

UDC 339

## PATH ANALYSIS, TRADE MARGIN, AND ACCESS TO COCOA PRODUCTS IN DONGGALA REGENCY OF INDONESIA

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### ABSTRACT

The aim of this study is to describe the management of cocoa farming business including the path analysis, trade patterns, and trade margins of cocoa commodities in Donggala Regency, Central Sulawesi, Indonesia. This quantitative descriptive research was centered in the area of Donggala Regency, Central Sulawesi Province. The primary data collection in this study was carried out through observation, questionnaires, and Focus Group Discussion (FGD) while the respondents were selected with a purposive sampling technique. The result of the research is presented in the form of a cocoa trading path where farmers sell the cocoa commodities to village collectors with the aim to sell the commodity quickly. Farmers who sell directly to collectors in the city are those who have built networks with traders or collectors in Palu City and have been known as regular customers. Farmers who build this partnership get advantages in the form of funds or money from the collectors in the city. Farmers who sell large quantities of production go directly to wholesalers in Palu City to get more margins and profits. In this case, they compare it with the sale at the level of village collectors or district collectors. On the other hand, high transportation costs make some farmers sell their goods to village collectors, especially in remote areas such as Rio Pakava district which has the highest level of production. The results of the profit calculation are obtained through the first trading model by IDR 1,782/kg, the second trading model by IDR 1,989/kg, the third trading model by IDR 993/kg, and the fourth trading model by IDR 1,383/kg. The total margin obtained in the first trading model is IDR 3,800/kg while the second trading model is IDR 3,000/kg, followed by the third trading model by IDR 3,000/kg and the fourth trading model by IDR 1,000/kg.

### KEY WORDS

Market access, trading pattern, profit, margin.

Cocoa is one of the plantation crops which are mostly cultivated in community plantations. In order to support the development of potential cocoa commodities in Sulawesi as the largest cocoa producing region in Indonesia, the Central Sulawesi Provincial Government, especially Donggala Regency, continues to encourage the development of the industrial sector to increase the value of domestic raw materials. As one of the leading products in Donggala Regency, the cocoa processing industry becomes one of the priority sectors that is being maximized in the area. To achieve this target, competent human resources (HR) are needed in this field.

In the context of developing products and improving the welfare of the farmers, the transmission of market integration information to the farmer is needed in two ways. *First*, the formulation of policies to improve the domestic cocoa trading system, especially for central regions. *Secondly*, the formulation of poverty reduction policies in the rural areas of Central Sulawesi. In line with the statement from Ravallion (1986), an empirical assessment of the speed of market adjustment on spatial price differences helps solve the debate about the policy of market intervention and non-intervention from the government. Furthermore, the information about market integration can provide specific evidence about market competition, the effectiveness of decision making (Cartel and Hamilton, 1989 in Sexton *et al.*, 1991), and the efficiency of pricing (Bucola, 1983 in Sexton *et al.*, 1991).

Baga (2003) in KPPOD (2013) described the agribusiness system in Indonesia in a more detail analysis. Speaking broadly, the agribusiness system includes subsystems

ranging from suppliers of production facilities, farming, processing, to marketing. To support the existence of an agribusiness subsystem, it needs research and development, information, education, training, counseling, consulting, insurance, and regulatory support. Research is important to be done so that the problems that particularly occurred in the farming subsystem can be overcome. In addition, the advancement of technology in the farming subsystem also essential to be realized. This applies similarly to the processing and marketing subsystem. Thus, each subsystem of agricultural business in the future can be more efficient and can increase its added-value (Yantu, 2005).

As a leading sector, the agricultural industry is greatly supported by the abilities and skills of the actors in carrying out each respective role in various subsystems. This includes the commitment to jointly develop the entire subsystems in the agricultural industry. All components in the agricultural industry subsystems that include organization, management, mechanisms, systems, and procedures from the production subsystem, post-harvest handling, up to marketing and distribution must be able to carry out its mission and functions fully and in harmony with the agricultural industry development (Ma'arif, 2000).

In general, the human resources (cocoa farmers) in Donggala Regency still do not have good and specific managerial abilities. The first fundamental problem experienced is the development and improvement of human resources that are highly dependent on agriculture extension with minimal facilities and a limited number of officers in handling the plantations. In fact, this condition is similar to the findings from Jaya (2013). The second problem is seen in the productivity that is not optimal due to the lack of technological mastery and the lack of skills from the farmers. According to the research of Bilhak & Ma'arif (2014), Ibrahim and Zailani (2010) found a similar situation where most of the farmers were self-taught. It was very rare to be found that farmers' skills were upgraded in a particular expertise improvement program. Number three, there is a lack of creativity and innovation in product processing. The processing industry is limited especially to post-harvest handling and initial processing like fermentation. Furthermore, the next problem can be found in the intensity of continuous education and training for farmers. Education and training are needed so that they can create better agricultural production. This is also recognized by Walker & Hallinger (2015) and Jaya (2014) in their research. Not only that, market access and market expansion are still weak. The majority of the cocoa commodities exported are in the form of raw materials. Until 2010, 80% of Indonesia's cocoa exports were still in the form of cocoa beans (Suryana et al., 2014). The number of cocoa beans export that is larger than processed cocoa export shows that Indonesia has lost a lot of added value potential from the cocoa processing industry. This happens due to the big difference in the price of cocoa beans and processed cocoa.

