Efficiency and Trading Channel System of Smallholder Sugarcane Farmers in Situbondo Regency

[1]Zein Arrahman,   [2]Duwi Yunitasari
[1]Student of Economics and Business Faculty, University of Jember
[2] Faculty of Economics and Business, University of Jember
University of Jember, Jember, Indonesia
[2]E-mail: duwiyunita.feb@unej.ac.id

Abstract: *Sugarcane is one of the 15 national main commodities to support plantation development goals from 2010 to 2014. The purpose of this study are to identify the marketing channel, function, institution, market structure and market behavior, and to analyze the operational efficiency of trading sugarcane system with margin trading system approach, the farmer's share, and the ratio of benefit to cost. Observation and interview were performed with the purposive method for smallholder's sugarcane farmers in the Situbondo Regency, while the snowball method was performed for institution trading system. The result showed that there were four trading channels system. Based on margin trading system, the farmer's share, and the ratio of benefit to cost trading system shows that the channel fourth is the efficient channel to direct sales from farmers to sugar factory.*

Key Words: *Efficiency, farmer's share, Situbondo Regency, sugarcane marketing, smallholder sugar cane.*

1.   INTRODUCTION:

Indonesia has sugar cane production centers that have been producing sugar for their basic needs. One of the biggest sugar cane centers in Indonesia is East Java Province. According to statistical data, East Java has the most extensive plantation area, with an area of around 8.78% growth per year. The total area in 2013 amounted to 169,338 hectares increased to 213,944 in 2014. The growth of sugar cane plantation area in Indonesia was around 9.5% per year from the total area of sugarcane plantations by provinces in Indonesia (Directorate General of Plantation, 2014, and D Yunitasari, 2015). Sugarcane production affects the economy. The contribution of the plantation sub-sector to the region includes employment, and the development of the national economy. The sugar industry is still a priority in the development of the agricultural sector in Indonesia (Yustika, 2008).

Sugarcane production in several provinces experienced fluctuations in 2012-2015. East Java Province experienced a production increase of 1,260,600 tons in 2014 and experienced a decrease in 2013 of 1,243,400 tons and revived in 2015 amounting to 1,310,700 tons (East Java Statistic Center, 2013). Situbondo Regency is one of the sugarcane producing centers in East Java Province. The area planted with sugar cane in 2013 was 971,070 Ha from 1278.18 Ha of plantation area. Sugarcane produced in Situbondo Regency in 2016 was 119,365 tons. Sugar cane products from Situbondo Regency contribute to fulfill the community's demand for sugar. The majority of the population owns land planted with sugar cane and works as sugar cane farmers. The Situbondo Regency as one of the sugarcane producing regions is trying to optimize its production so that it can contribute to the fulfillment of sugar demand in Indonesia. Increasing production by farmers is not easy. There are many challenges. One of the challenges that will be faced by farmers in increasing their production results is to maintain and develop existing market share. Need to develop a better market structure and supportive human resources (Mbowa, and Nieuwoudt, 1999).

The way to maintain and develop market share can be through improving the quality of sugar cane produced by farmers, the role of institutions in the trade system and increasing production. The more sugarcane production produced by sugar cane farmers, the greater the income they receive. But in reality, the level of sugarcane farmers' income is not only seen from the amount of sugar cane produced. The high and low income received by farmers is also affected by the price received and the costs incurred. The strategy undertaken by farmers is to reduce the high costs incurred, one of which is by choosing an efficient trading channel. Landiyanto and Wardaya (2005) stated that the high costs of transportation / trading systems create local monopolies and monopsonies. Conflicts between producers and processors often occur and are usually caused by the need for cost sharing. Constraints that occur in sugar cane farmers that more and more farmers are selling sugar cane to their sugar cane traders. Farmers sell sugar cane through sugar cane traders, because farmers do not want to experience difficulties in managing sugar cane production, where the costs of harvesting and transportation are paid in full by sugar cane traders. Besides going through sugar cane traders, farmers also sell sugar cane through the Indonesian Sugarcane Farmers Association (APTRI). There are several trade channels taken by each farmer for different reasons. In deciding which trade channel to take, farmers actually do not know which channel is more efficient in selling sugarcane from their plantations.

