

Investigating the Market's Behavior of Curly Red Chili in Bengkulu Indonesia Using Price Formation and Transmission Elasticity Model

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Abstract—Curly red chili is one of the strategic agricultural products in Indonesia, especially in Bengkulu, and its distribution process is an essential aspect. This process consists of market participants' behavior and price formation. This research aims to investigate the curly red chili market behavior and to analyze the price formation and price transmission elasticity in Bengkulu Province. Panel data were obtained from retailers and farmers during a month. Data were analyzed using qualitative descriptive analysis for market behavior, while linear regression was used for the factors affecting price formation and price transmission elasticity. The result of market behavior analysis indicates that collecting traders buy the chili from farmers, then sell it to the next level sellers without any treatment. If the farmers have no debt and price agreement, they negotiate the price with the traders. On the other hand, if the farmers have a loan and there is a price agreement, the price is determined by the moneylender. Furthermore, the chili price at retailers is formed by following the price change on the previous day, and it is also influenced by the price at previous traders. It can be concluded that the marketing system has a vertical effect and backward linkage between its elements. The chili price transmission elasticity is 0.675. This empirical result concluded that the rate of price change by 1 per cent at the consumer level would cause a price change of only 0.675 per cent in the trader stage. Thus, the market system is inefficient, and it is competing imperfectly.

Keywords— Market behavior; price formation; chili; price transmission elasticity.

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I. INTRODUCTION

The price of essential commodities or goods is monitored periodically by the government. This is inseparable from the role of government as a regulator and controller of the economic system. If the price of basic goods increases, it will trigger market inflation, and then more negative occurrences will follow because of inflation. Theoretically, inflation is a symptom of an increase in the price of goods and services that are general and continuous in a certain period [1]. This condition needs to be controlled by the government through various programs to maintain market stability.

Nevertheless, the exaggerated attention of the government is not allowed. The excessive policies will interfere with market mechanisms that adhere to an open economic system like Indonesia. Changes are very understandable (especially prices), and it depends on the equilibrium level between supply and demand. Price changes and price formation occur due to market mechanisms in which there is interaction between actors. The behavior of producers and traders in raising or lowering prices will impact the price received by consumers. Likewise, with more or fewer participants being

involved, commodity prices are expected to be higher if the commodity distribution chain is getting longer [2].

The price growth of goods and services in the city of Bengkulu during June 2015 is recorded to increase. This is reflected in the rising value of the Consumer Price Index (CPI) in June 2015 (CPI 2012 = 100) of 0.89 per cent. This situation is lower than the previous month's inflation of 0.38 per cent [3]. Furthermore, based on the consumer price index data issued in every expenditure group in Bengkulu Province in June 2015, each expenditure group contributes to inflation and deflation as follows: (1) Foodstuff category is 0.7443 per cent, which is the highest share of inflation compared with other spending groups; (2) Group of ready foods, beverages, cigarettes and tobacco amounted to 0.0606 per cent; (3) Expenditure groups such as clothing also contribute to inflation of 0.0415 per cent; [4] Recreation and sports are 0.0316 per cent; (5) Health is 0.0093 per cent; and (6) Housing, water, electricity, gas and fuel are 0.0081 per cent. While the expenditure groups contributing to deflation (-0.0035 per cent) are education, transportation, communications, and financial services [3]. One of the most

essential commodities is curly red chili. It has the highest price increases, which contributes to inflation, and ranks as the most important commodity compared to other commodities in Bengkulu City, especially in June 2015 (0.2303 per cent).

The price of agricultural products tends to be fluctuating. During the harvest season, the cost can be meager. On the contrary, in the dry season, it can be expensive. Unreasonable prices usually only benefit speculators, not farmers, and specific traders manage stocks very well and carefully [4]. This condition makes the market inefficient because it only provides one-sided benefits. Consumers must pay a high price, but farmers do not receive enough profitable margins. On the other hand, traders make maximum profits, and they play a dominant role in determining the prices and controlling the market. These circumstances will form a market structure.

