Advances in Engineering Research, volume 205
Proceedings of the 3rd Green Development International Conference (GDIC 2020)

The Impact of Rubber Auction Market Towards Transmission Price for Farmers in Jambi Province

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ABSTRACT
Rubber is a small-scale plantation cultivated by smallholders. Jambi Province is one example that crucially depends on its agricultural sector, like rubber. Rubber does have the potential to be one key to economic and social development in the rural area, improving the socio-economic situation of millions of farmers in Jambi Province. However, the farmers do not have the bargaining power to determine the rubber slab's price to the traders. One distribution channel tries to help farmers get a higher price from the trader through the auction market. The objectives were analysing the rubber auction market's and impact on farmers' transmission price by using a descriptive method to describe the change in price received by the farmer in the auction market and counting the price transmission elasticity through simple regression farmer share. The result shows that farmers only got 40-60 percent from selling their rubber in the auction market. This condition explains the vulnerability of the farmer's position. One of the reasons is farmers who do not optimally role their marketing function. The rubber auction market is an alternative marketing distribution for farmers to get a more reasonable price with good rubber material quality, with a price transmission elasticity of 2.85. While price changes at the export level are transmitted very little to farmers, farmers' effect is shallow. In the future, farmers need to cooperate in one group of institutions to sell their rubber in considerable quantities to get bargaining power and a fair price.

Keywords: *Rubber, Farmer, Transmission Price Elasticity, Auction Market.*

1. INTRODUCTION

Rubber is a significant export commodity and an essential primary product in the global economy [1]. Smallholders represent 90% of the world rubber holdings, and they contribute 85% of total natural rubber production, located in Southeast Asia, especially in the Indonesian economy [2], [3]). The importance of rubber will increase in Indonesia for two reasons. First, economic growth in emerging economies; second, the rising price of crude oil will make synthetic rubber more expensive, increasing the demand for its substitute, natural rubber on the margin [4].

The smallholders' characteristics are low productivity, poor maintenance, and a high proportion of old and damaged crops. Besides that, inefficient marketing of rubber materials, unbalanced selling prices, and low incomes received by farmers and the imbalance of farmers' cost become obstacles for smallholders [5], [6]. The price of rubber farmers in Indonesia only reaches 20% -40%, much lower than in Thailand, 80%, and Malaysia 60% -80% [7].

Sumatra and West Kalimantan island predominately produce rubber [8]. The province of Jambi (Sumatra) is one example of a region that crucially depends on its agricultural sector. It is also one specific rubber production area: 52 % of the workforce work in the farming sector, and 653 000 ha (out of 1.354 000 ha) contribute to rubber production, of which smallholders cultivate 99.6% [9].

As the most common production model for rubber is small-scale plantation agriculture cultivated by smallholders, rubber does have the potential to be one

key to economic and social development in the rural area at Jambi Province, improving millions' socio-economic situation. However, the existence of rubber has not played a significant role in improving the welfare of farmers. The fundamental problem faced by rubber smallholders in Jambi Province is the bargaining position in price determination due to a lack of access to price information.

The ongoing rubber industry development process, especially the improvement of farmers' welfare in Jambi Province, needs to be considered, further influenced by marketing channels' choice as the rubber marketing system's efficiency. One of the distribution channels through the rubber auction market in Jambi province aimed to improve rubber prices received by smallholders on their way one to be decreasing. However, there are still survive in Bungo, Sarolangun, Tebo, and Muaro Jambi District. The emergence of a spontaneous market or community self-help occurred a day after the auction market activity with the number 2 times more than the auction to make the rubber auction market less ignored in Jambi Province. The lack of supply in equilibrium with the factory's capacity became one of rubber smallholders' causes as a supplier of the factory's raw materials. The present article aims to provide a comprehensive process of the Rubber auction market in Jambi Province and Analyze the impact of the rubber auction market toward transmission price for farmers.

2. METHOD

The research was conducted in Bungo and Tebo districts as one of the largest rubber producers in Jambi Province and still uses the auction market as one of the rubber marketing channel instruments. The data used were primary data and secondary data. Primary data related to smallholders who were using the auction market as a rubber distribution channel and secondary data in the form of rubber export price at Singapore Commodity as well as the time-series data from the related government division as well as from Statistic Bureau of Jambi Province.

