



Analysis Of Added Value of Patchouli Refening (Case Study In Patchouli Oil Refening Small Industry In Tandung Village)

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Abstrak

Indonesia as a country that has enormous potential in the agricultural sector, the agribusiness sector in Indonesia has a very important role in the country's economy. The agricultural sector with all the output it produces is a sector that is quite resilient compared to other sectors. It is proven that when Indonesia was hit by an economic crisis, products from the agricultural sector became one of the sources of foreign exchange for the country. The purpose of this study was to find out how much added value the patchouli refening small industry in Tandung village Malangke district north luwu regency added. This research was used in this research are interview, observation, docomuntation and questionnaire techniques while the data analisis on the results of research in the small industry of patchouli oil refening has an added has an added value of 22.320/kg of raw feed, while the profit received is 19.934.

Keyword: Patchouli Oil, Added value, Hayami Method

1. INTRODUCTION

The community that generates foreign exchange comes from the agricultural sub-sector. Extensive agricultural land is currently a very important production factor, where the need for agricultural land is increasing for both agriculture, settlement, plantation and industrial purposes. The land that was once wide is now getting



narrower, the narrowness of agricultural land will result in people who depend on the agricultural sector now losing their livelihoods, increasing the unemployment rate. Therefore, it is necessary to strive so that economic activity can be stable and job opportunities outside the agricultural sector grow rapidly so that they can provide employment opportunities for an increasing workforce (Todaro, 2000).

The plantation community has good prospects and is suitable for cultivation in rural areas and has such a high economic value that it can increase farmers' income and expand job opportunities in rural areas. Patchouli plant (*Pogostemon Cablin Benth*) or in international trade known as Patchouli Oil is one of the plantation crops that produces essential oils that have very high economic value both in the national market and in the international market. Patchouli is believed to have originated from the Philippines and was originally cultivated and cultivated in Indonesia in the Aceh area. Patchouli is one of 150-200 community species that are cultivated commercially (Surjono, 2007). Patchouli plants in Tandung Village, Malangke District, North Luwu Regency, patchouli farmers are still dominated by selling patchouli in dry form at low prices, so one of the residents in Tandung Village builds a patchouli oil refining business so that it can increase income from selling patchouli oil at high prices. Because patchouli is not only sold in dry form but is also sold in the form of processed patchouli oil.

2. LITERATURE REVIEW

Patchouli (*Pogostemon Cablin Banth*) is a plant that produces essential oils, which are exported and bring in foreign exchange for the country. The use of patchouli oil which is a fixative against other fragrance ingredients so that the aroma can last a long time, so that it can bind productive odors for 1 to 2 years (Mangun, 2005). Patchouli plant produces essential oil which is one of the oils in the industrial (cosmetic), soap and medicine fields. Essential oil derived from the patchouli plant is used as an ingredient in medicines such as anti-septic, anti-fungal, eczema medication, and cracked skin and dandruff, reduces inflammation, and can help reduce anxiety and depression so that it can treat insomnia sufferers (Daniel, 2012).

Zulkifli (2012) in his research entitled "Analysis of Income and Added Value to Sweet Potato Chips Agroindustry in Tanah Luas District, North Aceh Regency" stated the added value per cassava chip raw material used in the production of Gampong Jeumpah Berghang Agroindustry, Tanah Luas District, North Aceh Regency, namely of Rp. 5.495/kg. Nur (2013) in a study entitled "Analysis of Added Value in Soy Milk Processing at the Home Industry Scale in Kita Medan" explained that the processing of soybeans to become soy milk on a home industrial scale in the research area is still very simple.

2. METHODS

This research was conducted in a small patchouli oil refining industry in Tandung Village, Malangke District, North Luwu Regency. This research was conducted from July to September 2021. The population of this research is a small industry of patchouli oil refining, where all populations are taken as samples (saturated samples). According to Sugiyono (2014), the saturated sampling technique is a sampling technique if all members of the population are used as samples.

According to Soewadji (2012), the data processing method used in this research is descriptive quantitative. Descriptive is research as observation, recording everything that arises in the research. Quantitative aims to explain, summarize the various conditions of the situation, the variables that arise in the community that is the object of research. The data obtained from the field are first grouped and classified and analyzed and processed using the value added calculation of the hayami method, in order to make it easier to analyze the data format or procedure for calculating the added value according to (Hayami 1987).