According to Hasibuan (2003), and Daniel (2004), Institutionalization is an economic science with a unified social sciences summarized in an economic analysis that broadly opposes free markets or free competition. So that the

institutional economy can be interpreted as an economy that assumes that the institution (rule of the game) plays a central role in shaping an efficient economy for its people, assuming that institutions and organizations seek to achieve a level of efficiency and minimize overall costs including transaction fees. According to Mangisoni (2006), smallholders are constrained in marketing by high transaction costs, high risk, lost markets and lack of collective action. Transaction costs are related to licensing issues, lack of values and standards, lack of marketing information, poor access to markets, weak entrepreneurial skills, high marketing margins, and weak farmer organizations.

Based on the description above, the formulation of the problem in this study are: 1. How can the sugarcane trading channels are formed in Situbondo Regency? 2. How are the flow of the sugarcane trade market in Situbondo? 3. How can the sugarcane trading efficiency at each trading channel in Situbondo Regency approach the trading margin, farmer's share, ratio of costs and profits?

2. METHOD:
Types and Data Sources

The data used in the study are primary data and secondary data.

1. Primary data is obtained from direct observation and interviews with the 30 sugar cane farmers, and sugar cane marketing institutions (tataniaga). Interviews are conducted by preparing a questionnaire.
2. Secondary data were obtained through the written annual report of the institutions or institutions involved in this study, such as the Central Statistics Agency (BPS), the Directorate General of Plantations, the East Java Plantation Service, Situbondo District Plantation Service, and literature studies.

Research Sample

Respondents taken as samples were smallholder sugarcane farmers in 6 (six) sub-districts, namely Panarukan, Kendit, Mangaran, Panji, Situbondo, and Kapongan. Determination of farmer respondents was determined purposively based on information obtained from the Chairperson of the Situbondo APTRI. The number of farmer respondents used as a sample is 30 farmers. This amount is considered to represent the diversity of sugarcane trading channels used in Situbondo Regency. Determination of respondents who use trading institutions is done by snowball sampling method. Sampling for traders and trading institutions other than sugar cane farmers is carried out by following the trading system from the respondent farmers to the sugar factory. Information from this method was obtained based on information from previous respondents, namely sugar cane farmers.

Data analysis method

1. Channel Analysis and Trading Institutions

The sugarcane trading channel in Situbondo Regency can be analyzed by observing the trading institution that forms the trading channel. The trading institution conducts activities where goods move from the producer to the consumer. This trading institution includes groups of producers, intermediaries and service providers. The trading channel in each institution is different. The difference affects the distribution of income received by each of the trading institutions involved.

2. Analysis of the Trading System

Trading flow analysis is used to determine the trading flow activities carried out by each trading institution involved as long as the product flows from farmers to consumers. The analysis of the trading flow is seen from the exchange flow in the form of sales and purchase activities, physical flow in the form of activities of transportation, processing, packaging and storage, and the flow of facilities in the form of risk insurance activities, financing and market information.

3. Trade Margin Analysis

The trading margin analysis is used to see the level of operational efficiency of the sugarcane trade system. The trading margin is calculated based on the reduction of the sales price with the purchase price at each level of the trading institution. The trading margin can also be obtained by looking at the difference in prices received by farmers with the prices paid by consumers. The trading system was involved. The trading margin consists of the trading fees and cost advantages. The magnitude of the trading margin is influenced by the commodity trading lane concerned. The trading margin is obtained from the price difference at the farmer level (Pf) with the price at the end consumer level (Pr) can be formulated (Asmarantaka 2012) as follows:

$MT = Pr - Pf$

explanation :

MT : Margin (Rp/Kg)

Pr   : Prices at the end consumer level

Pf   : Purchase prices at the farmer level

While the amount of profit obtained by each marketing institution is calculated by the formula:

M i = P ji – P bi

Explanation :

Mi : Trading Margin at level i, where i = 1,2,….,n

Pji : Sales Price for the marketing agency i

Pbi : Purchase Price for the marketing agency i

4. Farmer's Share Analysis
      Farmer's share is an indicator that can be used to determine the trading efficiency of a commodity other than the trading margin. Farmer's share is expressed in percentage by comparing the price received by the trading institution to the price paid by the final consumer. Farmer's share has a negative relationship with the trading margin, the higher the trading margin, the lower the portion to be obtained by farmers. Farmer's share is systematically formulated as follows:

$$Fs = \frac{Pf}{Pr} \times 100\%$$

Explanation:

Fs : Farmer's share

Pf : Prices at the farmer level

Pr : Price at the consumer level

7. Profit and Cost Ratio Analysis

Profit and cost ratios are the percentage of marketing profits on marketing costs to determine the level of marketing efficiency. The ratio of profits and costs to each marketing institution can be formulated as follows:
$$Profit \ and \ Cost \ Ratios = \frac{\pi i}{ci}$$

πi : The advantage of the i-trading institution
ci : Trading fees at the i-trading institution

4. RESULTS AND DISCUSSION:

Trading Channel

4.1 Analysis of Commerce Channels and Institutions
      Sugar cane trade from farmers to consumers involves several trading institutions. Respondent farmers, amounting to 30 farmers, sell sugar cane crops to several trade institutions. The trade institutions involved in sugar cane trade include: Farmers, Sugar Cane Traders, the Indonesian People's Sugarcane Farmers Association (APTRI), Farmers' Groups, and sugar factories (PG).

1. Farmers are institutions that play a role in producing sugar cane.
2. Sugar cane traders are institutions that act as buyers of farmers' sugar cane products and milling the sugar cane yield of farmers to PG. This institution is usually called middleman.

3. The Indonesian People's Sugarcane Farmers Association (APTRI) is an institution that provides credit to farmers and sells farmers' sugarcane mills through an auction system.
4. Farmer Group is an institution of sugar cane farmer association where farmers leave their sugar cane to the farmer group to be milled on behalf of the farmer group and the head of the farmer group will get 1.5% of the farmer's mill in return for sugarcane milling.
5. Sugar mills are institutions that have the task to grind sugar cane from farmers and to make a profit sharing system through rendemen. The sugar cane mill is sold by the sugar factory through an auction system to investors (agents).

There are 4 (four) sugarcane trading channels in Situbondo Regency, each of which is:
1. The first channel (APTRI) was carried out by five respondent farmers and had a percentage of 16,67%. The first channel sales volume is 2685 quintals of sugar cane and has a percentage of 16% of all sales volume.
2. The second channel (farmer group), farmers who sell sugar cane to farmer groups as many as five people and have a percentage of 16,67% of the total number of farmer respondents. Sales volume on the second channel is 2250 quintals and has a percentage of 13% of all sales volume.
3. The third channel (sugar cane traders), farmers who sell sugar cane to sugarcane traders as many as five people and have a percentage of 16,67% of the total number of farmers respondents. Sugar cane sold in this channel amounted to 2957 quintal and has a percentage of 17% of the total sales.
4. The fourth channel (Sugar Factory), Farmers who sell sugar cane products directly to sugar factories totaling 15 people. The volume of sugar cane sold to PG amounted to 9,149 quintals and has a percentage of 54% of the total volume of sugarcane sales.

The results of the observation show the percentage of farmers who sell sugar cane to the sugar factory in channel four is the biggest when compared to other channels. In addition, the sales volume in channel four is the largest, which is 9,149 quintals.

A. Trading Channel 1

One trading channel consists of farmers, the Indonesian Sugarcane Farmers Association (APTRI) and a sugar factory.

Farmer → APTRI → Sugar factory

B. Trading Channel 2

The two trading channels are carried out by five respondent farmers. The trade institutions involved in this trading channel is farmers, farmer groups and sugar mills.

Farmer → Farmer Group → Sugar Factory

C. Trading Channel 3

Farmers of respondents who use the three-channel trading channel are five farmers. The institutions involved in the three trading channels are farmers, sugar cane traders and sugar mills.

Farmer → Sugarcane Trader → Sugar Factory
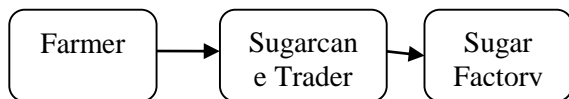
D. Trading Channel 4

There are fifteen farmers who sell sugar cane in channel four. The trading institutions involved in this trading channel are farmers and sugar mills.

