

UDC 332

## THE PERFORMANCE OF RUBBER AND PALM OIL PROCESSING INDUSTRY IN SOUTH SUMATRA PROVINCE, INDONESIA

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### ABSTRACT

Agriculture sector is still the main economy sector in South Sumatra. Rubber and palm oil are the main commodities of the plantation sector in South Sumatra. This study aims to analyze the performance of the rubber and oil palm processing industry in South Sumatra. The data used are primary data obtained from the distribution of questionnaires in the rubber and oil palm processing industry in South Sumatra. The research sample is the rubber and oil palm processing industry in several areas that produce these superior commodities. The analysis uses three indicators to measure industry performance, namely the productivity ratio, profitability ratio, and efficiency ratio. The results show that judging from the productivity ratio, the palm oil processing industry is higher than the rubber processing industry. Industry performance as measured by the profitability ratio shows that the performance of the palm oil processing industry has a higher profitability ratio than the rubber industry. Performance as measured by the efficient ratio shows that the rubber and palm oil processing industries are equally efficient in producing. The findings of this study can be concluded that the performance of the palm oil and rubber processing industry in South Sumatra is quite efficient because of the difference between the cost per unit and the selling price per unit of two commodities.

### KEY WORDS

Productivity ratio, profitability ratio, efficiency ratio, industrial performance.

The industrial sector has a significant role in driving economic growth in South Sumatra because of its ability to create high added value. Industry can also open up opportunities to create and expand jobs while reducing unemployment, which means increasing welfare and reducing poverty (Novalia, 2015). With a workforce in 2018 of around 301,931 million people (including small, medium, and large industries). Industrial sector workers also contributed 45.86% of the total workforce in South Sumatra (Statistik & BPS, 2018). One sector that plays a significant role in economic development in South Sumatra is the processing industry.

Table 1 – Medium and Large Processing Industry in South Sumatra, 2018-2020

No	Classification	Company			Labors		
		2018	2019	2020	2018	2019	2020
1	Food	120	119	104	22687	22810	22373
2	Beverage	20	19	17	3453	3297	4273
3	Rubber, articles of rubber	34	29	37	10465	10166	12844
4	Metal goods, not machines	11	12	7	581	492	429
5	Furniture	10	10	11	1169	1064	1360
TOTAL		195	189	176	38355	37829	41279

Source: BPS Sumsel Province, 2021

The medium and large processing industry groups in South Sumatra in general include the food and beverage industry, rubber and rubber products, non-machine metal goods industry, and furniture. Rubber and oil palm commodities are one of the leading commodities in South Sumatra besides coffee and cloves (Syamsurijal A. Kadir et al., 2018). The number of companies engaged in the medium and large processing industry sector in South Sumatra is quite a lot. In 2019 there were 189 medium and large processing companies consisting of the food, beverage, rubber and rubber goods industry, non-machine metal goods, and furniture from the South Sumatra Provincial Industry Office, 2019. In order to continue to survive, companies in this industry must be able to compete with other companies that are already in the market as well as potential companies that might enter the industrial market (Novalia et al., 2019). In addition, companies in an area must also be able to respond to competition with processed products from outside the region. Company behavior in facing competition can be reflected in pricing strategies, advertising strategies, company integration, and research and development (Arsyad & Kusuma, 2014).

More than 80 percent of South Sumatra's non-oil exports are non-oil exports (Syamsurijal Abdul Kadir, 2018). Increasing the role of non-oil and gas exports requires efforts to increase competitiveness products through the downstream strategy of non-oil and gas export commodities, especially the leading commodities of the plantation sector such as rubber and palm oil. Exports are closely related to the increasing power level of these export commodities. High competitiveness will improve export performance which in turn will have a positive effect on economic growth. This is supported by a study conducted by a study conducted by (Syamsurijal Abdul Kadir, 2018) which concluded that natural resources in South Sumatra have great potential and need to be developed.

Industrial economic theory studies the market structure and companies that focus on empirical studies on the determinants of industry structure, behaviour, and performance. The Structure-Conduct-Performance paradigm introduced by Edward S. Mason, lecturer at Harvard University in 1939 (Winsih, 2007). The SCP paradigm explains that the market structure an industry will determine how industry players behave (behaviour) which ultimately determines diversity or industrial performance.