The market structure refers to the characteristics of the market, either organizational or competitiveness, that describe the nature of competition and the pricing policy by traders in the market [5]. Market structure correlates with price transmission. The crucial variable affecting market structure is regulation. Restrictive regulations on entry barriers in the retail sector and the relative importance of the sector tend to promote symmetric farm-retail price transmission [6]. While, another study in the Czech Republic shows that in the short term, price transmission is influenced by price changes at each level of market participants, from processors to consumers [7]. The price transmission will conduct a market actor to present moods or actions, which is known as market behavior [8].

Market behavior analysis has two different views of analysts. One group believes that by studying current market psychology, as displayed in price action, future market psychology becomes predictable. In contrast, another group says that it could be limited predictability with the certainty of occasional *Black Swan* events. Behavioral analysts of markets abandon traditional economic inputs in favor of more empirical proof of intention. They argue that market action was displayed directly in price movement [8]. Behavioral analysts of markets focus entirely on the psychology of actual market participants and how their present moods control market price movement [8]. There is also a significant correlation between market structure and its behavior [9].

The increase in curly red chili prices is always associated with the inflation level in Bengkulu Province. Hence, it is also considered necessary to conduct a study to find out how the market behavior determines the price formation of the market in the production center of curly red chili in this area. The objectives of this research are to investigate the market behavior, and then to analyze the price formation and price transmission elasticity of curly red chili in Rejang Lebong Regency, Bengkulu Province, Indonesia.

II. MATERIALS AND METHOD

This research location was in Rejang Lebong Regency, Bengkulu Province, Indonesia. The location of the study was determined intentionally. The main consideration was that Rejang Lebong Regency is a center for curly red chili production with the largest planting and production area in Bengkulu Province [10]. Even some neighboring provinces also import this commodity from Rejang Lebong.

Geographically, Rejang Lebong Regency has appropriate natural conditions for curly red chili cultivation, so this region can produce quite a lot with high productivity throughout the year.

The marketing of curly red chili originated from Rejang Lebong and reached the entire Bengkulu Province, instead of to neighboring province, the Province of South Sumatera, and West Sumatra. Therefore, the marketing channel becomes overly complicated. In some research cases, the marketing system of this commodity, from the production place to Bengkulu City, passes along the distribution chain and involves many actors. Consequently, the marketing benefits taken by market participants will be more incredible and ultimately affect the price level received by farmers and consumers.

The study was conducted from June - July 2016 during a month (30 days of data). The respondents were nine respondents which consist of retailers and farmers. They were chosen purposively. Because the type of commodity traded is the same and originated from the same location and same target market, we assume that the number of respondents is considered capable of representing the population. Reseller respondents for the analysis of price formation are retailers in Pasar Atas Curup, Rejang Lebong who sell curly red chili every day for 30 days without a break. Furthermore, the respondent for the analysis of market behavior was determined by using the method of snowball sampling to find out the respondents of collector traders and farmers through information from previous respondents. The types of data are primary and secondary data. Primary data is panel data for one month. This data was obtained from the market survey by conducting interviews assisted by a questionnaire. Secondary data was obtained from offices or agencies closely related to this research.

A. The Market Behaviour

Market behavior analysis is an analytical tool to observe market behavior. This method uses a qualitative descriptive analysis approach by investigating the relationship between the seller and buyer of the commodity in a market system. This analysis emphasizes the practice aspect in the price-determining process, the availability of its information, the impact on prevailing price [11], and the level of knowledge about the market [12]. This approach has been conducted in much agricultural product research, such as cashew market behavior in Southeast Sulawesi [13], palm oil marketing model in North Sumatera [14], and canned tuna demand in the United States [15]. Moreover, market behavior analysis also has been used for investigating consumer attitudes toward stores selling only sustainable seafood in seven European countries [16], and analyzing consumption patterns in oyster markets [17]. Besides, this approach was used in several fields of research subjects besides agricultural products, such as oil price behavior in Pakistan [18], transportation [19], credit market [20], and financial market [21]. Another aspect of market behavior, marketing channel will be described in general. It is additional information about how the chilies are distributed from land to the consumer's house. So, people will gain more information related to which actors are involved in the chili market in Bengkulu Province, Indonesia.