Farmer → Sugar Factory
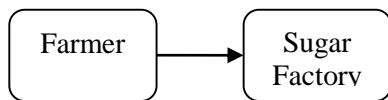
The entire flow of the trading system of sugar cane farmers in Situbondo Regency is in Figure 1.

```
                        ┌─────────────────────┐
                        │     Smallholder     │
                        │  sugarcane Farmer (30│
                        │      farmers)        │
                        └─────────────────────┘

┌──────────────────┐  ┌──────────────────────┐  ┌──────────────────┐
│      APTRI       │  │ Smallholder sugarcane │  │ Sugarcane Traders│
│16.67% (5 farmers)│  │   farmers group       │  │16.67% (5 farmers)│
│   2685 quintal   │  │ 16.67%  (5 farmers)   │  │   2957 quintal   │
│                  │  │    2250 quintal       │  │                  │
└──────────────────┘  └──────────────────────┘  └──────────────────┘

                        ┌─────────────────────┐
                        │    Sugar Factory    │
                        │  50%  (15 farmers)   │
                        │    9149 quintal      │
                        └─────────────────────┘
```
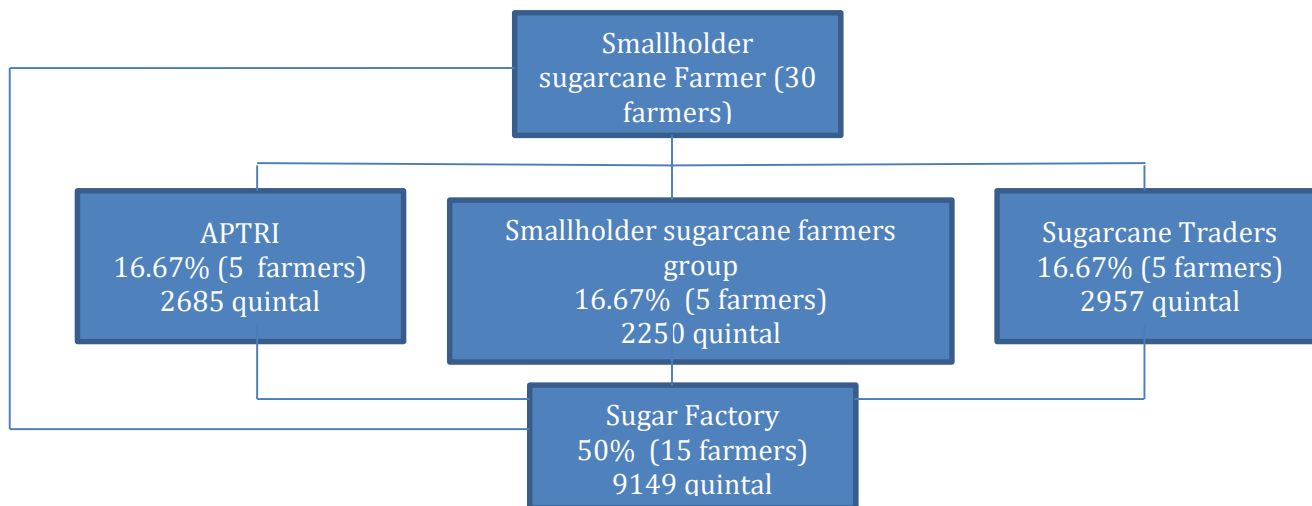
Figure 1. Overall of the Smallholder Sugar Cane Farmer System in Situbondo Regency

4.2 Analysis of the trading system

Each trading institution has different channels in the delivery of sugar cane from farmers to sugar factories. The grooves of each trading institution aim to facilitate the trading process of sugar cane. The trading channels can be grouped into the flow of exchange, physical flow and facility flow.

A. Farmer

The trading system carried out by sugarcane farmers in Situbondo Regency is the flow of exchange, physical flow and facility flow. Exchange flow in the form of sales flow. the physical flow is in the form of a transport channel, while the facility channel is in the form of financing, sorting, risk reduction and market information.

1. Exchange Flow

The flow of exchange carried out by farmers is the sales flow. In channel one there are five farmers who sell the APTRI sugarcane, five farmers sell sugar cane through farmer groups, five farmers sell sugar cane to traders and fifteen sell to sugar factories.

2. Physical flow

Physical flow carried out by farmers is the flow of transportation carried out by farmers on channels one and two.

3. Facility flow

The flow of facilities carried out by farmers is risk coverage, sorting, financing and market information.

B. Indonesian Sugar Cane Farmers Association (APTRI)

The trading arrangements carried out by the Indonesian Sugarcane Farmers Association (APTRI) are the flow of exchange, physical flow and flow of facilities. The exchange process carried out by APTRI is buying and selling, the physical flow that is carried out is packaging and storage, the flow of facilities includes financing and market information.

1. Exchange flow

The association that was the respondent in this study was the Indonesian Sugarcane Farmers Association Nira Sejahtera. The function of the exchange carried out by APTRI is the flow of buying and selling.