Based on the conditions and problems faced by cocoa farmers that have been described above, the role of stakeholders and local governments is important to improve and prepare a strategy and policy framework that provides strong support to create conducive market access.

## LITERATURE REVIEW

### Basic Concepts of Distribution

Distribution is one of the marketing strategies aimed at increasing sales and market share to support sustainable growth. As a strategic instrument, distribution policies can be used to manage the competition. Theoretically, a company can develop its distribution strategy based on the nature of the product and the strength they have or the strength they can get in the market operation.

Basically, the use of a selling-in strategy produces an effective and efficient job when reaching large numbers of consumers in a competitive market. Therefore, the use of distribution channels and selling-in management is one of the strategic focuses that companies must manage to produce positive sales performance (Ferdinand, 2004).

Adnan & Akuba (2016) revealed that the value chains in distribution are very useful for classifying, analyzing, and understanding changes in resources from raw materials to

finished products so that farmers can analyze the productivity and added value which in this case is cocoa. Cocoa is one of the dominant plantation commodities in the Boalemo Regency with an area of 2530 ha.

### **Economic Efficiency**

In agricultural business, there is the term of farming science which is usually interpreted as the knowledge used by someone to allocate available resources effectively and efficiently. It aims to obtain profits at a certain time. This is said to be effective if farmers are able to maximally allocate the resources they have and is said to be efficient if the utilization of these resources is able to produce output that exceeds input (Soekartawi, 2003).

Likewise, Andari & Indrajaya (2014) said that land area, capital, and labor simultaneously and partially had a significant effect on the amount of cocoa plantation production in Abiansema District, Badung Regency. The economy of scale in the cocoa plantation business in Abiansema District, Badung Regency is in a state of *increasing returns to scale* while the use of production factors such as land area, capital, and labor is in an inefficient condition.

### **Marketing Aspects**

Kotler and Keller (2009) defined marketing as a social process where individuals and groups obtain what they need and want by creating, offering, and freely exchanging valuable products with others.

There are several approaches that can be done to study the system of agricultural marketing. Sudiyono (2002) mentioned that first, there is a commodity approach. It is a simplification process done by focusing on one commodity only. The complexity of regional resources marketing such as the products from agriculture, estate crops, fisheries, and other sectors can be simplified. Secondly, there is the all-round approach that is used to study marketing in terms of classifying activities or services. This approach can be used to discuss certain functions such as processing, retail selling, transportation, consumption, and others. Third, there is a marketing institution approach that is used to analyze marketing in terms of the institutions involved in the marketing process. The purpose of this institution is to find out the structure that is efficient and has an influence on the costs associated with profit and loss. Last but not least, there is an economic theory approach that examines the marketing of regional resource products in economic theory using the concepts of supply and demand, shifts in supply and demand, and market balance.

The research on the integration of the cocoa bean market conducted by Yantu et al., (2010) pointed out that the changes in world cocoa prices and domestic cocoa prices at the regional level were fluctuating and statistically significant. However, the transmission of that changes in regional cocoa bean market and farmers' cocoa bean market was no longer significant and as a result, the cocoa bean market at the farmers' level is segmented. The fluctuating pattern of price transmission occurs in a market integration that is statistically significant in the long-term by which it happens at various levels of the cocoa bean market but not at the farmer level. Whereas in the short term, the integration of the cocoa bean market is not only weak but also in a degree of integration that is not statistically significant. The condition of price transmission, market integration, and degree of integration of the cocoa bean market in Sulawesi is running at farmers' level that is oligopsonistic. In such a market structure where there is no market spot, traders can dictate prices so that farmers are in a weak bargaining position. These farmers also do not have symmetrical information so that farmers decided to establish a communication or relationship with traders or collectors in the form of cooperation with institutionalized agents (Romano, 2009). Therefore, it is important to conduct an empowerment program for farmers that is related to the information of the cocoa bean market.

### **The concept of institutional farmers group**

At the field level, there are several non-formal rural agricultural institutions, one of which is the farmers' group. The Regulation of the Minister of Agriculture number 273 of 2007 stated that farmers group is "a group of farmers/ranchers/planters formed on the basis of shared interests, shared environmental conditions (social, economic, resources), and familiarity to improve and develop the businesses of the members".