The method of data analysis was used for the first objective in the descriptive qualitative. A second analysis was conducted to find the price transmission elasticity. The analysis of price elasticity of transmission is an analysis that describes how far the impact of price changes of the market level on the price changes of that goods in another marketplace (Hasyim, 2012). The price elasticity formula of price is as follow:

$$Et = \frac{\delta Pr/Pr}{\delta Pf/Pf} \text{ or } Et = \frac{\delta Pr}{\delta Pf} \times \frac{Pf}{Pr} \quad (1)$$

Pf and Pr has a linear correlation in the equation, so Pf = a + bPr

$\partial Pf / \partial Pr = b$ or $\partial Pr / \partial Pf = 1/b$ and $Et = 1/b\ Pf/Pr$

Where Et = Price Transmission Elasticity

a = intercept (cutting Point)

b = Regression coeffient (slope)

Pf = Price at Export Port Level (IDR/Kg)

Pr = Price at Auction market level (IDR/Kg)

The measurement criteria used in the price transmission analysis is as follow [10]

(1) if Et = 1, the rate of price change at the consumer level equals the producer level rate. The market faced by all of the trading agents is perfectly competitive, and the existing trading system is efficient,

(2) if Et <1, the rate of price change at the consumer level is less than the rate of price change at the producer level. The prevailing marketing is inefficient, and the market faced by the sales force is competing imperfectly.

(3) if Et> 1, then the rate of price change at the consumer level is greater than the producer level rate. The market faced by all market participants is a perfectly competitive market and inefficient marketing systems.

3. RESULT AND DISCUSSION

Jambi Province has 249.978 householders of rubber farmers, 36,36 percent of those spread in three regencies, Muaro Jambi, Bungo dan Sarolangun. Bungo Regency has the greatest number of rubber farmers which is 44.746 householders. The rests are 12.48 percent and 5.98 percent. There is a gap in rubber prices at the farmer level and the level of exports. This can be explained by the mechanism of the same rubber marketing distribution, but different in the implementation of both. In Jambi, especially Bungo Regency, rubber marketing through an auction runs very well with dry rubber content (KKK) until 60 percent with the storage time for three months. In another way, even though the auction for rubber commerce is often done in the auction market in the Tebo regency, the implementation is not optimal. From the research. The long combination of rubber marketing channels in Jambi Province, which is up to twelve channels, also causes a low price margin given to the farmer [11].

Figure 1 shows the development of rubber smallholders' price since 2005-2019 in Bungo regency and Tebo Regency.

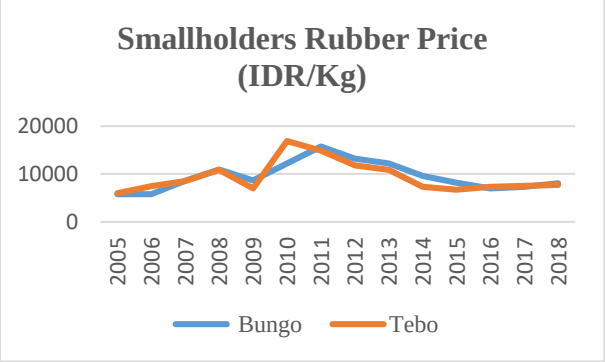

Figure 1. The Development of Rubber Smallholders Price at Bungo Regency and Tebo Regency

According to Figure 1, the rubber smallholder's price fluctuates over time. The price between the two regencies almost has the same pattern. The highest Price in Bungo at IDR 15724.75/kg, on average, at IDR 9436.005/Kg. While the minimum price at the level of IDR 5787.5/Kg. While in Tebo, the highest price at the level of price IDR 16,900/Kg. Price at the minimum level at IDR 5,958/Kg. The average price at the level of IDR 9,285 /Kg.

Smallholders rubber price fluctuate because it follows the international price. The determination of the price also depends on the dry rubber content (DRC). Usually, buyers determine at level 40 percent until 55 percent, depending on how long they keep the Slab. Additionally, Smallholders suffer from low productivity, poor quality of processing, and a weak marketing system [12].