B. The Price Formation

Price formation analysis is answered by adopting and modifying the regression analysis model. The price-forming equation for curly red chili is simpler because no government policy is aimed at affecting the price of red chili. So, the formation of prices relies more on the variables of price, production, and distribution. The equation of factors affecting price formation of curly red chili at the retail level follows Peltzman model [22]:

$$PCt = \tau_0 + \tau_1 PCt - 1 + \tau_2 Q'Ct + \tau_3 POt + \varepsilon ct \quad (1)$$

PC_t represents the price of curly red chili at the retail level. PC_{t-1} is the price of curly red chili at the retail level on the previous day. $Q'C_t$ is the difference (gap) between supply and demand, and PO_t explains the price of curly red chili at the level of the previous trader/collecting traders/wholesaler.

C. The Price Transmission Elasticity

The analysis of price transmission elasticity is an analysis that describes the extent to which a good's price changes at one market level to the price changes of goods at other market levels. It could be how the price condition in one market affects price in another market [23, 24, 25, 7, 26, 27]. Price transmission also omits consideration of how technological change in the marketers' production function and international trade in the retail of farm products [28].

Mathematically, the price transmission elasticity is formulated as [23]:

$$Et = \frac{\delta Pr / Pr}{\delta Pf / Pf} \quad \text{or} \quad Et = \frac{\delta Pr}{\delta Pf} \times \frac{Pf}{Pr} \quad (2)$$

Pf is a function of Pr . Therefore, the equation will be:

$$Pf = a + b Pr \quad (3)$$

And, b can be solved as follows:

$$b = \frac{\delta Pf}{\delta Pr} \quad \text{or} \quad \frac{\delta Pr}{\delta Pf} = \frac{1}{b} \quad \text{so} \quad \frac{1}{b} \cdot \frac{Pf}{Pr} \quad (4)$$

The criteria for price transmission elasticity are as follows [23]:

- If $Et = 1$, the rate of change in the price at the end consumer level equals the rate of price change at the collecting merchant level. It means that the market faced by all the trading agents is perfect competition, and the marketing system is efficient,
- If $Et < 1$, then the rate of price change at the end consumer level is less than the rate of price change at the collecting merchant level. The market structure faced by all market participants is imperfect competition, and the prevailing marketing system is inefficient,
- If $Et > 1$, then the rate of price change at the end consumer level is greater than the rate of price change at the collecting merchant level. This situation means that the prevailing marketing is inefficient, and the market faced by the market participants is competing imperfectly.

D. T-Test

This test is used to identify the significance of the influence of each independent variable on the dependent variable [29, 30] or to differentiate two variables [31]. In this case, the dependent variable is the price at the retailer level (PC_t).

While, the independent variables are: the price of curly red chili at the retail level on the previous day (PC_{t-1}), the difference (gap) between its supply and demand ($Q'C_t$), and the price of curly red chili at the level of previous traders or collecting traders/wholesalers (PO_t). The hypotheses are H_0 will be rejected, and H_a will be accepted if there is a significant impact of an independent variable on the dependent variable. Otherwise, if there is no effect on the dependent variable, the H_0 will be accepted, and H_a will be rejected.

III. RESULT AND DISCUSSION

A. Market Behaviour

The practice of exchange conducted by seller and buyer cannot be separated from the pricing strategy of the standard operating procedure of price-determining. It is ideally based on farmer recommendation and marking-up on production cost. However, collecting traders or wholesalers usually disagree with the price wanted by farmers. Then there will be bargaining between collectors and farmers until a price agreement is reached. The fact is that bargaining in pricing is only conducted by certain farmers who have no attachment or debt to other parties, such as the owners of capital. In this case, they are the collecting traders, locally called *Toke*. Farmers, whose source of capital comes from the loan, must sell their crops to the capital owner at a fixed price and at the amount as mentioned in the contract.

There are two types of marketing patterns in the research location. First, the process of buying and selling chilies is that farmers sell all their chilies to collecting traders because of bonded cooperation. Mostly, the farmers will receive funds from the traders for running their farms, and there is loan interest. The consequence is that the farmers must vend all their products to the collectors every harvesting time during the cooperation period. Usually, it is also followed by a price agreement. Price agreement means that the price confirmation has been done before the harvest time according to the current price when the contract is signed. Similarly, other marketing institutions that have inter-institutional cooperation relationships use the same pattern. In this research case, there is cooperation between collecting traders and wholesalers. So, the existing forms of cooperation are between farmers and collecting traders and between market institutions. Some parties finance or provide capital to farmers without any agreement. There is no attachment, and it is purely a capital loan. However, in some cases, even if there is no attachment, the farmers keep selling their chilies to the capital providers. The key factor of this informal agreement is trust. This is normal and hereditary from generation to generation in the village community in Bengkulu.

