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Coffee Supply Chain Management: A Case Study In Ciamis, West Java, Indonesia

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ABSTRACT

Ciamis Regency is a potentially developed coffee-producing area in West Java with Arabica and Robusta coffee types. However, in the current marketing process, it is still faced with various obstacles that make the supply chain flow non-optimal. Therefore, in optimizing the Ciamis coffee supply chain management, it is necessary to conduct further research related to supply chain flow, performance, and farmer's share. This study aims to determine the flow, performance, and farmer's share of the coffee supply chain in Ciamis Regency. This research uses the descriptive, SCOR, and farmer's share methods. The results showed that the supply chain flow consisted of material flow in the form of green beans that flowed from upstream to downstream, the flow of information in the form of information (quantity, price, and quality of green beans) that flowed from upstream to downstream and from downstream to upstream, and financial flows in the form of cash payment transactions that flow from downstream to upstream. The performance of coffee supply chain management in Ciamis Regency has an average category with a value of 56.91. The most significant farmer's share value is found in the distribution channel from farmers to inter-regency traders, ending with outside-regency traders.

Keywords: coffee; farmer's share; SCOR; supply chain flow; supply chain performance

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1. Introduction

Coffee is one of the plantation products with high economic value and is one of the mainstay export commodities. Indonesia is one of the largest coffee producers globally and is included in the top 5 coffee producers in the world (FAO, 2015; USDA, 2022; Purnomo et al., 2019; Purnomo et al., 2021). This is supported by the coffee growing area in Indonesia which reaches 1.26 million ha.

The most problem of sustaining coffee production is an unequal in supply chain management that laid farmers as not benefited parties (Purnomo, 2018; Purnomo et al., 2019; Guido eta al., 2020). Coffee grown in Indonesia is spread over several areas. To asses such problem, we use one of the coffee-producing areas in Indonesia is Ciamis Regency, West Java. Coffee production in Ciamis reaches 725.61 tons with a coffee plant area of 1,851.61 ha in robusta and 290.30 ha in arabica (Ciamis Regency Agriculture and Food Security Office, 2018).

This production potential began to be widely developed with the number of coffee shops starting and the marketing of Ciamis-speciality coffee products. However, in the current marketing process, it is still faced with various obstacles such as non-optimal supply chain flow. For example, the unutilized information on the quality and specifications of coffee is expected by buyers, so the distributed coffee beans are often not in line with consumer expectations. In addition, most of the coffee beans are distributed to the outside Regency and not utilized by local roasters which have been widely spread in Ciamis Regency.

A study conducted by Mauladi et al. (2022), the coffee beans produced by farmers are frequently conventionally marketed which flows

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to collectors outside the city with modest quality, so they get a low price. In line with what was stated by Umaran et al. (2022), the complexity of coffee supply chain flow could reduce farmer profits. But the other hand cutting the supply chain can create new problems. Therefore, it is necessary to carry out further supply chain analysis to find out the causes of the non-optimization of the existing supply chain.

The non-optimal flow of the supply chain can affect the performance of the supply chain and can reduce the actors potential profit, especially for coffee farmers who are the most important actors who provide raw coffee beans. Therefore, in optimizing the Ciamis coffee supply chain management, it is necessary to conduct further research related to supply chain flow, performance, and farmer's share.

2. Theoreticalcal Underpinning

Based on the research of Mauladi et al. (2022), The local coffee beans in Ciamis Regency were marketed conventionally. Green beans that are produced by farmers are sold as simply as possible to collectors and then resold to industrial consumers and exporters. Apart from conventional marketing methods, the quality of green beans produced by farmers is often not considered, so farmers as coffee producers only get a small profit from the coffee bean trade.