Table 1. Calculation of the added value of the Hayami method

No	Variable	Calculation Formula
	Output, Input, Price	
1	Output/total produksi (kg)	(1)
2	Raw material input (kg)	(2)
3	Labor input (HOK)	(3)
4	Conversion factor	(4) = 1/2
5	Labor coefficient (Hok/kg)	(5) = 3/2
6	Output Price (Rp/kg)	(6)
7	Labor wage per person (Rp/HOK)	(7)
	Revenue and Profit	
8	Price of raw materials (Rp/kg)	(8)
9	Other input contributions	(9)
10	Output value	(10) = (4) × (6)
11	a. Value added (Rp/kg)	(11a) = (10) - (8) - (9)
	b. Value added ratio (%)	(11b) = (11a) / (10) × 100

12	a. Labor income (Rp/kg)	$(12a) = (5) \times (7)$
	b. Labor share (%)	$(12b) = (12a)/(11a) \times 100$
13	a. Profit (Rp/kg)	$(13a) = (11a) - (12a)$
	b. Profit rate (%)	$(13b) = (13a)/(10) \times 100$
Reply to the Owner of the Factors of Production		
14	Margin (Rp/kg	$(14) = (10) - (8)$
	a. Labor income (%)	$(14a) = (12a)/(14) \times 100$
	b. Other input contributions (%)	$(14b) = (9/14) \times 100$
	c. Company profit (%)	$(14c) = (13a)/(14) \times 100$

3 RESULTS AND DISCUSSION

The output that has been produced in the processing of dry patchouli plants in this study is patchouli oil. The output of small patchouli oil processing industry in Tandung Village, Malangke District in one production produces 13 kg of patchouli oil, of which 13 kg of patchouli oil is obtained from a refining process for 5-6 hours of steaming and uses 150 kg of dry patchouli plant raw materials using production factors such as: a) human resources or labor are needed in the process of refining patchouli oil, both from purchasing patchouli raw materials from farmers to the final stage until it becomes patchouli oil, the process uses human power, b) natural resources, namely use of dry patchouli plant raw materials, water, air and sunlight to support the patchouli oil processing, c) capital in this case the use of capital in small patchouli oil refining industries such as boilers or steamers, patchouli oil processing plants and cars to transport raw materials in the form of dry patchouli and firewood, d) expertise or ability in coordinating the factors of production. According to (Ari Sudarman, 1999) production includes all activities to create goods or services. In the processing of dried patchouli, the activities carried out in creating patchouli oil that are ready to be sold include: purchasing raw materials for dry patchouli from farmers, the process of entering the raw materials into the kettle and steaming for 5-6 hours after which the

patchouli oil is separated from the water. out of the boiler pipe and the separated oil is ready to be packed into a 5 kg jergen.

3.1 Labor

The workers calculated in this study are all workers who have a direct role in the processing of patchouli oil. The small patchouli oil refining industry in the production process uses 4 employees who are directly involved in the production process and 3 other employees work outside the production room, the employee's working time is 8 hours a day. The Central Statistics Agency (2015), defines labor as the entire population of working age (15 years and over) who have the potential to produce goods and services. Workers in the patchouli oil refining small industry are of productive age. At the level of age and work experience greatly affect the level of productivity in the workforce and the age of employees also has an influence on the ability to work (Utami 2015).

3.2 Conversion Factor and Labor Coefficient

Based on the calculation of added value using Hayami's formula (1987), the conversion factor is obtained by dividing the total output of 13 kg of patchouli oil produced from the input amount of raw material for dry patchouli plants of 150 kg, based on the calculation, the patchouli oil conversion factor is 0.086, meaning that every 1 kg of dry patchouli plants used will produce 0.086 kg of patchouli oil. Conversion factor that shows the number of outputs from the input unit (Hayami 1987). According to Hayami (1987) the conversion factor can be calculated using the following formula:

Table 2. Conversion factors

	Variabel	Calculation Formula
4	Conversion Factor	$(4) = \frac{1}{2}$
		Conversion Factor = $\frac{\text{Output}}{\text{main raw material input (kg)}}$
		$= \frac{13}{150}$
		$= 0,086$

According to Hayami (1987) the coefficient of labor can be calculated by using the following formula:

Table 3. Labor Coefficient

No	Variable	Calculation Formula
5	5 Labor Coefficient (HOK/kg)	(5) = 3/2
		Labor coefficient = (number of workers)/ (input of raw materials)
		= $\frac{7}{150}$
		= 0.04