Table 1 below shows the rubber auction market's averages price, the highest and the lowest in Bungo and Tebo Regency from 2015-2019.

Table 1. The Rubber Auction Market's Averages Price, the Highest and the Lowest in Bungo and Tebo Regency From 2015-2019 (IDR/Kg)

Year	Bungo			Tebo		
	Average	Highest	Lowest	Average	Highest	Lowest
2015	9323.340766	10.767,37	7.299	9.255,54	10.543	7.219
2016	9.433,24	16.769	7.300	9387	16.555	7.159
2017	11.391,57	15.069	8.229	10.301	14.399	7.819
2018	8058,33	9.200	7.700	7.735	9.200	6.000
2019	8445,83	8.600	8.200	8.567	8.700	8.300

Source. Industry, Trade, and Cooperation Department at Bungo dan Tebo Regency, 2017.

Table 1 shows there is a different price at the auction market in Bungo and Tebo regency. The price differences between the two regencies because of the various rubber quality measured from the quality of dried rubber content are higher in Bungo Regency than in Tebo Regency. In Bungo Regency, some farmers kept their rubber until four months, with the level of dry rubber content Preliminary 70 percent. Meanwhile, in Tebo Regency, the farmer did not wait a long time to sell their rubber in the auction marker. Moreover, the farmer from Kecamatan Rimbo Bujang still mixes the rubber with the dirt as "tatal" (garbage) to increase the weight of rubber processed material (BOKAR). This action even makes the selling price goes lower than the clean rubber.

Furthermore, the number of farmers who joined the auction market in Bungo Regency is mostly 450 farmers from Lubuk Landai. The minimum is 150 farmers with a transaction volume 50 tons once a transaction. While in Tebo Regency, the smallholders who joined the auction market are 350 farmers and at least 170 people with a transaction volume of 40 tons once a transaction. The volume of rubber in the auction market is relatively small than before. Lots of illegal market after farmer joins the auction market is also the cause of decreasing transaction volume. The number of farmers who joined the auction market in both regencies is at most six people and at least three people. The number of rubber auction markets (PLK) in Bungo and Tebo is 8 PLK and 6 PLK. The small number of rubber merchants also makes farmers do not want to sell the rubber in the auction market because it asked for a clean and qualified rubber and retribution paid for government-paid by farmers.

The auction process runs every two weeks. Rubber Auction Markets (PLK) in Bungo Regency are 1) PLK Benit Rimbo Tengah, 2) Padang Palangeh, 3) Lubuk Landai, 4) Koto Jayo, 5) Rantau Pandan, 6) Maju Jaya, 7) Tanjung Agung, dan 8) Senamat Pelepat. The transaction volume is decreasing each year. In 2015, in Lubuk Landai is 81 tons, and keep going down until 2017. The lowest is 10 tons for small PLK such as PLK Benit Rimbo Tengah. Currently, the average transaction volume is ranged from 15-60 tons depends on the size of the PLK. Usually, the farmers come to the PLK with higher transaction volume such as PLK Lubuk Landai and PLK Koto Jayo. The merchant who buys the rubber in PLK is the same in one PLK to another in the same regency. It means that in a week, a merchant can do at least six transactions in different PLK.

The same occasion also occurs for the rubber auction market in Tebo Regency, which has six rubber auction markets (PLK) like 1) PLK Sumber Jaya, Griwinangun Village, 2) PLK Gotong Royong, Giri Purno Village, 3). PLK Cipta Karya Sejahtera, Semabu Village, 4) PLK Karya Putra Serumpun Teluk Singkawang Village, 5) PLK Mangun Joyo Village, and 6) PLK Sido Muncul Cooperation, Wirotho Agung. The transaction volume in PLK in Tebo Regency is high enough at the number of 88 tons at one transaction, especially in PLK Sumber Jaya, and the lowest number is 30 tons. The greatest number of farmers in PLK is 450 farmers, and the least is 150 farmers. The PLK itself is

becoming less interesting for the farmers. Even the services in charge, Industry Trade and Cooperation Division in the District have done socialization and coaching on the importance of selling the rubber in the rubber auction market than selling it directly to the trader to get a better income.