These are the factors which determine the institutional development of farmers group:

- a. Organizational structure. The institutional structure of the farmers' group is illustrated in the Regulation of the Minister of Agriculture number 237 of 2007 which implies that its formation is accompanied by a division of tasks and responsibilities.
- b. Organizational Culture. Cultural values are important for farmers' group to preserve local wisdom that has been used by the farmers' group for decades or even hundreds of years. According to Baharsyah and Tjondronegoro (2007), local wisdom contains several distinctive elements because some of which come from spiritual values and norms (religion and belief), some are contained in the philosophy of life, and some have become a habit of life (mores) of the local community.
- c. Management. The system that has been developed by the cocoa farmers group collectively and individually is part of the economic-social relationship that must be implemented. This includes the sharing system between farmers (owners) and tenants as well as between owners/tenants and cocoa entrepreneurs. Likewise, the partnership-relationship between farmers group and partners group (entrepreneurs) has been regulated in the Decree of the Minister of Agriculture number 940/kpts/OT.210/10/1997 concerning the Partnership Pattern of Farmer Business.

### **METHODS OF RESEARCH**

This study is descriptive-quantitative research. Descriptive research is taken to describe the characteristics that exist and relevant to the variables studied. This study involved 16 regions in Donggala Regency, Central Sulawesi Province, Indonesia. The primary data in this study was collected through observation, questionnaires, and Focus Group Discussion (FGD) especially with cocoa farmers, traders, agricultural extension workers, and agricultural experts. As for the analytical method, this study used Marketing Margin which according to Haryani and Mulyaqin (2013) is formulated as follows:

$$MM = CP - PP$$

Description:

MM = Marketing margin

CP = Consumer price

PP = Producer price

### **RESULTS AND DISCUSSION**

#### **General Conditions of Donggala Regency**

Donggala covers an area of 5,275,69 km<sup>2</sup> and is divided over 16 districts namely Rio Pakava, Pinembani, Banawa, South Banawa, Central Banawa, Labuan, Tanantovea, Sindue, Sindue Tobusabura, Sindua Tobata, Sirenja, Balaesang, Balaesang Cape, Dampelas, Sojol, and North Sojol. Of the 16 districts, Rio Pakava is the largest district covering 872.16 km<sup>2</sup> or 16.53% of Donggala Regency. Whereas, the smallest district is Central Banawa which has an area of 74.64 km<sup>2</sup> or 1.41% of Donggala Regency (Donggala in Figures, 2014).

The position of Donggala Regency is adjacent to Tolitoli Regency in the North, to West Sulawesi Province and Sigi Regency and Palu City in the South, to Makassar Strait and West Sulawesi Province in the West, and to Sigi Regency and Donggala Regency in the East.

### The management of cocoa farming

The main objective of managing a cocoa farming business is to increase production so that the income of cocoa farmers can increase. Therefore, farmers as business managers must understand how to allocate resources or factors of production so that these goals can be achieved. The produced cocoa must meet the specified quality to be accepted by the market. One effort that can be done is to improve the quality of human resources (farmers) and mastery of science and technology concerning the agricultural industry and the quality of cocoa. Cocoa as one of the leading products in Donggala Regency is a capital that acts as competitiveness to meet the needs of the cocoa industry.

Farmers should master the technology of handling harvest, either before or after harvest, to obtain the best quality cocoa so as to get the best selling value. Conducting a human resources development program should be the main concern of various stakeholders in Donggala Regency to increase the capacity of agricultural industry actors thus making them able to compete with various other competitors (Riyanto et al., 2014).

Various forms of cooperation between government units, private sectors, and higher education institutions are very important to be carried out. From there, the opportunities in the policy implementation for the development of human resources for cocoa farmers can be carried out in an innovative and varied manner through the social community approach and concern to local wisdom.

### Path Analysis and Trading Pattern of Regional Cocoa Commodities

Kotler and Keller (2012) said that the channels of distribution (trade) are a series of interdependent organizations involved in the process of preparing a product or service to be ready for use or consumption. In economic activities, many producers do a collaboration with trade intermediaries to distribute their goods to the market. And then, the intermediary will form a trade channel. Not only act as a product distributor, but intermediary traders also channel information from consumers and vice versa. This pattern eases the burden of producers in distributing products.

Eventually, there are trading functions such as purchasing, sorting, storage, transportation, and processing in trading paths and patterns. Each trading path and pattern is in accordance with each financial capability thus it holds different trade functions. These differences are characterized by the activities and the scale of the business. For example, collectors have a task to buy and collect goods from direct producers and from intermediary traders. In general, the trading path in the agricultural business consists of 1). Short path; (2). Medium path; and (3). Long path. The trading path is illustrated in the following figure.

