. The value of the contribution of other inputs to the processing of powdered black pepper turned out to be higher (IDR92,525.98) per kg. compared to white pepper fertilizer (IDR77,782.43) per kg. The components calculated to measure the value of the contribution of other inputs are the cost of packaging, diesel, electricity, equipment depreciation costs, maintenance costs, and PBB.

The output value produced from powdered white pepper and ground black pepper shows the same results, namely IDR350,000.- Thus the actual value of processed pepper products, namely ground white pepper and ground black pepper, is

IDR There is no difference in the output value because the conversion factor and the output price of the two processed peppercorn products are the same. There is no price difference between powdered white pepper and ground black pepper, even though the demand for these products is different in one production process.

The difference in the price of raw material inputs and the contribution of other inputs certainly affects the value added of powdered white pepper products of IDR197,217.57/kg which is lower than the value added of powdered black pepper of IDR202,474.02/kg. This difference in value-added means that each processing of 1 kg of peppercorns into powdered pepper is capable of producing a greater value added for powdered black pepper compared to powdered white pepper. The total value added obtained is greater than zero (0), which means that the processing of ground pepper provides significant value added. This is in line with research (Arisandy et al., 2019; Hidayat & Muttalib, 2020; Sukmawati & Syafrial, 2018) which states that value-added that has a magnitude of zero (> 0) will provide positive value added.

The higher value added of ground black pepper compared to ground white pepper resulted in a higher value-added ratio of black pepper powder (57.85%) compared to the value-added ratio of white ground pepper (56.35%). The value-added ratio of powdered white pepper and ground black pepper is greater than 50%, which means that the processing of peppercorns into white or black pepper powder of 1 kg will provide a value-added of over 50% or it can be said that it will provide benefits for processors above 50%. The same thing was shown by YS Arianti et al., (2019) in their research that the value-added ratio in processing sugarcane into brown sugar will provide a profit of IDR 1,051 per kg with a value-added ratio above 50% of 58.58%.

The results of the revenue and profit analysis also show that labor income for powdered black pepper products

appears to be higher by IDR 62,000/hour while white pepper powder is only IDR 36,000/hour, which means that labor income for black pepper powder production is relatively higher compared to with white pepper powder. The difference in labor income for processed pepper also influences the value of the share of labor for black pepper, which is 30.62, which is higher than the share for white pepper, which is 18.34. This share of labor shows that each additional value-added will increase labor income in powdered black pepper by 30.63% and powdered white pepper by 18.34%. Furthermore, powdered white pepper provides a profit of IDR 161,050.90/kg with a profit percentage of 46.01%, and the average profit derived from processing black pepper powder is IDR 140,474.02/kg with a profit percentage of 40.14 %.

Production Factor Services

The results of the analysis of the owner's remuneration through the margin analysis showed a value of IDR 275,000 per kg each. for powdered white pepper distributed for each factor, namely, labor 13.09%, the contribution of other inputs 28.28%, and company profit 58.56%, while the black pepper profit margin is IDR 295,000, - with a percentage of revenue workforce is 21.02%, the contribution of other inputs is 31.36%, and company profits are 47.62%. According to YS Arianti et al., (2019), the amount of value added is determined by the amount of output value, raw material prices, and other input prices. The proportion of labor and profits to value added can indicate whether the business is capital-intensive or labor-intensive. The results of this study indicate that the processing of peppercorns into powdered pepper in East Luwu is generally still a labor-intensive industry that operates with simple technology and small capital. This is a major obstacle in efforts to develop the powdered pepper industry towards medium and modern enterprises. Results of the research serve as input for the relevant government in

assisting community pepper business capital activities so that regional potential can develop optimally.

CONCLUSION AND SUGGESTION

Conclusion

Ground white pepper provides higher income than ground black pepper because the amount of input used for ground white pepper is greater than ground black pepper and consumer demand for ground white pepper is higher. The difference in the price of black pepper and white pepper raw materials affects added value, the results of calculating the added value of ground pepper by the Hayami method show that the added value of ground white pepper is lower than the added value of ground black pepper both with different inputs and with the same input. Therefore, the added value ratio of black pepper is higher than that of white pepper. However, the difference in value added and value added ratio between the two products is not far adrift. Where the comparison for white pepper powder reaches 56.35%, black pepper powder 57.85% and both comparisons show a value of > 40% which means the added value is relatively high.

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