The physical function of the marketing system of curly red chili in this research is the distribution. There is no special treatment in the chili sorting activity. Only broken chilies will be eliminated, and it is conducted in collecting traders. The chilies bought by the collecting trader from the farmer are transported from the field to collecting the trader's warehouse. The cost of this movement is borne by the trader. Then the chilies are distributed to other traders (wholesalers) with a higher price level. The activity costs, such as packaging, storage, drafting, loading, sorting, and others, are

not specifically counted by the collecting trader, because basically when they set the selling price, the profits are taken from the account.

The market behavior of curly red chili in Rejang Lebong Regency is different if it is compared with another reference [32]. This research analyzed chili market behavior in Bayung Gede Village, Kintamani Sub-District, Bangli Regency, Bali. Collecting traders perform facilities functions like sorting and packaging by grouping the chili based on its quality to facilitate the sale, which aims to minimize the risk of chili damage while reaching the destination. Whereas, the market behavior in Rejang Lebong Regency does not perform the facilities function as same as in Bangli. Dissimilarities cause behavior differences in transaction agreement habits between the traders. In Rejang Lebong Regency, chilies, which have been purchased from farmers by collecting traders on the same day, will be bought directly by the next-level merchants (wholesalers). The purchase transaction process also takes place in the collecting merchant's warehouse. In some cases, the transaction is done only by phone. Then, the chilies are directly delivered to the retailer in the nearest market or delivered to the district located near the original location. Some are distributed to West Sumatera and South Sumatera Province (not analyzed). Nonetheless, the strategy in determining the selling price in both research sites is relatively the same, e.g., bargaining and price agreement.

The marketing institutions of curly red chili in the study area consist of farmers, collecting traders, wholesalers, and retailers. There are three flows of curly red chili distribution. First, chilies are directly sold by the farmer to the end consumer. Generally, this type of farmer goes to the nearest market to sell their product, face to-face with the end buyer. Second, chilies are bought by collecting traders. The traders will go to the farmland and collect the chilies by themselves. The amount of product collected depends on the contract. Then, from these collectors, the chilies will be distributed to retailers and end consumers (commonly, the consumers come to the warehouse). Some consumers buy more because they have an event or family party, and they will pay a lower price. And the third, chilies flow from farmer to collector; then they are sold to a wholesaler. After that, chilies will be distributed to retailers, and finally, they are sent to the consumer.

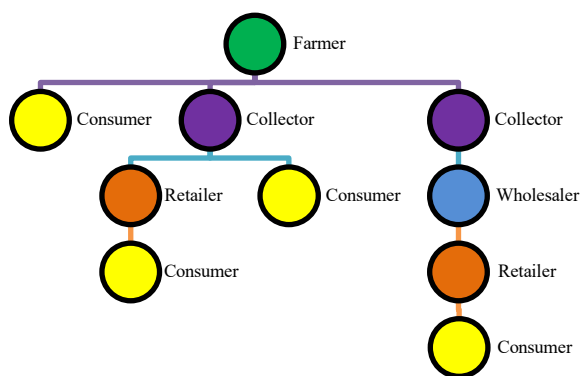


Fig. 1 Marketing channel of curly red chili in Bengkulu

In fact, there are so many farmers and only several traders in one location. It is a normal characteristic of the farm business in the production center. Typically, this situation will create an imperfect competition market system, and the form

of market structure is oligopsony. The oligopsony market model tends to provide greater power to buyers because they are fewer in number than sellers. Thus, the decision on the price will be in the buyer's hands. Many pieces of research evinced that the agricultural product market, especially raw products, shaped oligopsony power. A study in Haiti investigated the determinants of oligopsony power exerted by coffee exporters [33]. Empirical results indicated that both institutional arrangements and domestic market conditions have significantly formed oligopsony power. Another research in China found that high barriers of entry and stringent license regulations reduce competition in the market, then it creates an oligopsony structure [34]. The research results in Ethiopia in 2018 and Estonia in 2019 exposed that cooperative formation helps farmers improve their bargaining position in the market [35, 36]. This strategy reduces the power of oligopsony system in these countries.