Based on data from Ciamis Regency Agriculture and Food Security Office (2022), Ciamis Regency has more than 60 coffee shops spread across various locations. This should be used by local farmers to increase profits. This is in line with the research of Borrella et al. (2015) which states that direct trade cooperation between farmers and roasters can benefit both parties. Farmers get higher prices than before, and roasters get a supply of quality coffee beans with a relatively closer. According to Neilson et al. (2018), the development of coffee shops provides opportunities for coffee farmers to become coffee supply agents and develop the coffee supply chain back to developing rural communities as local coffee producers. So, this research was conducted to find out how the local coffee supply chain in Ciamis Regency can be appropriately utilized by each actor, especially farmers.

Yunita et al. (2019) state that in the coffee supply chain, there are coffee beans, financial, and information flows that flowing from farmers to consumers. The flow of coffee beans consists of various coffee distribution schemes according to the agreement between actors. Financial flows relate to supply chain costs that match the coffee distribution scheme. Meanwhile, the flow of information is a stream that needs to be paid more attention to by farmers because it relates to information on coffee specifications desired by consumers as well as market price information. It is also necessary to find out how the performance of the coffee supply chain in Ciamis Regency is.

Prasetya et al. (2017) stated that in measuring the performance of the coffee supply chain, several attributes can be measured, namely reliability, responsiveness, cost, agility, and asset management. In addition, Yunita et al. (2019) state that a proportional profit margin for farmers can also be used as a reference to whether the existing performance provides benefits for farmers or not. In the study, it was found that the shortest distribution channel provides better supply chain performance and provides a greater farmer's share value than the longest distribution channel. In line with what was conveyed by Borrella et al. (2015), the simpler local coffee bean marketing distribution channels can provide benefits for both parties who transact.

3. Research Methods

This research was conducted from January 2021 – February 2021. The research location was carried out in Rajadesa District, Ciamis Regency. The location was chosen purposively by considering its potential as a center for coffee producers in Ciamis Regency with a production yield of 98.66 tons/year, the largest planted area in Ciamis Regency (384.40 ha), and as a district with the majority of coffee farmers (Ciamis Regency Agriculture and Food Security Office, 2018).

3.1. Sampling Method

The sample consists of 30 members of active farmer groups, selected by the stratified proportional sampling method. The following sample is a sample of collectors and inter-regency traders determined by the snowball sampling method, by following the flow of coffee from the producer point (coffee farmer) to the final coffee trader in Ciamis Regency.

3.2. Data Analysis Method

In this study, the data obtained were analyzed by analyzing the supply chain flow descriptively, supply chain performance analysis using the SCOR method, and supply chain efficiency analysis using the farmer's shares analysis.

3.2.1. Supply Chain Flow Analysis

Supply chain flow is analyzed using a descriptive method by analyzing the flow of coffee beans delivery from farmers to final traders as the final flow. The analyzed supply chain flow consists of coffee bean flow (quantity), information flow, and financial flow.

3.2.2. Supply Chain Performance Analysis

Supply chain performance was analyzed using the Supply Chain Operations Reference (SCOR) method. This method carves performance by providing an assessment and weighting of each supply chain performance attribute including the attributes of reliability, responsiveness, agility, cost, and asset management (SCC, 2012). Performance measurement is carried out using a level matrix consisting of 2 levels. Matrix level 1 contains an assessment of the final performance results. The level 2 matrix presents the initial calculation of indicators on each performance attribute (Paul, 2014). The range of weighting and initial assessment of the supply chain can be seen in Table 1. and Table 2.

Table 1. Range of Weights of Ciamis Coffee Supply Chain Performance.

Level of Importance Weight	Description
0.81 – 1.0	Very Important
0.61 – 0.8	Important
0.41 – 0.6	Neutral
0.21 – 0.4	Unimportant
≤ 0.2	Very Unimportant

Table 2. Range of Initial Assessment of Ciamis Coffee Supply Chain Performance.