Geer argues that market structure is the number of sellers and buyers and the size of the market share which is determined by product differentiation and influenced by the entry and exit of entrants or competitors (Sunengcih, 2009). A number of measure that can be used to measure market structure, namely the concentration ratio and Minimum Efficiency Scale (MES). Meanwhile, Kuncoro (2007) defines industrial behavior as a pattern of responses and adjustments various companies in an industry to achieve its goals and face competition. Furthermore, it is said that behavior can be seen from how the company pricing, sales, product promotion, or advertising, coordinating activities in the market (eg by colluding, cartels, etc.), and Research and Development.

Rubber and oil palm are plantation commodities that have an important role for the province of South Sumatra. Rubber and oil palm plantations are a source of livelihood for farmers and farm labourers in several areas. A study conducted by Kadir et al., (2018) concluded that there are several districts/cities including production centers for processed rubber and palm oil in South Sumatra. Furthermore, this study also identified the rubber and oil palm processing industries in this area as medium and largescale industries with a workforce of 20 to more than 100 people. A phenomenon that has occurred over the last few years, there has been a lot of decline in the price of raw materials for rubber and palm oil (Yuliawati, 2017). This condition also put pressure on the rubber and oil palm processing industry in South Sumatra, which has the potential for processed rubber and palm oil as superior commodities. The decrease in the price of raw materials will have an impact on the decrease in the selling price. Conditions like this must be able to be managed by rubber and oil palm processing businesses to continue to exist in the processing industry in South Sumatra. As revealed by Kuncoro (2007) the pattern of responses carried out within the scope of industrial competition is what is called market behavior.

The success or failure of the strategies and behaviors implemented by the company in facing market competition can be seen from the performance produced by the company. The

level of profit or profit and efficiency are often used to assess the company's performance results (Erlinda & Wardhani, 2008). By looking at the enormous potential of the rubber and oil palm processing industry in South Sumatra, this research makes this industry the main object of discussion. The discussion in this study includes a description of the industrial market structure, industrial behavior, and the performance of medium and large rubber and oil palm industries in South Sumatra.

## LITERATURE REVIEW

Industrial economics examines the structure of markets and firms with relatively more emphasis on empirical studies of the factors that influence market structure, market behavior and performance. The basis of the SCP paradigm was coined by Edward S. Mason, a lecturer at the University of Harvard in 1939, who stated that the structure of an industry will determine how industry players behave (Conduct) which ultimately determines the diversity or performance of the industry. The SCP relationship can be described as follows.

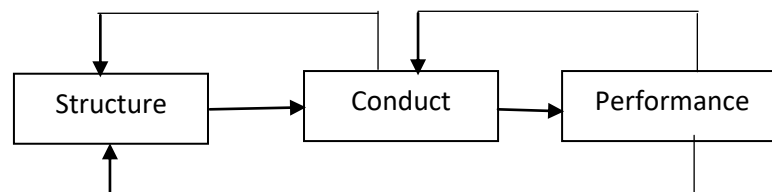


Figure 1 – Structure-Conduct-Performance (SCP) Approach

According to Greer (in Sumengcih, 2009), market structure is defined as the number of sellers and buyers and the size of the market share which is determined by product differentiation, and is influenced by the entry and exit of entrants or competitors. To measure the market structure, several measures can be used, namely the concentration ratio and the Minimum Efficiency of Scale (MES).

According to Teguh (2010), industrial performance is the results or achievements that appear in the market as a reaction to the actions of market competitors who carry out various corporate strategies to compete and dominate market conditions. Performance in more detail can be seen from profit, efficiency, growth (including market expansion), employment opportunities, professional prestige, personnel welfare, and also group pride.

Research conducted by Lelissa and Kuhil (2018) analyzed the Structure-Behavior-Performance (SCP) relationship which shows empirical differences between SCP and competing hypotheses are still not conclusive and attracted a lot of research worldwide and recently in Africa. Further research was conducted by Gavurova, Kocisova and Kotaskova (2017) where the findings indicate a negative relationship between concentration and performance in the European banking market.

Research by Rao and Kiran (2014) shows that over the past 60 years, small-scale industries have made a significant contribution to Indonesia's national economic development. This study also evaluates the performance of small-scale industries in terms of number of registered units, fixed assets investment, and employment. Furthermore, Yudaudin (2012) found that the level of profit earned by banks is influenced by the market structure and the level of competition. Kaesti (2010) also conducted research using the Structure-Conduct-Performance approach and concluded that the structure of the textile industry and textile products is an oligopoly. In the regression analysis, the results showed that the concentration ratio (CR4) had a positive and significant effect on profits (PCM), MES had a negative and significant effect on PCM, and the labour capital ratio (CLR) had a positive and significant effect on PCM.