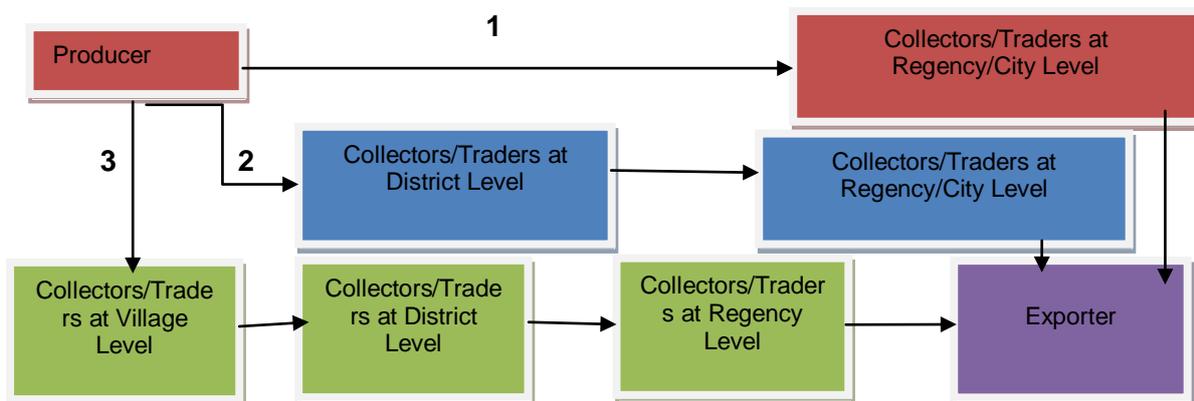


Figure 1 – The Model of Trading Path and Pattern

The short path shown in the figure above is the path that is used to distribute agricultural products from producers/farmers to collectors and from traders to exporters. Meanwhile, the medium path is used by producers/farmers to channel agricultural products from district level collectors to regency/city level collectors and to exporters. Moreover, the

long path is used to distribute products from producers to village level collectors, to district level collectors, to regency/city level collectors, and to exporters (provincial).

Agricultural commodities trading often takes a long process. Therefore, there are many traffickers and trading patterns involved in the trading path. This leads to an excessive trade clash. The extent to which the trading path or trading pattern depends on several factors as follows:

- a. The distance of producers to consumers, the longer the distance the longer the path;
- b. The speed of damage to production, products that are easily/quickly damaged must be immediately accepted by consumers, thus requiring a fast and short trading path;
- c. Production scale;
- d. The financial state of the producer.

By knowing the trading path and pattern of a commodity, there are several benefits that can be gained. It includes knowing which path is more efficient to be taken (if there is more than one option of the path). Besides that, it also facilitates the trading path and pattern to find the amount of margin received by each trading path and pattern involved from the trading system that occurs.

The trading path and pattern based on the stages of the trading process is described as follows:

1. Collectors. They are traders who buy agricultural products from producers (farmers) and then, the results are collected in one place and sold to other traders.
2. Recipients or distributors. These people are those who buy large quantities of goods from collectors and then keep the goods to be sold to other traders.
3. Retailers. These are traders who directly sell or retail goods to consumers.
4. Broker, an intermediary trader who connect the buyer and the seller.
5. Commissioner. The people who work as an intermediary trader and have the trust to buy and sell goods and services to receive a commission.
6. Auctioneer, An auctioneer has the role as intermediary traders who provide a place and opportunity for buyers and sellers.
7. Peddler. These people work as a merchant trader or retailer.

The agricultural development in Donggala Regency is based on the division of zones. This is intended to develop districts and villages that have similar regional characteristics and accessibility. The zones in Donggala Regency in question are:

1. Banawa Zone, consisting of Rio Pakava District and South Banawa District;
2. Sindue Zone, including Sindue Tombusabora District, Sirenja District, and Balaesang District;
3. Sojol Zone, covering Damsol District, Sojol District, and North Sojol District;

To examine the path and pattern of cocoa trading, Donggala Regency needs to be observed based on the commodities featured in the zones. This can be explained in the following section:

### **The Analysis of Cocoa Trading Path**

Based on data obtained through observation and direct interviews with respondents (farmers and traders or collectors), the cocoa trading path and pattern that pass through various chains of trading paths used by producers or farmers in marketing the cocoa beans can be known.

Furthermore, by looking at the current movement of products in the path and pattern of cocoa beans trading from producers to end consumers, it can be explained that:

The trading path and pattern involved in the first path consist of producers who sell the goods to traders or collectors at the village level and then to traders or collectors at the district level. Subsequently, it continues from traders or collectors from the district level to traders or collectors at Palu City and lastly, to wholesalers or inter-island traders or ASKINDO (*Asosiasi Kakao Indonesia*, also known as Indonesian Cocoa Associations) as final consumers. This is illustrated in this following figure:



Figure 2 – The First Model of Trading Path and Pattern

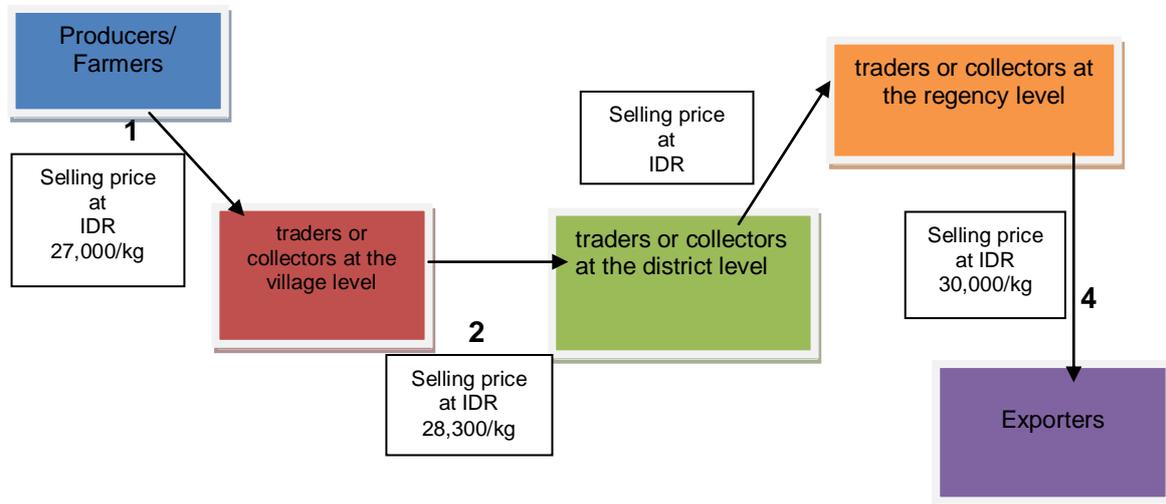


Figure 3 – The First Model of Trading Path and Pattern Based on Selling Price

The trading path as shown in the figure above means that the cocoa trading process from producers to village-level traders/collectors is carried out by farmers themselves that is from the farm directly to village-level traders/collectors. This is done because they have emotional relations such as friendship, kinship, or other socioeconomic relationships for a long time. In addition to that, this path is chosen because even though the price is low, this path has a more simple form and is close to neighbors who can be met at any time. By that, this path facilitates farmers to overcome the problems related to finance compared to the trade in the districts.

The trading of cocoa beans from village-level traders/collectors to the district-level traders/collectors is carried out by traders or collectors at the village level. After several days of collection, the cocoa beans went through the post-harvest process (drying) at the village level. After that, the cocoa beans were distributed to collectors at the district level with higher prices, compared to the price from producers.

The types of costs incurred include the cost of weighing and packing, the cost of purchasing sacks, and the cost of transportation to the district. The cocoa bean trading was done by district-level traders/collectors to the traders/collectors in Palu City because Donggala Regency does not have a collector at the regency level. Therefore, this process was carried out by the traders/collectors at the district level. The cocoa beans were collected by the traders/collectors at the district level for several days. After it went through the post-harvest process (drying), the cocoa beans will be marketed to regency-level collectors at a higher price than the price at the village and district level.

The types of costs incurred to cover the cost of weighing and packing, the cost of purchasing sacks, and the cost of transportation to the collectors at the regency level.

The trading of cocoa beans from regency-level traders/collectors to provincial-level traders/collectors is usually carried out by associations (ASKINDO) in Palu City. Dry cocoa beans that have been collected were standardized by ASKINDO and subsequently, marketed to wholesalers in other Central Sulawesi Province islands using the company's ships.

The cocoa trading in the second path involves producers, village-level traders/collectors, regency-level traders/collectors, and inter-island traders. For more details,

the cocoa trading process that is done through an intermediary path and pattern in this second model can be seen in the following figure.



Figure 4 – Cocoa Beans Trading in the Second Path

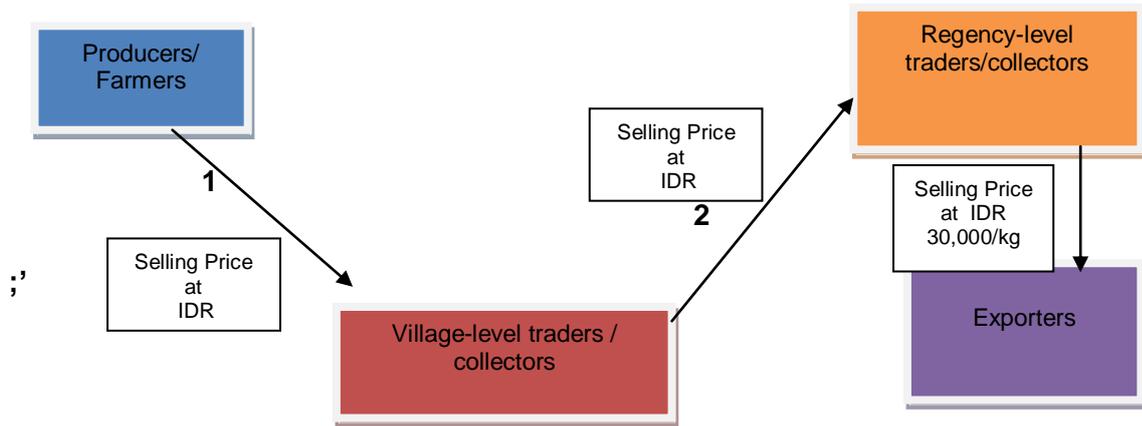


Figure 5 – The Second Model of Cocoa Trading Path Based on Selling Price

The trade of cocoa beans from farmers to village-level traders/collectors is carried out with a basis that they have an emotional connection for a long time. Henceforth, it went directly to collectors at the regency level so that if there are problems related to finance, they can overcome it better than the trade at the district level.