Score	Description
81 – 100	Very Good
61 – 80	Good
41 – 60	Adequate
21 – 40	Bad
≤ 20	Very Bad

Weights and ratings are given by each supply chain actor based on a Likert scale with five levels. After obtaining the initial weights and assessments on the level 2 matrix, the final assessment is given to the level 1 matrix. The final performance assessment is divided into five categories based on the values obtained, namely poor (<40), marginal (40 - <50), average (50 - <70), good (70 - <90), and excellent (≥90) (Trienekens & Hvolby, 2000). This category describes the coffee supply chain performance in Ciamis Regency.

3.2.3. Farmer's share

Farmer share is used to determine supply chain efficiency by looking at the percentage of the comparison of prices received by farmers compared to prices for the last actor. Farmer's share is calculated using the following formula:

$$FS = \frac{\text{Price at farm (Rp/Kg)}}{\text{Final price at the final seller (Rp/Kg)}} \times 100\%$$

4. Results and discussion

4.1. Coffee Supply Chain Flow

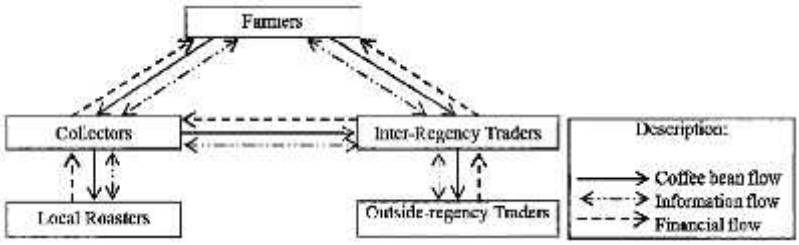

Figure 1. Coffee Supply Chain Flow Scheme in Ciamis Regency.

Based on Figure 1., the flow of the coffee supply chain in Ciamis Regency consists of the flow of coffee beans (green beans) from robusta coffee, the flow of information in the form of price, quality, and quantity information produced by the supply chain actors, and financial flows in the form of cash payment transactions. The three types of supply chain flows are divided into three distribution schemes, namely:

a. Farmers ─ Collectors ─ Local Roasters
b. Farmers ─ Collectors ─ Inter-regency Traders ─ Outside-regency Traders
c. Farmers ─ Inter-regency Traders ─ Outside-regency Traders

The main coffee supply chain flows through three business groups, namely producers (Farmers), distributors (Collectors, Inter-regency Traders, and Outside-regency Traders), and

downstream industries (Local Roasters). The flow consisted of the flow of coffee beans, specification, and payment transactions (Hakim et al., 2020).

4.1.1. Coffee Bean Flow (Green Bean)

Some farmers choose to sell their coffee beans to collectors, because the location of the collectors is closer to where the farmers live. Besides that, the farmers get various other conveniences such as collectors who come directly to farmers so that farmers do not have to pay the transportation cost. The various advantages provided by collectors are often more considered than the higher prices from other buyers. However, this sales pattern can also threaten farmers because of the lack of incentives or the share of the price that farmers receive (Gelaw et al., 2016). While some other farmers, sell coffee beans directly to inter-regency traders because the location of where the farmers live is close to inter-regency traders, and there are no collectors in areas close to the farmers live. The flow description can be seen in Table 3.

Table 3. Green Bean Flow in Ciamis Coffee Supply Chain.

No.	Location	Green Bean Flow
1.	Rajadesa Village	Farmers → Inter-regency Traders → Outside-regency Traders
2.	Andapraja Village	Farmers → Collectors → Inter-regency Traders → Outside-regency Traders
		Farmers → Inter-regency Traders → Outside-regency Traders
3.	PurwarajaVillage	Farmers → Inter-regency Traders → Outside-regency Traders
4.	TigaherangVillage	Farmers → Collectors → Inter-regency Traders → Outside-regency Traders
		Farmers → Collectors → Local Roasters
5.	SukajayaVillage	Farmers → Collectors → Inter-regency Traders → Outside-regency Traders
6.	SukaharjaVillage	Farmers → Collectors → Inter-regency Traders → Outside-regency Traders