Then Bargal, Dashmishra and Sharma (2009) conducted a study showing that the performance of the small-scale business sector has a direct impact on overall economic growth in terms of number of units, production, employment and exports. Winsih's study

(2007) concludes that the Indonesian manufacturing industry has an oligopoly market structure of varying degrees, and the results of panel data analysis show that the variables that have the greatest influence on PCM are productivity and X-efficiency, while the variables CR, growth, exports and imports are not significant in increased profits. Azhari (2005) conducted a study whose results showed that the manufacturing sector tends to have an oligopoly market structure, where the oligopoly level varies between tight, medium and loose oligopoly. The effect of increasing concentration means that the price adjustment coefficient will also increase.

Robert (1995) examined the effect of structure based on market share, concentration and Hirschman-Herfindahl Index on the performance of the textile industry as proxied by Price-Cost-Margin. The results of the study there is a positive relationship between market share and the profits of companies in the market. With proven market share that affects profits, shows the existence of a market force that allows collusive behavior among actors.

## METHODS OF RESEARCH

This research is a descriptive and quantitative research. The data used are primary data obtained by distributing questionnaires. The research respondents were 25 medium and large scale rubber and palm oil processing companies located in South Sumatra. There are 13 rubber processing companies used as research samples, while the palm oil processing companies are 12 companies that produce semi-finished products and final products. The analytical method used in this research is descriptive and quantitative research methods. Descriptive method is used to analyze industrial behavior, quantitative method with SCP approach to analyze industry structure and performance.

Industry performance is analyzed by productivity, efficiency, profit ratio or profit with the following formula.

The ratio of labour productivity is a measure to assess the company's performance obtained by calculating the ratio of the amount of production produced by the company to the number of workers.

$$\text{Company Productivity Ratio } i = \frac{\text{Company Production Amount } i}{\text{Number of Employees of the Company } i}$$

Analysis of company/industry performance using the ratio of the company's production capacity to installed capacity is used to measure the level of efficiency in the production process. The closer to 100 percent, the more efficient the company is in producing and vice versa, the closer to 0 the more inefficient.

$$\text{Company Efficiency } i = \frac{\text{Company's Production Capacity } i}{\text{Company Installed Capacity } i} \times 100$$

The profit per unit of output produced by the company is calculated by the difference between the selling price per unit and the cost per unit of output produced. The greater the difference, the greater the profit obtained by the company and conversely the smaller the difference, the smaller the profit obtained by the company.

$$\pi = PQ_i - CQ_i$$

Where:  $\pi$  = Company profits I;  $PQ_i$  = Price of output per unit of firm I;  $CQ_i$  = Cost of output per unit of firm i.

## RESULTS AND DISCUSSION

Analysis of the performance of an industry is measured by calculating the productivity ratio, profitability ratio, efficiency ratio and efficiency is calculated using the average cost. To

measure the productivity ratio of palm oil and rubber processing, a comparison between the units of total income (TR) in a year with CPO and Crumb Rubber commodities is used to the number of workers. The following are the results of the calculation of the productivity ratio in table 2:

Table 2 – Ratio Productivity of CPO Processing Industry in the Province of South Sumatra (In Billions)

No	Company	Total Revenue (Rp/year)	Employee (org)	Rp/year
1	PT. A	1.200,00	179	6,70
2	PT. B	1.050,00	160	6,56
3	PT. C	933,30	92	10,14
4	PT. D	7.590,00	450	16,86
5	PT. E	1.020,00	100	10,20
6	PT. F	1.072,50	136	7,88
7	PT. G	606,19	144	4,20
8	PT. H	465	90	5,16
9	PT. I	1.306,80	170	7,68
10	PT. J	2.653,56	180	14,74
11	PT. K	1.273,70	150	8,49
12	PT. L	1.242,69	200	6,21

Source: Data processed, 2021.