The value of the labor coefficient is obtained from the division between the total number of workers during one production period and the number of inputs of raw materials that are processed in one production. The results of calculations using the Hayami method (1987) show that if each workforce is divided by the raw materials used, the labor coefficient value is 0.04. This means that to manage 150 kg of patchouli plants requires a workforce of 6 people. The need for manpower to process patchouli oil is relatively large because the processing process still uses manual technology which is done by human power, not machines. According to (Lulu, 2003) the labor coefficient is the amount of labor time needed to complete units of work items. Patchouli oil refining industry where in completing the patchouli oil processing process takes 5-6 hours of steaming where 1 person working day is 8 hours.

3.3 Output Prices and Labor Wages

The price of output (patchouli oil) can fluctuate rapidly depending on the supply of the essential oil raw materials. In addition, the price of essential oils is also determined by the quality of the essential oil itself. Small patchouli oil refining industry sells patchouli oil to collectors at a price of Rp. 450.000/kg this price is in accordance with the selling price determined by the market price. The price of patchouli oil is quite expensive because it is in the process of processing to become essential oil that is ready to be sold through a processing process by steaming for a long time and the quality of the goods or the quality of the oil is better. Philip Kotler (2004) reveals that price is a marketing mix that can generate revenue and other elements that generate a cost.

Table 4. Labor Wages per person (Rp/HOK)

No	Variabel	Calculation Formula
5	Labor Wage per person (Rp/HOK)	$Jk \text{ Total} = JO \times JK \times HK$
		$= 7 \times 8 \times 30$
		$= 1,680$
		$HOK = \frac{JK \text{ total}}{JKS \cdot 7}$
		$= \frac{1,680}{7}$
		$= 240$
		$\text{Wages (Hok)} = \frac{\text{total wages}}{HOK}$
		$= \frac{Rp \ 12.450.000}{240}$
		$= Rp. \ 51.879$

Information:

JK: Working Hours

JO: Number of People (Employees)

HK: Weekdays

JKS: Standard Working Hours

Patchouli oil refining small industry pays monthly employee wages of Rp 12,450.00 for 7 employees, and if converted into HOK units, patchouli oil refining small industry uses 7 employees per production period where 1 HOK is 8 hours and every day employees given intensively (Wage) of Rp 51,875 per HOK. According to the Big Indonesian Language Dictionary (KKBI), wages are defined as payments given as remuneration for services or costs for work that has been done by other people, or as a result of work.

3.4 Prices of Raw Materials and Other Input Donations

The price of raw materials (dried patchouli) is determined based on the market price or the agreement of the buyer and seller. Patchouli oil refining industry buys dry raw materials from farmers both in Tandung Village and in neighboring villages. Patchouli oil refining industry buys raw materials for 10,000/kg. According to (Baldric, et al 2013). Cost is an economic sacrifice in producing a good or service that is able to provide current or future benefits. This means that the costs incurred to obtain an item or service can be provide benefits now or in the future such as the cost of raw materials, the cost of refining equipment that can provide long-term benefits, labor costs and other input costs. Raw materials that have been purchased will be processed into essential oils or patchouli oil so that they can increase income.

The contribution of Other Inputs can be calculated using Hayami's (1987) formula as follows:

Table 5. Contribution of other inputs

No	Variabel	Calculation Formula
7	Contribution of other inputs	Contribution of input =(price of raw materials ×amount of other materials)/(main raw materials)
		$= \frac{21.875 \times 43,750 \text{ kg}}{150}$
		$= \text{Rp.6.380}$

Small industry of patchouli oil refining in one production process uses 150 kg of dry patchouli as the main raw material and uses additional materials in the form of fuel, namely firewood for the evaporation process. The weight of firewood needed in the evaporation process is 43,750 kg at a price of Rp. 21,875-. the calculation of the added value analysis is calculated with one production with the amount of raw materials so that it is obtained in one-time processing of dry patchouli production will issue other materials, namely firewood for Rp. 6,380. The production system is the linkage of one component (input) with other components (output) and involves the process of interacting with one another. The components in the production system are input, process and output (Soeharno, 2009). the moreraw materials produced, the more contributions of other inputs used.