4.1.2. Information Flow

The flow of information consists of information on the quantity of available green beans and information on the price and quality of coffee beans expected. Green bean quantity information is related to how many green beans are sold by one actor to the next tier actors. The price information is obtained by asking directly to the next-tier actors. Besides that, price information is also obtained by farmers from other farmers who have previously transacted coffee buying and selling. Pricing per kilogram of green beans was carried out by following market prices and measuring the quality of green beans. Quality information relates to the moisture content and cleanliness expected by the buyer. All actors, especially farmers, should be able to follow information related to coffee beans' moisture content and cleanliness. Because the inability of actors to take advantage of this information can make buyers switch to other sellers (Hakim et al., 2020). The description of the flow of information along with the directions can be seen in Table 4.

Table 4. Information flow of the Ciamis Coffee Supply Chain.

Location	Actors and Types of Information Flow
1Rajadesa Village	Farmers(green beans quantity)→ Inter-regency Traders(green beans quantity)→ Outside-regency Traders Farmers ←(price and expected quality) Inter-regency Traders ←(price and expected quality) Outside-regency Traders
2Andapraja Village	Farmers (green beans quantity)→ Collectors (green beans quantity)→ Inter-regency Traders (green beans quantity)→ Outside-regency Traders Farmers ←(price and expected quality) Collectors ←(price and expected quality) Inter-regency Traders ←(price and expected quality) Outside-regency Traders
	Farmers (green beans quantity)→ Inter-regency Traders (green beans quantity)→ Outside-regency Traders Farmers ←(price and expected quality) Inter-regency Traders ←(price and expected quality) Outside-regency Traders
3Purwaraja Village	Farmers (green beans quantity)→ Inter-regency Traders (green beans quantity)→ Outside-regency Traders

Location	Actors and Types of Information Flow
	Farmers ←(price and expected quality) Inter-regency Traders ←(price and expected quality) Outside-regency Traders
4Tigaherang Village	Farmers (green beans quantity)→ Collectors (green beans quantity)→ Inter-regency Traders (green beans quantity)→ Outside-regency Traders Farmers ←(price and expected quality) Collectors ←(price and expected quality) Inter-regency Traders←(price and expected quality) Outside-regency Traders
	Farmers (green beans quantity)→ Collectors (green beans quantity)→ Local Roasters Farmers ←(price and expected quality) Collectors ←(price and expected quality) Local Roasters
5Sukajaya Village	Farmers (green beans quantity)→ Collectors (green beans quantity)→ Inter-regency Traders (green beans quantity)→ Outside-regency Traders Farmers ←(price and expected quality) Collectors ←(price and expected quality) Inter-regency Traders←(price and expected quality) Outside-regency Traders
6Sukaharja Village	Farmers (green beans quantity)→ Collectors (green beans quantity)→ Inter-regency Traders (green beans quantity)→ Outside-regency Traders Farmers ←(price and expected quality) Collectors ←(price and expected quality) Inter-regency Traders ←(price and expected quality) Outside-regency Traders

4.1.3. Financial Flow

Financial flow is the flow of financial transactions that flows from downstream to upstream. All green bean sales transactions between all supply chain actors are carried out in cash, so there is no delayed product payment process. Coffee sellers, especially farmers, want payments as soon as possible to get clear payment certainty. Because farmers are used to the ijon (not fully formed fruit trading) trading system which causes a lot of losses, so they don't want any more losses in the sale and purchase of coffee (Magfirahti et al., 2021). The description of financial flows can be seen in Table 5.

Table 5. Financial Flows in the Ciamis Coffee Supply Chain.