From table 2 above, it can be seen that the average income for palm oil companies (CPO) per year is Rp. 1-2 Trillion. In this study, the number of workers is very influential on the amount of income generated. It can be seen in the table above that Company D has a high income value with an annual income of 7.5 trillion and a productivity ratio value of 16.86 billion or in other words 1 employee who works in the company is able to generate income per year of Rp. 16.86 billion with a total workforce of 450 people. Likewise, the second company that has high income is PT. J of Rp. 2.65 trillion with a productivity ratio of 14.74 billion, with a total workforce of 180 people. In a year the company is able to generate income of Rp. 14.74 billion per 1 employee. It can be assumed that the more workers used, the higher the income of palm oil companies (CPO). Vice versa, the less labour is used, the lower the income earned by the Palm Oil Industry (CPO) entrepreneurs in South Sumatra. This shows that labour is a very important factor in the production process, because labour is another factor driving inputs, without labour the other production factors will be meaningless. The results of this study are in accordance with Youriyah (2007) which states that labour has a positive effect on income. That is, if the workforce has increased productivity it can meet consumer demand so that income will increase.

Table 3 – Ratio of Rubber Industry Productivity in the Province of South Sumatra (In Billions)

No	Company	Total Revenue (Rp/th)	Employee (org)	RP/Year
1	PT. A	777,60	158	4,92
2	PT. B	518,00	120	4,31
3	PT. C	720,00	75	9,60
4	PT. D	859,20	75	11,45
5	PT. E	549,00	50	10,98
6	PT. F	1.170,00	120	9,75
7	PT. G	1.440,00	110	13,09
8	PT. H	954,72	330	2,89
9	PT. I	816,00	201	4,05
10	PT. J	816,00	328	2,48
11	PT. K	855,36	363	2,35
12	PT. L	1.020,00	84	12,14
13	PT. M	648,00	80	8,10

Source: Data processed, 2021.

Each company in the province of South Sumatra with its productivity ratio value is in line with the previous company, namely the number of workers is very influential on the income earned. Nayaka (2018) explained that one of the efforts to increase production

capacity is to add equipment so that the resulting output can increase. Processing technology for making Crude Palm Oil (CPO) and the availability of Fresh Fruit Bunches (FFB) as a raw material that is always available in reference to the installed capacity in the production process in the company are one of the supporting factors in increasing revenue in the Palm Oil (CPO) industry in South Sumatra.

From the table above, it can be seen that a large number of workers may not necessarily generate high income. For example, Companies I and J have a workforce of more than 300 people; these companies are only able to generate income of Rp. 800 billion per year. In contrast to companies those have a workforce of less than 200 employees. For example, company F and company G are able to earn an annual income of Rp. 1 Trillion, with each productivity ratio of Rp. 10-11 billion per year, in other words 1 employee in the company is able to generate income of Rp. 9-13 Billion is seen in terms of sales per output for 1 year. It can be concluded that industries that have a high workforce are not necessarily able to generate high incomes as well. On the other hand, an industry that has a relatively low workforce may not necessarily generate low income.

This is in line with research conducted by (Polandos et al., 2019) that the workforce does not have a positive and significant influence on the income of entrepreneurs. This implies that the addition of employees will not simultaneously increase income and vice versa, reducing the number of workers or employees will not necessarily reduce the income of entrepreneurs. The workforce that will be used in helping business ventures must have good qualifications and work quality based on experience, education and a good work ethic that can support the development of business activities.

The gap between income and labour of rubber companies in South Sumatra Province is seen as less efficient in producing Crumb Rubber. Whereas the output price is sold at a global price of Rp. 17,000 per/kg. Inversely proportional to the palm oil industry with a selling price of  $\pm$  Rp. 5,000 per/kg. Seen from the cost per unit for the efficiency of the rubber industry is 30% of the selling price, and the efficiency of costs incurred in producing palm oil is 2% of the selling price of the company's output.

The lack of effectiveness in terms of the production process, between installed and used capacity and labour in the rubber industry requires government attention in terms of guidance or assistance in developing downstream products from the final level of output, namely Crumb Rubber in order to streamline the income received in an industry. Another measure to determine the performance of the palm oil and rubber processing industry, is calculated by the income of a product in 1 year (total revenue) and the costs incurred in processing these products in 1 year (total cost). The greater the difference between the selling price and selling costs, the more efficient it is in measuring the performance of a processing industry as can be seen in table 4.

Table 4 – Profitability Ratio of CPO Processing Industry in Province South Sumatra (in billions)

Profitability Range	Number of Company	Percent
100>350	0	0,00
360>610	2	16,67
620>870	0	0,00
880>1130	5	41,67
1140>1390	3	25,00
>1400	2	16,67
TOTAL	12	100,00

Source: Data processed, 2021.