3.5 Output Value

According to Hayami (1987) the output value can be calculated using the following formula:

Table 6. Output Value

No	Variabel	Calculation formula
10	Output Value	$(10) = (4) \times (6)$
		utput value= Conversion factor × Output price
		$= 0.086 \times 450.000$
		$= \text{Rp. 38.700}$

Output value is the value generated from the process of industrial activities in the form of patchouli oil produced. The output value in this study can be calculated using the Hayami method (1987) with the formula for multiplying the conversion factor value by the output price, resulting in an output value of Rp. 38,700/kg, meaning that every 1 kg of patchouli oil production will produce an output value of Rp. 38,700 from the sale of patchouli oil. So the lower the value of the input used, the less the amount of production produced and the less the value of the input, the more the amount of production. (Adiningsih in Sigit L 2005), the production function is to show the maximum amount of output that can be produced if a certain amount of input is used in the production process. This means that the production function shows between the output and the level of use of inputs.

3.6 Value Added and Value Added Ratio

According to Hayami (1987) the added value can be calculated using the following formula:

Tabel 7. Value Added

No	Variabel	Calculation formula
11a	Value-added	$(11a) = (10) - (8) - (9)$
		Value Added = Value of output – Price of raw materials- input contribution
		= Rp. 38.700 – Rp. 10.000 -Rp. 6.380
		= Rp.22.320

The added value generated from the production process in the patchouli oil refining industry is Rp. 22,320/kg input. The added value is obtained from reducing the value of the product with the price of raw materials and other input prices. This is in line with the opinion (Aulia, 2012) which says that this added value is obtained from reducing the value of the product with the price of raw materials and other input values. The added value received is still gross added value because it has not been deducted by employee benefits. So that we can calculate the amount of added value obtained, the amount of added value obtained can indicate the development of the patchouli oil refining industry provides added value or not, the assessment criteria are (Novia et al, 2013; Sari et al, 2015): a) if the added value > 0, then the patchouli oil refining industry provides a positive added value, b) if the added value < 0 then the patchouli oil refining industry does not describe the added value. So the added value in this study provides a positive added value because the added value obtained from patchouli oil production is

Rp. 22,320 > 0. According to Hayami (1987) the value added ratio can be calculated using the following formula:

Table 8. Value Added Ratio

No	Variabel	Calculation Formula
11b	Value added ratio	(11b) = (11a) / (10) × 100
		Value added ratio = $\frac{\text{Nilai tambah}}{\text{nilai output}} \times 100$
		= $\frac{\text{Rp } 22.320}{\text{Rp. } 38,700} \times 100$
		= 57,67%

The value added ratio is the ratio between the added value and the output value. In this study, the contribution of added value to the output value is 57.67%, meaning that the output value is Rp. 22,320 per kg there is 57.67% added value of patchouli oil output. According to (Kippdyah et al, 2013). The results of the calculation of added value can be known to be of low, medium and high value, the value added categories are as follows: a) the added value is said to be low if the ratio value is < 15%, b) the value added is said to be moderate if the ratio is 15-40%, c) the added value is said to be high if the ratio is > 40%. So this study shows that the value added ratio is high because the value added ratio is 57.67%, meaning that the ratio value is greater than 40%. The level of profit in this study is the profit to the output value of 51.50%, meaning that from the output value of Rp. 38.700 per kg to 51.50% of the profit from the process of making patchouli oil. This is supported by the opinion (Wiyono and Rukavina, 2015) which states that added value is a method of estimating the extent to which raw materials receive treatment experience changes in value so that they can provide benefits.. According to Hayami (1987) the margin can be calculated using the following formula:

Table 9. Margin

No	Variabel	Calculation formula
14	Margin	(14) = (10) - (8)
		Margin = output value - raw material price
		= Rp. 38.700- Rp. 10.000
		= Rp. 28.700

Based on the results of the added value analysis, it is known that the margin from the processing of patchouli plants into patchouli oil products can be calculated using the Hayami formula (1987) by subtracting the output value from the price of raw materials so as to produce a margin value of Rp. 28,700. Then this margin is distributed into compensation for labor, other input contributions and industrial profits. 8.33% of the value of the margin is remuneration for labor, then 22.2% for the contribution of other inputs and distribution of margin for the company's profit of 69.4% by using the calculation formula Hayami.

4. CONCLUSION

The small patchouli oil refining industry generates a profit of Rp 19,934 per kilogram with a total raw material of 150 kilograms for one production, and the added value obtained from processing patchouli oil with the main raw material weighing 150 kg with a total oil production of 13 kg of patchouli oil with the added value of Rp 22,320 per kilogram in one production.

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