Location	Actors and Types of Financial Flow
1 Rajadesa Village	Farmers ←(cash payment according to the quantity and quality received) Inter-regency Traders ←(cash payment according to the quantity and quality received) Outside-regency Traders
2 Andapraja Village	Farmers ←(cash payment according to the quantity and quality received) Collectors ←(cash payment according to the quantity and quality received) Inter-regency Traders ←(cash payment according to the quantity and quality received) Outside-regency Traders
	Farmers ←(cash payment according to the quantity and quality received) Inter-regency Traders ←(cash payment according to the quantity and quality received) Outside-regency Traders
3 Purwaraja Village	Farmers ←(cash payment according to the quantity and quality received) Inter-regency Traders ←(cash payment according to the quantity and quality received) Outside-regency Traders
4 TigaherangVillage	Farmers ←(cash payment according to the quantity and quality received) Collectors ←(cash payment according to the quantity and quality received) Inter-regency Traders ←(cash payment according to the quantity and quality received) Outside-regency Traders
	Farmers ←(cash payment according to the quantity and quality received) Collectors ←(cash payment according to the quantity and quality received) Local Roasters
5 Sukajaya Village	Farmers ←(cash payment according to the quantity and quality received) Collectors ←(cash payment according to the quantity and quality received) Inter-regency Traders ←(cash payment according to the quantity and quality received) Outside-regency Traders
6 Sukaharja Village	Farmers ←(cash payment according to the quantity and quality received) Collectors ←(cash payment according to the quantity and quality received) Inter-regency Traders

Location	Actors and Types of Financial Flow
	←(cash payment according to the quantity and quality received) Outside-regency Traders

4.2. Coffee Supply Chain Performance

4.2.1. Supply Chain Reliability

The reliability performance of the coffee supply chain in Ciamis Regency has an average category with a value of 68.03. This value has an average category because it is in the 50-70 value range. Respondents gave a very important weight (0.81 - 1.0) on the attributes of the percentage of orders sent without complaint, perfect condition, and accuracy of documentation because all supply chain actors are trying to make the green beans sold can be priced at market prices without any discount. Meanwhile, the delivery time performance attribute is given a neutral weight (0.41 – 0.6) because in the coffee supply chain in Ciamis Regency, all supply chain actors are not given a target time or demand for green bean delivery time. In line with what was stated by (Groth, 2013), the more important thing in assessing coffee reliability is the quality and origin of the coffee beans. However, Thiruchelvam et al. (2018) stated that the time aspect in the supply chain is also significant because it relates to the efficiency and effectiveness of product delivery. The imperfect time aspect indicates that there is non-optimal supply chain management. The results of the coffee supply chain reliability performance analysis in the Ciamis Regency can be seen in Table 6.

Table 6. Calculation of Supply Chain Reliability Performance of Ciamis Coffee Supply Chain.

Matrix Level 2	Initial value	Matrix Level 2 Value	Matrix Level 1	Matrix Level 1 Value
% Orders Sent Without Complaints (**0.85**)	87.14	74.59	Perfect order fulfillment	68.03 (Average)
Perfect condition (**0.89**)	81.57	72.89		
Delivery time performance (**0.56**)	81.29	45.80		
Documentation Accuracy (**0.88**)	89.71	78.82		

4.2.2. Supply Chain Responsiveness

The order fulfillment cycle time for coffee commodities in Ciamis Regency reaches 23.06 days. There are 12 farmers (40% of all farmers), three collectors (75% of all collectors), and one inter-regency trader (100% of all inter-regency traders) who fulfill the cycle time performance of coffee order fulfillment in Ciamis Regency. So the percentage of actors who can reach the cycle time of fulfilling coffee orders in Ciamis Regency is 72% (good).

Source cycle time, especially for farmer actors, is an aspect that needs to be considered in supply chain management, because it is the aspect that requires the most time. This aspect relates to the process of harvesting and post-harvesting coffee. The more optimal the production process can optimize the order fulfillment cycle time (Gomez et al., 2020). Details of Order Fulfilment Cycle Time of Coffee Supply Chain in Ciamis Regency can be seen in Table 7.