The table above shows the efficiency of net profit from the sales output of Crude Palm Oil (CPO) at the most companies in the South Sumatra Province, which is Rp. 880 – 1.130 billion as many as 5 companies with a percentage of 41 percent and above Rp. 1,140 billion as many as 5 companies with a percentage of 42 percent and the remaining 2 companies have a net profit of under Rp. 610 Billion per year. It can be concluded that the Palm Oil Industry which has a derivative product in the form of Crude Palm Oil (CPO) has a large

advantage when compared to the Rubber Industry with the largest cumulative net profit below Rp. 610 billion per year, which can be seen in table 5.

Table 5 – Ratio of Crumb Rubber Processing Industry in Province South Sumatra (in billions)

Profitability Range	Number of Company	Percent
100>350	1	7,69
360>610	7	53,85
620>870	4	30,77
880>1130	1	7,69
1140>1390	0	0,00
>1400	0	0,00
TOTAL	13	100,00

Source: Data processed, 2021.

Likewise with the profitability of the rubber processing industry in the Province of South Sumatra. The maximum profit per output generated is Rp. 1.130 Billion per year with as many as one company. management efficiency between total revenue and total cost of production is quite efficient. The highest average income of the entire rubber industry (Crumb Rubber) in South Sumatra, which ranges from Rp. 360 billion to Rp. 610 billion per year with a total of 7 companies. The lowest average income in the Rubber Industry in South Sumatra is Rp. 100 billion – Rp. 350 billion per year with a total of 1 company with a contribution of 7.6 percent.

Compared to palm oil companies, which are quite high, the income obtained from these companies. The cheap price of raw materials for the rubber industry is one of the drivers of the low income of rubber companies in the Province of South Sumatra. In addition to cheap raw material prices as a factor driving the low income of rubber companies, other factors are the use of seeds that are not superior, the use of fertilizers is not efficient, and the government's lack of attention to rubber farmers by providing policies on subsidizing fertilizers are factors that encourage low incomes for rubber companies. and the high production price of rubber companies in South Sumatra.

This study uses the efficiency variable which is calculated by the ratio between the production capacity and the company's installed capacity to analyze the performance of the processing industry in the Province of South Sumatra. Efficiency shows the level of efficiency of an industry in minimizing its production costs, the closer to 100, the company can be said to be efficient. The following are the results of the calculation of the Efficiency analysis of the Processing Industry in the City of Palembang and the City of Pagar Alam.

Table 6 – Efficiency Ratio of CPO Processing Industry in Province South Sumatra (in billions)

Efficiency Range	Number of Company	Percent
<50	0	0,00
50-59	0	0,00
60-69	0	0,00
70-79	0	0,00
80-89	3	25,00
90-99	9	75,00
>99	0	0,00
Total	12	100

Source: Data processed, 2021.

From the table above, the efficiency level of all palm oil companies is high, namely in the range of 80-89 as many as 3 industries (25.00%) and above 90 percent as many as 9 industries (75.00%). And no one is below 50, it can be said that the palm oil companies in South Sumatra Province are all efficient in minimizing their production costs. It can be said that the production process carried out at palm oil processing companies (CPO) with reference to the ability of the machine or technology in processing raw materials by looking at the average machine capability in each year is classified as very efficient and effective. In

contrast to rubber companies which are classified as low and medium in improving the ability of machines to process raw materials, in table 7.

Table 7 – Efficiency Ratio of Crumb Rubber Processing Industry in Province South Sumatra (in billions)

Efficiency Range	Number of Company	Percent
<50	0	0,00
50-59	2	15,38
60-69	4	30,77
70-79	1	7,69
80-89	5	38,46
90-99	1	7,69
>99	0	0,00
Total	13	100

Source: Data processed, 2021.

From the table above, the efficiency level of the rubber processing industry in the City of South Sumatra Province is quite varied; the highest efficiency range in the rubber industry (Crumb Rubber) is in the 90-99 range, only 1 industry (7.69%). In the 80-89 range, there are 5 industries (38.46%) and below 79<50 there are 7 rubber industries (53.85%) and none below 50 levels of efficiency in the rubber processing industry. This is not considered optimal at 100 percent, because there are still many companies that have not been able to reach a figure above 80. The quality of rubber that must be produced by partner employees is one of the causes of optimal engine capacity in producing the output, assistance is needed by local governments such as the plantation office in terms of managing rubber plantations and certifying superior seeds and can create quality rubber.