**The Third Model of Trading Path and Pattern**

In this third model, the cocoa trading process involves producers, district-level traders/collectors, regency-level traders/collectors, and inter-island traders. The cocoa trading process done through an intermediary path and pattern in the third model can be seen in the next figure.



Figure 6 – The Third Model of Cocoa Beans Trading

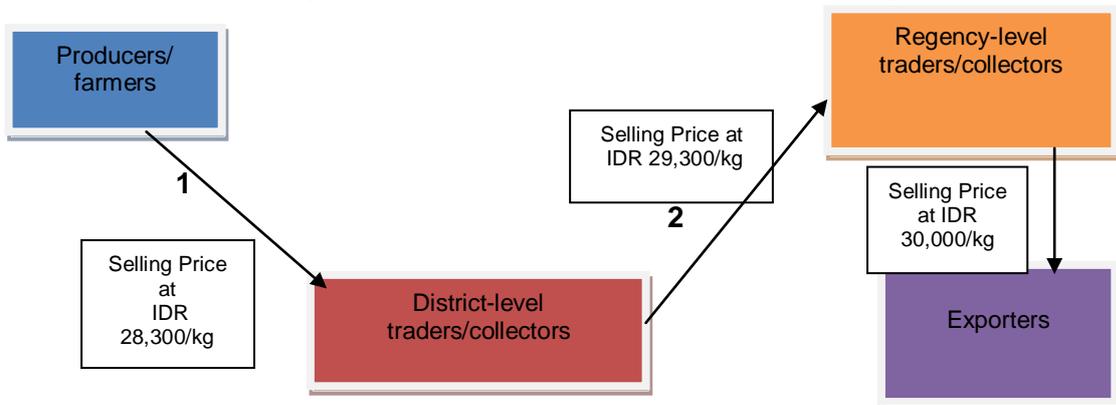


Figure 7 – The Third Model of Cocoa Trading Path Based on Selling Price

The process of cocoa trading from farmers to district-level traders/collectors is carried out by farmers (respondents) themselves that are from the farm directly to the district-level traders/collectors. This is done with the consideration that the purchase price is higher than the purchase price at village-level traders/collectors. Besides that, the distance between the settlement area of the producers and the traders/collectors is quite close. Not only that, but the means of transportation are also good with relatively low transportation costs. This trading path is chosen by the farmers based on an emotional connection that has been build for a long time such as business relationships, friendship, kinship or other socioeconomic relationships.

In this model, cocoa producers sell their products directly to traders or collectors in Palu City and then these city traders/collectors sell the products to inter-island traders or to associations (ASKINDO). The trading process in this path is carried out using four-wheeled transportation. Schematically, it can be seen in Figure 8 as follows.

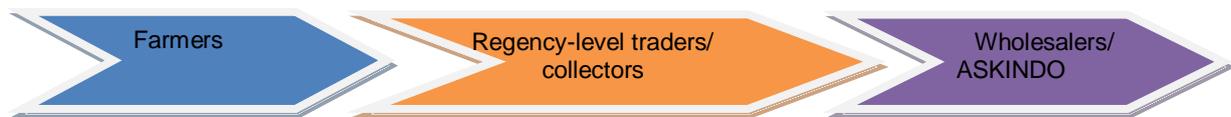


Figure 8 – The Third Model of Cocoa Beans Trading Path

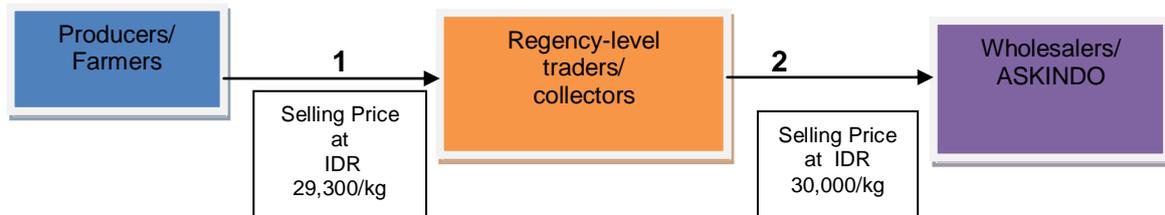


Figure 9 – The Third Model of Cocoa Beans Trading Path Based on Selling Price

The cocoa trading process from the farmers to the traders or collectors at the regency level is conducted by the farmers (respondents) themselves that is from the plantation directly to the traders in Palu City. This is done because the purchase price in the city/regency is relatively better than the purchase price in the village and district. Besides that, the means of transportation are quite good and affordable.

### Trading Cost

Various activities in economic activities are inseparable from the allocation of costs to achieve the highest profit as the goal. Trading cost is the costs incurred in or during the process of channeling goods or commodities from producers to end consumers. The amount of the costs allocated depends on the activities in the trading path and pattern as well as on the number of facilities required in the distribution of goods or commodities.

The cost of cocoa beans trading includes a number of expenses incurred to finance all necessities related to the cocoa beans trading efforts. The costs consist of transportation cost, weighing cost, packing cost, sack cost, and retribution cost for each trade path.