B. Price Formation

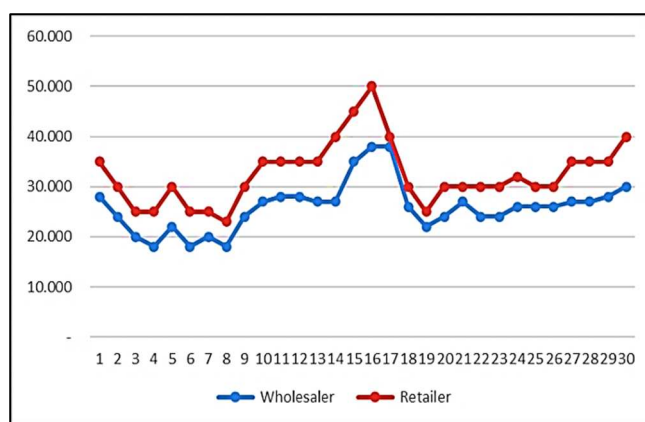


Fig. 2 Price development of curly red chili by day

TABLE I
ESTIMATION RESULT OF PRICE FORMATION FACTORS

Variable	t-count	Prob.
PC_{t-1}	2.593444	0.0112
PO_t	16.052000	0.0000
QC_t	1.075519	0.2852
F-test		149.731900
Prob(F-test)		0.000000
R-squared		0.839311
Adjusted R-squared		0.833706

PC_{t-1} : The retail price on the previous day

PO_t : Price at previous traders/collecting traders

QC_t : The difference between the supply and demand of curly red chili

This data has been collected from 15 days before and 15 days after Eid Al-Fitr. The peak point of chili price is one day before Eid. The market reaches the highest price because of the high volume of chili's demand. Whereas, on a normal day of demand and supply, the market will create a normal price level. Largely, agricultural product prices are volatile [7], including curly red chili. In several situations, the last price will follow demand and supply condition in a market; then the change will be transferred to backward linkage traders. In some cases, it will flow and reach the farmers, but some are not, particularly at a higher price. Afterward, the data were

analyzed by Data Panel Regression Analysis using the E-views program. The results of the estimation are presented in Table 1.

C. Retail Price on The Previous Day (PC_{t-1})

The price at the retailer level on the previous day (PC_{t-1}) according to the estimation result has a significance value (probability) of 0.01. Since the value of significance is 0.0112 or less than 0.05, H_0 is rejected, and H_a is accepted. It means that the price at the retailer level on the previous day (PC_{t-1}) partially has a significant effect on the retail price on the current day (PC_t). This condition tends to happen because the price on the previous day will become information or reference of the pricing decision on the next day. The price difference between two consecutive times is also considered a variable in price formation in the electricity market [37]. The tendency of price increases in previous times will motivate traders to increase prices to a certain point to gain maximum profit continuously. Vice versa, the occurrence of price reduction, massively and periodically, on certain products will make traders inevitably reduce the price of these products. The decision to maintain price levels at fluctuating market conditions is precisely an unsuitable strategy.

D. Price at Collecting Traders (PO_t)

The price at the previous trader level or collecting traders (PO_t) according to the estimation result is significant at the significance value (probability) of 0.0000. If the value of the significance level is less than 0.05, so H_0 is rejected, and H_a is accepted. It means that the independent variable of the price at previous traders/collector traders (PO_t) has a significant effect on retailer price (PC_t) in Rejang Lebong Regency. This result corresponds with the research on the *Distribution channel and pricing of red chili commodities in Purwokerto* [2]. The finding of the research explains that the change in price received by the end consumer is influenced by the price formed in the transaction between collectors and retailers. It means that price formation at the retailer level is highly influenced by price decisions at the collecting trader level.