2. Physical flow

The physical flow carried out by APTRI is the packaging of sugar cane mills to be included in the auction conducted by APTRI. The packaging uses a 50 kg sack. The price of one sack of sugar is Rp. 1,000-Rp. 1,650. This car is made of plastic. In addition, APTRI keeps the results of sugarcane milling in warehouses until the auction is completed and investors with the highest bid are entitled to take the results of sugarcane milling in the warehouse owned by APTRI.

3. Facility Flow

The flow of financing carried out by APTRI is capital borrowing for sugarcane farmers' production activities. The capital loaned by APTRI from farming activities to the mill is ready for sale. Loans provided by APTRI to farmers for two hectares of land. Farmers who borrow funds from APTRI have a land area of more than two hectares so that the name of the borrower is taken from the farmer's family name. So that the entire land area owned by farmers gets loan funds from APTRI. Market information sought by APTRI is yield information, prices prevailing in the market and requests from investors who will follow the auction system conducted by APTRI.

C. Farmer Group
The farmer group carries out the trading channel namely the flow of exchange, physical flow and facility flow.

1. Exchange Flow
The flow of exchange carried out by farmer groups is the collection of sugar cane owned by farmers who will be milled to a sugar factory using the farmer group contract letter. Farmer groups get 1.5% of the results obtained by farmers.

2. Facility flow
The flow of facilities carried out by farmer groups is the flow of financing in terms of paying administrative costs that must be paid to the sugar factory. The farmer group carries out the risk management function. The members of the farmer group must send sugar cane which is truly in accordance with the standard of the sugar factory, namely the number of leaves / parts of sugar cane which do not meet the standards not exceeding 5%.

D. Sugarcane Trader
1. Exchange function
The exchange function carried out by sugar cane traders is the purchasing function and sales function. The purchase function is carried out in the farmer's garden directly. The purchase price is determined together with farmers through the negotiation process.
2. Physical flow
The physical flow carried out by sugarcane traders is the transport of sugar cane from the farmer's farm to the sugar factory. Transportation is carried out using truck cars. Transportation costs are borne by sugarcane traders. Transportation costs are calculated per quintal of cane transported.

3. Facility flow
Sugarcane traders do the sorting of sugar cane they buy so that the number of leaves / parts of sugar cane which do not meet PG standards are not more than 5%. Sorting is carried out in farms owned by farmers and carried out during logging activities. Sugar cane traders sort sugar cane which is in accordance with the criteria of sugarcane which is suitable for grinding sugar mills.

4.3 Trade Margin Analysis

Comparison of margin analysis on each trading channel:
1. On the trading channel one
Farmers issue trading fees consisting of harvesting costs of Rp. 6,375 / quintal sugar cane, the cost of transporting sugar cane is Rp. 5,500 / quintal sugar cane, and administration costs Rp. 326 / quintal Sugar cane. The total trading costs incurred by farmers are Rp. 12,201 / quintal sugarcane. While the trading costs incurred by the Indonesian People's Sugarcane Farmers Association (APTRI) are the costs of packaging (sugar sacks) Rp. 328 / quintal Sugar cane, an administration fee of Rp. 1,200 / quintal of sugar cane, and storage fee of Rp. 1,071 / quintal sugarcane. The total trading costs incurred by the Indonesian Sugarcane Farmers Association (APTRI) is Rp. 2,599 / quintal sugarcane. The highest trading costs are issued by farmers because farmers who issue harvesting and transport costs are the highest costs in trading fees. Sugarcane trading costs incurred by each institution on the trading channel one can be seen in Table 1.

Table 1. Sugar Cane Trade Costs Issued by Each Institution in One Trading Channel

Cost	Average Rp/Quintal
a. Farmer	
Harving Costs	6,375
Transportation Costs	5,500
Administrative Costs	326
Total	12,201
b. APTRI	
Packaging Costs	328

Administrative Costs	1,200
Storage Costs	1,071
Total	2,599

2. On the second trading channel,

Costs incurred by farmers are harvesting costs of Rp. 7,000 / quintal sugarcane, the cost of transporting Rp. 6,500 / quintal cane, and administration costs Rp. 350 / quintal cane. The total trading fee that must be incurred by the farmer in the second trading channel is Rp. 13,850 / quintal cane.