### The Costs and Advantages in the First Model of Trading Path and Pattern

The costs incurred and the profits derived from the cocoa beans trading path and pattern in the first model are put into detail in the following table.

The table above shows that the purchase price from farmers/producers in the village level is IDR 27,000 with costs incurred by IDR 294/kg and a selling price from village-level collectors to district-level collectors by IDR 28,300. Thus, the profit obtained is IDR 706/kg while the purchase price from collectors in the city to collectors in the district is IDR 29,300 with a total cost of IDR 307/kg. In this case, the profit gained is IDR 393/kg. The selling price

from collectors in the city to inter-island traders is IDR 30,000/kg with a cost incurred by IDR 317/kg so that a profit of IDR 1,782/kg is obtained.

Table 1 – The Costs and Advantages in the First Model of Trading Path and Pattern

No.	Description	Price in IDR/kg
1	Selling price from farmers/producers	27,000
2	Village-level traders/collectors: Purchase price	27,000
	Trading cost:	
	- Transportation	100
	- Weighing and packing	142
	- Sacks	42
	- Retribution	10
	Total trading cost	294
	Selling price	28,000
	Advantages	706
3	District-level traders/collectors: Purchase price	28,300
	Trading cost:	
	- Transportation	115
	- Weighing and packing	140
	- Sacks	42
	- Retribution	10
	Total trading cost	307
	Selling price	29,300
	Advantages	393
4	Regency-level traders/collectors: Purchase price	29,300
	Trading cost:	
	- Transportation	142
	- Weighing and packing	125
	- Sacks	40
	- Retribution	10
	Total trading cost	317
	Selling price	30,000
	Advantages	683
	Total trading cost	918

Source: Processed primary data from survey results, 2015.

### The Costs and Advantages in the Second Model of Trading Path and Pattern

The costs incurred and the profits obtained from the cocoa beans trading path and pattern in the second model are presented in Table 2 below.

Table 2 – The Costs and Advantages in the Second Model of Trading Path and Pattern

No.	Description	Price in IDR/kg
1	Selling price from farmers/producers	27,000
2	Village-level traders/collectors: Purchase price	27,000
	Trading cost:	
	- Transportation	500
	- Weighing and packing	142
	- Sacks	42
	- Retribution	10
	Total trading cost	694
	Selling price	29,300
	Advantages	1606
3	Regency-level traders/collectors: Purchase price	29,300
	Trading cost:	
	- Transportation	142
	- Weighing and packing	125
	- Sacks	40
	- Retribution	10
	Total trading cost	317
	Selling price	30,000
	Advantages	383
	Total trading cost	611

Source: Processed primary data, 2015.

From the data presented in the table above, it is shown that the purchase price from farmers/producers in the village-level is IDR 27,000 and the selling price to collectors in the city is IDR 29,300 with costs incurred in the amount of IDR 694/kg. Therefore, the profit gained is IDR 1,989/kg.

### The Costs and Advantages in the Third Model of Trading Path and Pattern

The costs incurred and the profits generated from the third model of cocoa trading path and pattern in the district level to regency level are illustrated in the following table.

Table 3 – The Costs and Advantages in the Third Model of Trading Path and Pattern

No.	Description	Price in IDR/kg
1	Selling price from farmers/producers	27,000
2	District-level traders/collectors: Purchase price	27,000
	Trading cost:	
	- Transportation	515
	- Weighing and packing	140
	- Sacks	42
	- Retribution	10
	Total trading cost	607
	Selling price	29,300
	Advantages	993
3	Regency-level traders/collectors: Purchase price	29,300
	Trading cost:	
	- Transportation	142
	- Weighing and packing	125
	- Sacks	40
	- Retribution	10
	Total trading cost	317
	Selling price	30,000
	Advantages	1,383
	Total trading cost	624

Source: Processed primary data, 2015.

Table 3 above shows that the purchase price of the traders/collectors at the subdistrict level from farmers/producers is IDR 27,000 and the selling price to district traders/collectors is IDR 19,300 with a total cost of IDR 307/kg. As a result, the profit gained is IDR 993/kg.

### The Costs and Advantages in the Fourth Model of Trading Path and Pattern

The costs incurred and the profits generated from the fourth model of cocoa trading path and pattern in the traders/collectors at regency level to inter-island traders can be seen in Table 4.

Table 4 – The Costs and Advantages in the Fourth Model of Trading Path and Pattern

No.	Description	Price in IDR/kg
1	Selling price from farmers/producers	27.000
2	Regency-level traders/collectors: Purchase price	29.300
	Trading cost:	
	- Transportation	1.142
	- Weighing and packing	125
	- Sacks	40
	- Retribution	10
	Total trading cost	1.317
	Selling price	30.000
	Advantages	1.383
	Total trading cost	317

Source: Processed primary data, 2015.

Table 4 points out that the purchase price from the farmers/producers in the regency level is IDR 29,300 with a total cost of IDR 317/kg. This means that the profit gained is IDR 1,383/kg.