Table 7. Order Fulfilment Cycle Time of Coffee Supply Chain Actors.

Supply Chain Actors	Source Cycle Time (hour)	Make Cycle Time (hour)	Delivery Cycle Time (hour)	Order Fulfilment Cycle Time	
				(hour)	(day)
1 Farmers	500	2	0.63	502.63	20.94
2 Collectors	8.75	2	2	12.75	0.53
3 Inter-regency Traders	10	4	24	38.00	1.58
Total				553.38	23.06

4.2.3. Supply Chain Cost

The coffee supply chain cost performance in Ciamis Regency has a good category with a value of 75.25. Inter-regency traders are actors who have the highest supply chain costs because of the significant financial capital owned by inter-regency traders. Meanwhile, farmers, who are the most important actors in the coffee supply chain, have the lowest supply chain cost-performance value because on average they have low financial

capital, so financing performance is not optimal. As was the case in the study of Nguyen et al. (2021), farmers are actors who require the highest costs in the procurement of raw materials and storage. Meanwhile, with various limitations, farmers are unable to meet the costs of doubling raw materials and optimal storage. In line with what was stated by Arifin (2013), Most farmers have limited financial capital so the cultivation and post-harvest processes are carried out at a minimum without any effort to improve the quality of their products. The coffee supply chain cost performance analysis in the Ciamis Regency can be seen in Table 8.

Table 8. Calculation of Supply Chain Cost Performance of the Ciamis Coffee Supply Chain.

Matrix Level 2	Initial value	Matrix Level 2 Value	Matrix Level 1	Matrix Level 1 Value
Farmers Supply Chain Cost (**0.86**)	83.70	72.16	Total Supply Chain Cost	75.25 (Good)
Collectors Supply Chain Cost (**0.88**)	85.83	75.82		
Inter-regency Traders Supply Chain Cost (**0.83**)	93.33	77.78		

4.2.4. Supply Chain Agility

The performance of the coffee supply chain agility in Ciamis Regency has a poor category with a value of 38.68. This value means that supply chain actors do not have good readiness to face dynamic market changes. Whereas every actor in the coffee supply chain must be prepared to face ever-evolving consumer demand (Hakim et al., 2020). Some supply chain actors already have the readiness to manage their resources when there is an unplanned change in consumer demand, such as the availability of sufficient green bean storage space when there is a planned return or demand. However, some other supply chain actors, especially farmers, do not carry out storing raw material stocks. Coffee farmers generally do not have coffee storage, because they have financial limitations in procuring an ideal coffee bean storage space (Nguyen et al., 2021). Whereas the existence of an optimal storage process can increase the effectiveness of the coffee supply chain (Palomino et al., 2017). The result of the coffee supply chain agility performance analysis in the Ciamis Regency can be seen in Table 9.

Table 9. Calculation of Supply Chain Agility Performance of the Ciamis Coffee Supply Chain.

Matrix Level 2	Initial Value	Matrix Level 2 Value	Matrix Level 1	Matrix Level 1 Value
Flexibility to procurement enhancement (**0.54**)	78.29	42.94	40.67	38.68 (poor)
Flexibility to production enhancement (**0.5**)	78	39		
Flexibility to delivery enhancement (**0.57**)	67	39.61		
Flexibility to consumer return enhancement (**0.51**)	71.94	37.34		
Adaptability to procurement enhancement (**0.51**)	76.71	39.19	38.11	
Adaptability to production enhancement (**0.5**)	78	39		
Adaptability to delivery enhancement (**0.54**)	65.86	36.33		
Adaptability to consumer return enhancement (**0.51**)	70.86	36.69		
Adaptability to decreased capacity (**0.53**)	69.86	37.26	37.26	