Whereas the trading fee incurred by the farmer group is an administration fee of Rp. 1,000 / quintal cane. The largest trading fees are issued by farmers because farmers are harvesting and transporting sugar cane. The sugarcane trading costs incurred by each institution on the second trading channel can be seen in Table 2.

Table 2. Sugar Cane Trade Costs Issued by Each Institution in the Second Trading System

Cost	Average Rp/Quintal

a. Farmer
     Harvesting Costs
     Transportation Costs
     Administrative Costs
     Total
	
	7,000
	
	6,500
	
	350
	
	13,850

b. Farmer Grup
     Administrative Costs
     Total
	
	1,000
	
	1,000

3. On the third trading channel

The trading fees incurred by farmers are Rp. 0. The trading costs incurred by sugarcane traders include the cost of harvesting Rp.8,000 / sugar cane, the cost of transporting Rp. 6,600 / Quintal sugar cane, the packing fee is Rp. 328 / Quintal of sugar cane, and administrative costs of Rp1,500 / quintal. The sugarcane trading costs incurred by each institution on the third trading channel can be seen in Table 3.

Table 3. Sugar Cane Trade Costs Issued by Each Institution on the Third Trading Channel

Cost	Average Rp/Quintal
a. Farmer Total	 -

b. Sugarcane Traders
     Harvesting Costs
     Transportation costs
     Packaging Costs
     Administrative Costs
     Total
	
	8,000
	6,600
	328
	1,500
	16,428

4. The fourth trading channel

The costs incurred by farmers on the four-channel trading channel are Rp. 12,594 / Quintal cane. The margins in each trading channel vary because of differences in marketing costs incurred and the profits earned for each trading institution. This will also cause a difference in selling prices at each level of the trading institution. The small trading margin value shows that the trading channel is efficient because the difference in the selling price at the farm level and the purchase price at the small end trading institution will benefit farmers. The large trading margin value indicates that the trading channel is not efficient because the difference in the selling price at the farm level and the purchase price at the last major trading institution level will harm farmers.

Table 4. Sugarcane Trading Costs Issued by Each Institution in the Fourth Trading Channel

Cost	Average Rp/Quintal

a. Farmer		
Harvesting Costs	5,800	
Transportation costs	2,900	
Packaging Costs	3,894	
Total	12,594	
b. Sugar Factory		
Total	-	

Based on the margin analysis of the sugarcane trade system, it can be seen that the third trading channel has the largest trading margin and the fourth trading channel has the smallest trading margin

Table 5. Margin Analysis of Sugar Cane Trade from the Largest to Smallest Trade Order

Description	Trading Channels							
	1		2		3		4	
	Value (Rp/Qui)	%	Value (Rp/Qui)	%	Value (Rp/Qui)	%	Value (Rp/Qui)	%
Farmer								
a. Selling Price	48,340	84.6	47,173	73.38	46,240	71.9	64,285	100
b. Costs Commerce	12,201	21.35	13,850	21.54			12,594	21
APTRI								
a. Purchase Price	48,340	84.6						
b. Cost Commerce								
c. Profit	2,599	4.55						
d. Selling Price	6,203	10.86						
e. Margin	57,142	100						
	8,802	15.4						
Farmer Grup								
a. Purchase Costs			47,173	73.4				
b. Commerce Costs			1,000	1.56				
c. Profit								
d. Selling Price			15,148	23.56				
e. Margin			64,285	100				
			17,112	26.62				
Sugarcane Trader								
a. Purchace Price					46,240	71.9		
b. Commerce Cots					16,428	25.6		
c. Profit					1,617	2.52		
d. Selling Price					64,285	100		
e. Margin					18,045	28.1		
Sugar Factory							64,285	100

Farmer's Share

Farmer's share is the difference between the retail price and the trading margin. This is used to know the portion of prices at the consumer level. Through the farmer's share, it can be known whether or not a trading channel is efficient

or not. The large value of the farmer's share means that the portion or portion enjoyed by the farmer is very large and the trading channel is efficient. The small farmer's share value means that the portion or portion enjoyed by the farmer, the small and the trading channel is inefficient. Farmer's share analysis of the sugarcane trade system in Situbondo Regency can be seen from Table 6.