The Auction market started with the farmers who collect all the raw material in the field before lunchtime until almost the auction time at 2 o'clock. The raw material is coded with numbering from the rubber auction market committee based on the arrival time. Every farmer got the number as proof to get the payment from the buyer. After the auction is started, the merchant and the buyer with their members check the *Bokar*" condition, one by one, with a sharp knife. The committee provides the whiteboard to note the number of auction participants. The length of the Raw material quality test process depends on the number of the farmers' raw material. Because of skill and long experiences, the buyers do not need a long time to give a measurement. In a quick view, the buyer can guess and judge the dry rubber content and the price of the rubber. A good quality rubber is often chosen and bid by some buyers. If there is a rubber that judges the as low quality, the buyers will not bargain.

The next step is the open bargain process. Each farmer can see clearly and transparently in a big whiteboard, how much the buyer offers their rubber. The farmer takes the billing receipt in the counter provided by the committee for each buyer by measuring the raw material's weight. Based on the note of purchased raw material, and the farmer brings the receipt to each buyer's cashier. The cashier's office checks the purchased raw material's number or weight and pays it by cash with the stamp and signed paid off. All the farmers get the payment from the buyers no cancelling cash. While the farmer is waiting for the price, the raw material that has been scaled is loaded into the truck or pick up (Colt diesel) of each buyer. The raw material is loaded as optimum as the car could. It needs a bit longer time because it has to be done carefully. If all the payment has been made and the vehicle is ready, raw material will be taken to the factory,

There are some interesting things in this auction process. While judging the raw material, the buyer actively contacted the factory through the mobile phone to decide the price that will be offered to the farmer. The more exciting thing is if the buyer has known the factory for a long time and keeps the commitment, so the factory trusts them and is willing to give loans to pay the BOKAR purchased in that rubber auction market. The price determination in this auction market is based on each factory buyer. The big margin difference from farmer to the merchant continued to the factory's trader, indeed, will affect the farmer share.

Other problems that make farmers not interested in selling their rubber in the auction market are 1) transportation fees charged to farmers. 2) if the rubber from the farmer is low quality, it will not be bargained and sold in low Price 3) if the rubber quality is better, farmers choose to sell directly to the factory at a higher price. The auction market's existence is to improve farmers' income by normalizing the price due to open alternative market and quality improvement. Another advantage for farmers is the auction market to be a place of interaction between farmers, share information, and use the government to give the message and counselling.

The rubber export rate fluctuation with the rubber price in the auction market has the same pattern. (Figure 2). Rubber price is fluctuating in-between times, and there is a tendency to rise after 2015. The rubber price accepted by the farmer in the auction market is different from the export price. Two things cause this situation: first, the rubber quality from the farmer is still low, and the second is the structure of the auction market in Jambi Province, which is less competitive.

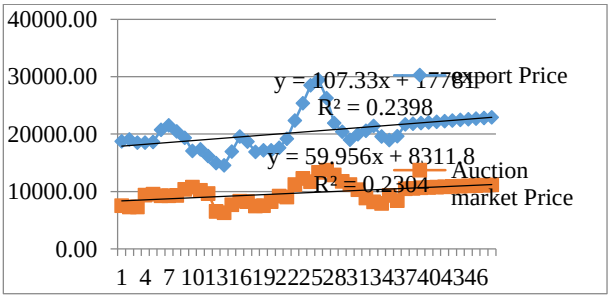

Figure 2. The Rubber Export Rate Fluctuation with the Rubber Price in the Auction Market

Even though it tends to fluctuate, the fig 2 shows that rubber has enormous potential, the markdown at the international level beside the external factor, which is a little down, and the declining demand for the tire in the automotive industry speculators in the rubber futures market. Based on the export price trend, rubber price is likely to increase, but slowly, not more than $2.5/kg. Meanwhile, the rubber price in the auction market assumes that dry rubber content does not over 60 percent of the price given to farmers at the range of less than $ 2/kg.