### Trade Margin

Cocoa beans trade margin is the difference between the price received by producers and the price paid by consumers. A high trade margin does not always indicate a high profit. There are other factors that influence profits such as the number of costs that must be incurred in the trading process by the involved trading paths and patterns. Therefore, the margins of each trading path and pattern differ on each path. In this case, the first model is different from the second model and so on. The trade margins on each trading path in this study are detailed in Table 5 below.

### Trade Margin in the First Model

The trade margin on the first model is obtained from the difference between the price received by cocoa bean producers and the price paid by the concerned trading path and pattern as described in the following table:

Table 5 – Cocoa Beans Trade Margin in the First Model

No	Producers/Trading Path and Pattern	Price (IDR/kg)	Margin (IDR/kg)
1	Farmers	27,000	
2	Village-level Traders/Collectors	28,300	800
3	District-level Traders/Collectors	29,300	1,300
4	Regency-level Traders/Collectors	30,000	1,700
	Total Margin		3,800

Source: Processed primary data, 2015.

It is shown in Table 5 that the margin between producers and village-level traders is IDR 800 while the margin between the traders at the village level and the district level is IDR 1,300. Moreover, the margin between the collectors or traders at the district level and the collectors or traders at the regency level is IDR 1,700. By that, the total trade margin in the first model is IDR 3,800.

### Trade Margin in the Second Model

The trade margin on the second model is obtained from the difference between the price received by cocoa bean producers and the price paid by the trading path and pattern as shown in Table 6 below:

Table 6 – Cocoa Beans Trade Margin in the Second Model

No.	Producers/Trading Path and Pattern	Price (IDR/kg)	Margin (IDR/kg)
1	Farmers	27,000	
2	Village-level Traders/Collectors	29,300	2,300
3	Regency-level Traders/Collectors	30,000	700
	Total Margin		3,000

Source: Processed primary data, 2015.

The table above shows that the margin between producers and village-level traders is IDR 2,700 while the margin between village-level traders and city-level traders is IDR 2,300. Thereby, in this second model, the total trade margin is IDR 3,000.

### Trade Margin in the Third Model

The trade margin on this third model is obtained by calculating the price difference between producers and traders or collectors at the district level and the price difference between traders or collectors at the district level and traders or collectors at regency level

during the cocoa bean trading process. The table below illustrates the trade margin in the third model:

Table 7 – Cocoa Beans Trade Margin in the Third Model

No.	Producers/Trading Path and Pattern	Price (IDR/kg)	Margin (IDR/kg)
1	Farmers	27,000	
2	District-level Traders/Collectors	29,300	2,300
3	Regency-level Traders/Collectors	30,000	700
Total Margin			3,000

Source: Processed primary data, 2015.

The Table 7 above indicates that the margin between producers and traders at the district level is IDR 2,300 while the margin between the traders at the district level and traders at the regency level are IDR 700. By that, the total trading margin in this third model is IDR 3,000.

#### Trade Margin in the Fourth Model

The trade margin in the fourth model can be known by calculating the price difference between producers and district-level traders during the cocoa bean trading process, as described in this following Table 8:

Table 8 – Cocoa Beans Trade Margin in the Fourth Model

No.	Producers/Trading Path and Pattern	Price (IDR/kg)	Margin (IDR/kg)
1	Farmers	29,000	
2	Regency-level Traders/Collectors	30,000	1,000
Total Margin			1,000

Source: Processed primary data, 2015.

The table above points out that the margin between producers and traders at the regency level is IDR 1,000. Therefore, the total trading margin in this fourth model is IDR 1,000.

## CONCLUSION

From here, the conclusions in this study can be drawn as follows:

1. Farmers sell cocoa commodities to village-level collectors or traders because they want a quick sale. Besides that, these farmers also have a commodity in small amounts.
2. Farmers choose to sell to village collectors because of the high transportation costs, especially farmers who live in remote districts such as Rio Pakava District.
3. Farmers sell directly to collectors in the city because most farmers already have cooperation (networking) with traders in Palu City. Farmers who build this partnership have better access to fresh funds or money from traders/collectors in the city/regency.
4. Farmers have a transaction with big traders in Palu City because they sell their products in large quantities or large planting areas. In this matter, they expect to get a profit from the margin of sales.
5. Cocoa farmers sell directly to collectors in Palu and then the city collectors sell the products to inter-island traders or to associations (ASKINDO). With this pattern, farmers will get a greater margin.

Some recommendations that need to be implemented and considered by the local government to support the market access for cocoa farmers in Donggala Regency are as follows:

1. The government needs to support cocoa farmers to choose the most efficient trading path and pattern which has the lowest operating costs.
2. The government needs to upgrade the facilities and infrastructure that support the flow of commodity trading. Besides, the government has to provide market information for cocoa farmers so that they will have good information about commodity markets at the local, regional, national, and international levels.
3. The government needs to improve the roads and bridges as well as trade distribution channels. Traders, especially agricultural commodities, assume that the roads in their area are poor because the infrastructure has a significant influence on price disparities between regions.

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