Table 6. Farmer's Analysis Share From Sugar Cane Trading in Situbondo District

Trading Channel	Price are at the level of farmers (Rp/quintal)	Price at consumer level (IDR/quintal)	Farmer Share
I	48,340	57,142	84.6
II	47,173	64,285	73.38
III	46,240	64,285	71.93
IV	64,285	64,285	100

Farmer's highest share is in the fourth trading channel at 100%, this indicates that farmers receive a price of 100% of the price paid by consumers. In the analysis of the four trading system channel margins, the smallest margin is equal to 0%. Whereas the smallest farmer's share was obtained by the three trading channels by 71.93% and getting the largest trading margin by 28.03%.

On the two and three channels the price at the consumer level is the same which is Rp. 64,285 / Quintal. But there is a difference in the farmer's share obtained by farmers. This is because the price at the farmer's level on channel two is greater than the three-level trading channel. In addition, this can be caused by the total cost of the trading system on the second trading channel smaller than the three trading channels. When viewed from the analysis of the trading system and farmer's share, the four trading channels can be said to be the most efficient because the margin value of the four lowest marketing channels and the farmer's share obtained by farmers is also the biggest.

Profit and Cost Ratios

The profit to cost ratio can be used to see the efficiency of a trading system. The trading profit and cost ratio defines the amount of profit received on the total trading costs incurred. If the value of the profit ratio is more than one (> 1), it means that the channel is feasible to run and has provided benefits to the trading institutions involved. Analysis of the ratio of profits and costs of sugarcane trading in Situbondo can be seen in Table 7.

Based on Table 7, each trading channel has a profit and cost ratio of more than one (> 1), this means that the trading activities carried out by each trading institution provide benefits. The profit to cost ratio in the first channel is 2.86. This means that every Rp. 1 / quintal cane will produce a profit of Rp. 2.86 / quintal cane. The ratio of profit to cost in the two trading channels is 3.26. This means that every Rp. 1 / quintal cane will produce a profit of Rp. 3.26 / quintal of sugar cane. The biggest profit to cost ratio in channel two is the farmer group. The profit to cost ratio in the third channel is 2.91. Every Rp. 1 / quintal cane will produce a profit of Rp. 2.91 / quintal of sugar cane. While in the fourth channel has a value of profit to cost ratio of 4.1. Every Rp. 1 / quintal cane will produce a profit of Rp. 4.1 / quintal cane.

Based on the calculation of the ratio of profit to cost, the trading channel 4 (fourth) is relatively more efficient because it has the greatest ratio of profit to cost. The selection of trading channels has a significant role in the profits obtained. Institutional factors play an important role in influencing small-scale farmers and marketers in decision making because they generate high transaction costs and have an impact on farmer participation (Gift, 2014). So we need the right selection of trading channels, where the profits will be obtained by the farmers as the backbone of the people's sugar cane plantations.

In the future, policies are needed where the role of the government can support efficiency towards sugarcane farmers, and continue in the future (Nakhumwa and Hassan, 2012). Hobbs (1997) explains that farmers must determine trading partners, exchange, negotiate which leads to bargaining, contracting, and carrying out the necessary checks to make sure the contract terms are appropriate. This activity is often expensive and called transaction costs. In particular, includes the costs of finding trading partners with whom, screening partner fees, bargaining, monitoring, and finally, transfer the product to its destination (Jaffee and Morton, 1995). Market information, expertise on grades and standards, contractual agreements, social capital, market infrastructure, group participation and tradition significantly influence in marketing choices among smallholder farmers (Jari, and Fraser, 2009). The accuracy of using trading channels, and the fewer costs incurred the more profits farmers will get.

Table 7. Ratio of Sugar Cane Trading Profit and Cost Ratios in Situbondo Regency

Trading Channel	Profit of Trading Channel (Rp/qui)	Costs of Trading Channel (Rp/qui)	Profit of Trading Channel

Channel I			
Farmer	36,139	12,201	2.96
APTRI	6,203	2,599	2.39
Total	42,342	14,800	2.86
Channel II			
Farmer	33,323	13,850	2.41
Farmer Grup	15,148	1,000	15.15
Total	48,471	14,850	3.26
Channel III			
Farmer	1,617	-	0.1
Sugarcane Trader	46,240	16,428	-
Total	47,857	16,428	2.91
Channel IV			
Farmer	51,691	12,594	4.1
Sugar Factory	64,285	-	-
Total	115,947	12,594	4.1

5. CONCLUSSION:

The conclusion of this study shows that:

1. There are four channels in the sugar cane trade system established in Situbondo Regency, namely: commercial channel 1) Farmers - Indonesian Sugar Cane Farmers Association (APTRI) - Sugar Factory. Trading system channel 2) Farmer - Farmer Group - Sugar Factory. Distribution of trade system 3) Farmer - Sugar Cane Trader - Sugar Factory. Commercial trade channel 4) Farmer - Sugar Factory.