Based on the observation result in Rejang Lebong Regency, the reason for the effect at a retailer price largely comes from the previous trader or collecting trader is a direct impact of pricing strategy for gaining profit margin on sales. The retailer plays a normal reaction. When they must sell chili or other products, they must buy first, and this buying activity will cost them. Then, if they want to collect profit from it, they must sell it at a higher price than the buying price. Hereafter, the chili price will be higher and higher at the retailer level when they must pay higher than the previous trader. The pricing decision of collecting traders is caused by any changes or movements of price in the center market Kramat Jati in Jakarta, as the reference market of agricultural products in Indonesia. So, the result of changing the price is not associated with the cost increasing or decreasing at the farm level. That is why the transfer price is always unfair for farmers because it is stopped at traders (collecting traders or wholesalers). This situation reflects that the collecting traders play a significant role in the formation of curly red chili prices from farmers to end-consumers.

E. Difference between Supply and Demand of Curly Red Chili (QC_t)

The difference between the supply and demand of curly red chili (QC_t), according to the estimation result, is not significant (probability), because the value of significance is 0.28 (> 0.05), then H_0 is accepted, and H_a is rejected. It means that the independent variable of the gap between the supply and demand of curly red chili (QC_t) partially has no significant effect on the retail price (PC_t). This finding is also agreed by research which has been done in Purwokerto [2] In some cases, price change (fluctuation) in a market, mostly agricultural product market, is not driven by the end market needs, but it depends on the ability in transaction of chain traders to determine the sale and purchase price. Other inventions in European Union countries concluded that electricity use failed to show significant impacts on housing prices in 2014, but it was significant in 2016 [38]. Therefore, in a specific market situation, the result of curly red chili market system research could have a different conclusion.

F. F-Test

From the estimation results presented in Table I, the independent variables, such as retailer price on the previous day (PC_{t-1}), the price at a previous merchant (collecting trader) (PO_t), and the difference between the supply and demand of red chili (QC_t), simultaneously affect the price at the retailer level (PC_t). The significance value (probability) of the F-test is 0.0000, less than 0.05, then H_0 is rejected, and H_a is accepted. It can be concluded that any change (increase, constant, or decrease) in the value of the independent variable will also have an impact on the change in the price of curly red chili at the retailer level in Rejang Lebong Regency.

Furthermore, the number of R^2 is 0.8393, which means that the model can be explained by all the independent variables as much as 83.93 per cent, and 16.07 per cent is described by other variables which are out of the model, such as substitution good price, good complementary price, product quality, or the season. In macro study [39], some common factors of price formation include following: the number of sellers and buyers (less market participants are generally associated with decreased price competitiveness); the homogeneity of type, variety, quality, and characteristic of end-consumers (more significant product differentiation is mostly associated with greater price differences among products and markets); The number of close substitutes (more close substitutes means buyers have more choice and the price will be more sensitive); The storability of commodity (more incredible stock gives the traders more options in terms of when and under what conditions to sell their products); The transparency of price formation, e.g., open auction versus private contracts (greater transparency prevents price manipulation); The ease of commodity transfer between consumers and traders and among markets; and finally, Artificial restrictions on the market processes, such as government policies or market collusion from a major participant (more artificial restrictions tend to prevent the price from reaching its natural equilibrium point). Some restrictions (import barriers, limit supply, and keep prices high), while other types of restrictions, such as market collusion by a few large buyers, may suppress market prices. Further research can analyze those variables.

G. Retailer Behaviour in Pricing Strategy

Retailers play a crucial role in distributing food products, in this case, curly red chili, to the hands of consumers. This role certainly encourages retailers to conduct various strategies and to maintain a business profit. A strategy that can be performed is to determine the selling price of curly red chili. Based on the research findings, the selling price of curly red chili at the retailer's level on the current day is influenced by the selling price on the previous day. It is also influenced by the purchased price received from the collecting traders. The selling price of chili set by the retailer is solely to take profit margins from the difference between the purchase price (from the collecting trader) and the selling price (consumer). So, there is no specific strategy for pricing. Commonly, prices are formed due to the size of the supply and demand of goods on the market. However, for the curly red chili commodity in Rejang Lebong, the results of the research show that the formation of curly red chili prices at the retailer's level is more caused by price decisions at the level of the previous trader or collecting trader. Otherwise, the gap between demand and supply does not influence the retailer in deciding what price will be offered to end-use consumers. Other research informs the development of a structural model of the vertical market chain to study the relationship among retailers and producers in a prototypical fresh produce market. This research results show that alternative pricing strategies to markup pricing exacerbate farm prices and income volatility of retailers [40]. Another research from Italia exposes that price promotion is the best strategy to improve national pasta brands rather than intervening with regular price changes [41]. This research also used panel data which were analyzed by frequency approach.