In Jambi, the five rubber processing businesses have some proportional market power and use it to rig the prices they are paying for their suppliers. It has led to a non-monopolistic market situation; the farmers have missed out 2.25% of revenue [13]. The suppliers get the part of raw Material (*Bokar*) from the auction market. The suppliers have some informal contract with the factory to provide the raw material. Sometimes, in the auction process, suppliers also have hidden appointments with other buyers who will be the winner with unofficial approval from the committee. But smallholders who followed the auction market usually got a better price if they sell to "*Kapuik*" (local trader). Smallholders usually face liquidity restriction, so always keep a hurry to sell

the "*Bokar*" in another hand, smallholders who store the raw material deal with a proper space to put the raw material before the farmers market to the suppliers

According to [14], efficient warehouse receipt financing allows farmers to avoid dealing directly after harvest when prices fall. This process encourages storage by reducing costs and increasing liquidity across commodity chains to reduce the risk of price volatility. By providing access to farmers on financing for warehouses, receipts are expected to increase the ability and incentive of farmers to invest in production. But in fact, most of the smallholders encounter with the financing problem. This problem also happens to smallholder both in Bungo and Tebo regency.

One indicator that marketing is doing well addressed to the farmer share. The analysis shows that farmers in Jambi Province only get 40-60 percent from selling their rubber in an auction. This condition explains the vulnerability of the farmer's position. One of the reasons is farmers who do not optimally role their marketing function. The marketing agent only enjoys the plus point of rubber production. (Figure 3)

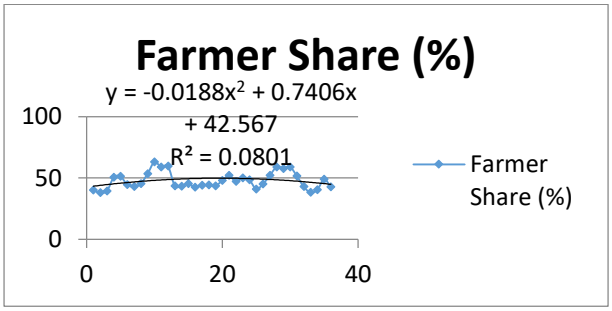

Figure 3. Farmer Share Who Sells In Auction Market

The elasticity of transmission price shows the influence of price changes in farmers' level following the auction market. Based on the elasticity calculation of the elasticity market in the rubber auction market of 2.85. This figure indicates the rate of price change at the consumer level is greater than the price change at the farmer or producer level. It also describes an inefficient marketing system.

The problem of low farmers' sharing who are following the auction market from export prices that occurred in Jambi Province in particular and Indonesia, in general, can be seen from the price transmission. Whether the price change at the exporter level or not. Result of analysis of the influence of price change to farmer share in figure 4.

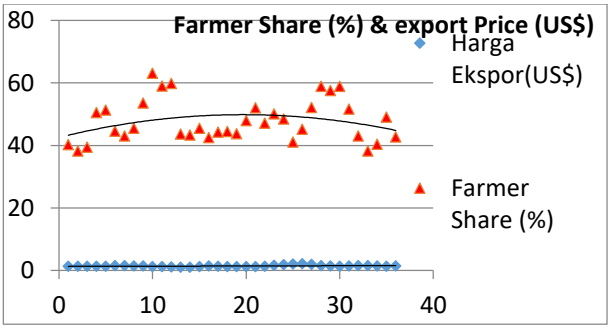

Figure 4. Farmer Share and Rubber Export Price

Figure 4 above shows whether there is an influence on farmers' selling price, but the effect is minimal. This situation indicates a change in price increase at the exporter level transmitted small to farmers who follow the auction market. There is a tendency for the purchasing system that the merchant approaches the system. Likes with farmers will not sell their *bokar* to the auction market and the trader price. The limited facilities and infrastructure, access to capital, and access to market information caused farmers could not control the price development sustainably [15], [16].

4. CONCLUSION

The rubber auction market is an alternative marketing distribution for farmers to get a more reasonable price with good raw material quality. Farmers who follow the auction market get of 40 to 60 percent farmer share. Price changes at the export level are transmitted very little to farmers, and farmers' effect is shallow.

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