The efficiency level of the palm oil and rubber processing industry is also seen from the comparison of the average cost of producing per unit of output produced. The following table shows a comparison of the cost per unit of output produced in the medium-large industry of palm oil and rubber processing in the Province of South Sumatra. From the table below, the efficiency level of the palm oil processing industry (CPO) in South Sumatra based on average costs, all companies are in the range of Rp. 6,100 to Rp. 9,200/kg with a total of 6 companies. The efficiency level of the processing industry with an average cost of Rp. 3100 – Rp. 6100 as many as 5 companies with a percentage of 41.6 percent of the total companies contained in the sample of 12 companies. The following table shows a comparison of the cost per unit of output produced in the medium rubber processing industry in South Sumatra.

Table 8 – Efficiency Ratio of CPO and Crumb Rubber Processing Industry in Province South Sumatra based on Average Cost

Efficiency	Number Of Company CPO	Percent	Efficiency	Number Of Company CR	Percent
<3000	0	0,00	<3000	0	0,00
3100 - 6.100	5	41,67	3100 - 6.100	0	0,00
6200 - 9.200	6	50,00	6200 - 9.200	0	0,00
9.300 - 12.300	1	8,33	9.300 - 12.300	4	30,77
>12.400	0	0,00	>12.400	9	69,23
Total	12	100	Total	13	100

Source: Data processed, 2021.

From the table above, the efficiency level of the rubber processing industry in South Sumatra based on the average cost, there are 9 companies (69.23%) whose average cost is above Rp. 12,400. The remaining 4 companies are in the range of Rp. 9,300 to Rp. 12,300 (30.77%) with a total industry of 13 companies. Thus, it can be concluded that the palm oil and rubber processing industry in South Sumatra is quite efficient because considering the difference between the cost per unit and the selling price per unit for the two commodities is different.



Research conducted by (Lelissa & Kuhil, 2018) analyzed the Structure-Behavior-Performance (SCP) relationship showing empirical differences between SCP and competing hypotheses are still not conclusive and attracted a lot of research worldwide and recently in Africa. Further research was conducted by (Gavurova et al., 2017) where the findings indicate a negative relationship between concentration and performance in the European banking market. This is contrary to the situation in Indonesia, especially in the province of South Sumatra. The results of this study indicate that the productivity produced by the Rubber (Crumb Rubber) and Palm Oil (Crude Palm Oil) industries by looking at income with labour and the ability or optimization of machines in a company has a positive and influential relationship and will have an impact on increasing large income and industrial efficiency and have an impact on the welfare of employees or workers in the Rubber (Crumb Rubber) and Palm Oil (Crude Palm Oil) Processing Industry.

## CONCLUSION

The results of the analysis show the fact that each palm oil company in South Sumatra with its productivity ratio value is in line with the previous company, namely the number of workers is very influential on the income earned. This research has succeeded in revealing that the labour productivity performance of the palm oil industry in South Sumatra in generating income is higher than that of the rubber industry. The gap between income and labour of rubber companies in South Sumatra Province is that they are less efficient in producing Crumb Rubber. The efficiency of net profit from Crude Palm Oil sales output, which is the largest in the South Sumatra Province company, is quite high compared to the income obtained from the company. Meanwhile, the net profit of the rubber industry in South Sumatra is low due to the cheap price of raw materials for rubber, which has an impact on the low income of rubber companies in the Province of South Sumatra. In general, the palm oil and rubber processing industry in South Sumatra is quite efficient because of the difference between the cost per unit and the selling price per unit for the two commodities.

## SUGGESTIONS

The findings of this study reveal that the labour productivity performance of the palm oil industry is higher than that of the rubber industry. This result implies that the labour in the palm oil industry is more productive than the rubber industry. The efficiency performance of the palm oil industry shows that the palm oil industry is more efficient in producing than the rubber industry. This condition implies that the optimization of production activities in the rubber industry must be increased, while in the palm oil industry it must be maintained. The profitability performance of the palm oil processing industry, which is measured by the difference between total revenue and total expenditure or costs, shows that the profitability of the palm oil industry is greater than that of the rubber industry. These results imply that the performance of the oil palm industry in South Sumatra as measured by labour productivity, efficiency, and profitability is better than the performance of the rubber industry.

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