H. Price Transmission Elasticity

Analysis of price transmission elasticity is an analysis that illustrates the extent to which changes in the price of an item at one level of the market change the price of goods in place or at another market level [23]. Based on the research observation, the average price of curly red chili at the consumer level is Rp 30,788.889, and at the level of collector, traders are Rp 25,055.556, in Rejang Lebong Regency. So, the elasticity of price transmission is:

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

$$\begin{aligned} Et &= \frac{1}{b} \cdot \frac{Pf}{Pr} \\ &= \frac{1}{1,204} \cdot \frac{25055,556}{30788,889} \\ &= 0.675 \% \end{aligned}$$

From the results of the marketing elasticity analysis (Et) calculation above, the Et value of curly red chili in Rejang Lebong, Bengkulu, Indonesia is 0.675 per cent. Et value is less than 1. It means that if there is a change in the price of 1 per cent at the consumer level, it will cause a change in the price of 0.675 per cent at the level of collecting traders. This result follows [42] study stating that the price transmission on agricultural commodities marketing is relatively weak because the traders can control the purchase price of the farmer. So, although the price at the consumer level is fixed,

the trader can enforce the purchase price to farmers to maximize their profit.

Similarly, if there is a price increase at the consumer level, then, traders can forward the price increase to farmers imperfectly, in other words, the price increase received by farmers is lower than the price increase paid by consumers. This price transmission pattern is not beneficial to farmers, because the farmers do not fully enjoy the increasing price which occurs at the consumer level. Otherwise, if the price is declining, farmers will be directly forced to receive a lower price. The results of the price transmission of curly red chili in Rejang Lebong Regency are meaningful, and they prove that the prevailing marketing system is inefficient.

Furthermore, the market condition faced by all market participants is imperfect competition. Research on the price transmission of red chili also has been conducted in Europe [43]. The research concludes that the response of producer, wholesale, retail, and international trade prices shocks at prices in upstream or downstream stages in the Dutch onion and red chili supply chains. Another research focused on red chili prices also has been done in Banyumas Regency [44]. This research showed that the price of red chili pepper, onion, and garlic was volatile. Another research explaining the case in Europe in the 1990s concludes that the competition in the agricultural and food marketing system was driven by the growing market power of retailers [45]. However, the type of competition will depend on the market structure and performance [46]. The crucial point in this study is the concern about how imperfect competition at successive stages of the agricultural and food marketing system might interact with vertical linkages between different levels of traders [47, 48]. Therefore, it affects the transmission of exogenous changes in the price of raw agricultural products through to the prices of food products at retail [49, 50].

IV. CONCLUSIONS

The market behavior of curly red chili in Rejang Lebong Regency is described as chilies being purchased from farmers and then directly sold to retailers in nearby markets and neighboring districts. Meanwhile, the strategy of price-determining is negotiation. Farmers will have a bargaining position if there is no debt bondage to collecting traders or wholesalers. In addition, some cases are based on price agreements between farmers and collectors. For debt-tied farmers, the price is determined by the capital owner as mentioned in the contract. In a certain sense, prices are formed through two mechanisms, namely the market mechanism in general (the equilibrium point of demand and supply), and the price-fixing agreements.

Price formation is an information-gathering process that ensures that market participants (traders and consumers) know enough about the prices of the goods being traded in the market so that they can make well-informed decisions. The price of curly red chili at the retailer level is formed by following the retail price of the previous day. The retailer's price change is also influenced by the price at the previous trader/collecting trader level. It can be concluded that the marketing system has a vertical effect and backward linkage between its elements.

Last, the value of price transmission elasticity of curly red chili in Rejang Lebong Regency, Bengkulu Province,

Indonesia is less than 1 ($Et < 1$). As a result, the marketing system in this area is inefficient, and the market is competing imperfectly between its trading participants.

Curly red chili is one of the most popular ingredients in Indonesia, particularly in Bengkulu. Thus, this commodity has a strategic position in the local market. Every single point of price movement, normally, has an impact on economic circumstances, including inflation level. For that reason, in some cases, it is necessary to involve government aid to maintain the stability of the market condition of the agricultural product price and inventory.

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