2. Market behavior can be observed from the practice of buying and selling, pricing systems, and collaboration between trading institutions

3. Based on the trading margin, the farmer's share, and the ratio of profit to cost shows that the four trading channels are the most efficient channels. Sales volume in the fourth trading channel is 9,149 quintals or 54% of the total sales volume of sugarcane.

REFERENCES:

1. Central Bureau of Statistics (2010) Area of Plantations. Situbondo: Central Statistics Agency Situbondo
2. Central Bureau of Statistics (2010) Production of Plantation Crops. Jakarta:
3. D Yunitasari (2015) Sugar Cane Agroindustry Development Model as an Effort to Improve Regional Economy in East Java. Dissertation. Bogor : IPB
4. Directorate General of Plantations (2014) East Java Province Sugar Cane Statistical Data 2008. Jakarta: Directorate General of Plantations.
5. Directorate General of Plantations (2014) Sugarcane Production by Province in Indonesia. Jakarta: Directorate General of Plantations.
6. Erlangga, AL., and Wardaya, W. (2005) Growth and Convergence of Sugarcare Industries in Southeast Asia, MPRA Paper No. 2723, posted 17. April 2007, Online at http://mpra.ub.uni-muenchen.de/2723/, diunduh 17 sept 2018.
7. Gift, M N,.(2014) Analysis of marketing channels used by smallholder crop farmers in Vryheid (Abaqulusi) Municipality, Kwazulu-Natal, Dissertation Submitted in Partial fulfillment of the requirements of the degree of master of agriculture in agricultural economics, University of Fort Hare.
8. Hasibuan, Malayu (2003) Human Resource Management . Jakarta : Bumi Aksara.
9. Hobbs, J. E. (1997) Measuring the Importance of Transaction Costs in Cattle Marketing. American Journal of Agricultural Economics, 79(4): 1083-1095.
10. Jaffee, S. And Morton, J. (1995) Marketing Africa's High-value Foods: Comparative Experiences of an Emergent Private Sector. Kendall/Hunt Publishing, Iowa.
    a. Jakarta: Erlangga.
11. Jari, B, and G. C. G. Fraser (2009) An analysis of institutional and technical factors influencing agricultural marketing amongst smallholder farmers in the Kat River Valley, Eastern Cape Province, South Africa, African Journal of Agricultural Research Vol. 4 (11), pp. 1129-1137, November, 2009 Available online at http://www.academicjournals.org/ajar.
12. Kotler, Philip dan A.B Susanto (2000) Marketing Management in Indonesia. Jakarta : Salemba Empat
13. Limbong, H. Wilson dan Panggabean Sitorus (1988) Introduction to Agricultural Safety System. Department of Agricultural Social Economics. Faculty of Agriculture. Bogor : Institut Pertanian Bogor

14. Maimun (2009) Analysis of Farming Income and Added Value of Organic and Non-Organic Arabica Coffee Marketing Channels (Case Study of Ulee Kareng Coffee Powder Processing in Banda Aceh). Essay. Banda Aceh.

15. Mangisoni, J. (2006) Markets, Institutions and Agricultural Performance in Africa. ATPS special paper series No. 27, the African Technology Policy Studies Network, Nairobi. Online: http://www.atpsnet.org/content/files/documents/Speci al%20Paper%20Series%2027.pdf. Accessed: 17 Sept 2018.

16. Mbowa, S., and Nieuwoudt, WL. (1999) Economies os Scale for Small and Large Sugarcane Farms in Kwazulu-Natal, Agrekon, Vol 38, No 3 (September 1999).

17. Nakhumwa, O T,.and Hassan, R. (2012) Optimal Management of Soil Quality Stocks and Long-Term Consequences of Land Degradation for Smallholder Farmers in Malawi, Environ Resource Econ (2012) 52:415–433 DOI 10.1007/s10640-011-9536-0,

18. Todaro, M, P., dan Smith, S, C. (2006*)* Economic Development.

19. Yustika, E. (2008) The Transaction Cost of Sugarcane Farmers: An Explorative Study. Jurnal Ekonomi dan Bisnis Indonesia Vol. 23, No. 3, 2008, 283 – 301.