4.2.5. Supply Chain Asset Management

The performance of the coffee supply chain in Ciamis Regency has a poor category with a value of 30.59. This value indicates that the management of the coffee supply chain assets in the Ciamis Regency is still not efficient. This is because the products sold through inter-regency traders are priced cheaper at Rp. 19,000/kg compared to selling directly to small-medium industries (IKM) in the downstream sector in Ciamis Regency which is valued at Rp. 30,000/kg. Meanwhile, the investment or working capital and the value of the coffee supply chain assets are quite large, so a better quality product is needed to make the rate of the asset more efficient. In improving product quality, in addition to making improvements to the harvest and post-harvest processes, can be done by rejuvenating coffee plants also (Pineda et al., 2019; Rueda & Lambin, 2013). In addition, Othuon et al. (2021) in their research stated that the value of return on assets can also be increased by rejuvenating the equipment used. The coffee supply chain asset management analysis in the Ciamis Regency can be seen in Table 10.

Table 10. Calculation of Supply Chain Asset Management Performance of Ciamis Coffee Supply Chain.

Matrix Level 2	Initial value	Matrix Level 2 Value	Matrix Level 1	Matrix Level 1 Value
Farmer's cash-to-cash cycle time	52.20	Cash-to-cash cycle time	57.10	30.59 (Poor)
Collectors' cash-to-cash cycle time	59.04			
Inter-regency traders' cash-to-cash cycle time	60.06			
Farmers' rate of return on assets	10.43	Rate of return on fixed assets	4.07	
Collectors' rate of return on assets	1.52			
Inter-regency traders' rate of return on assets	0.26			

Based on the analysis of the supply chain performance attributes of the supply chain (reliability, supply chain responsiveness, supply chain cost, supply chain agility, and supply chain asset management) the average value of the coffee supply chain performance in Ciamis Regency is 56.91 in the average category. The performance of the coffee supply chain in Ciamis Regency still needs to be improved, especially regarding readiness to face dynamic market changes and inefficient asset management (Hakim et al., 2020). Green bean inventory management and the availability of green bean storage warehouse facilities and infrastructure need to be owned by all actors, especially farmers. Good coffee bean storage management can provide benefits, especially during the harvest season, when coffee beans are abundant and need a lot of storage space (Georgise & Mindaye, 2020).

4.3. Coffee Farmer's Share

Table 11. The Value of Coffee Farmer's Share Comparison.

Supply Chain Distribution Line / Supply Chain actors	Line 1 Farmers – Collectors – Local roasters	Line 2 Farmers – Collectors – Inter-regency traders – Outside-regency traders	Line 3 Farmers – Inter-regency traders – Outside-regency traders
Farmers			
Selling price /kg	Rp17,100.00	Rp17,100.00	Rp19,000.00
Cost /kg (fertilization, care, harvesting, post-harvest, transportation)	Rp3,316.26	Rp3,316.26	Rp3,316.26
Profit /kg	Rp13,783.74	Rp13,783.74	Rp15,683.74
Collectors			
Selling price /kg	Rp30,000.00	Rp19,000.00	
Cost /kg (purchase of green beans, storage, packaging, transportation)	Rp18,194.17	Rp18,194.17	
Profit /kg	Rp11,805.83	Rp805.83	
Inter-regency traders			
Selling price /kg		Rp25,000.00	Rp25,000.00
Cost /kg (purchase of green beans, storage, packaging, transportation)		Rp23,861.26	Rp23,861.26
Profit /kg		Rp1,138.74	Rp1,138.74
Farmer's share	57%	68%	76%

Based on Table 11. it can be seen that the highest value of Farmer's share is in the third line with a 76% value. The existence of collector actors makes the farmer's share lower with a value of 68% due to longer distribution channels (Justiceawan et al., 2020). The result is not the same as the first distribution channel, the value of the Farmer's share is the lowest because the enormous profits from the final value in the first line are only felt by the collector actors and not felt by the farmers. Thus, although the first line is classified as a short distribution channel, the farmer's share is the lowest because the share

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received by farmer actors is lower than the price received by collector actors.

The collectors in the first channel perform a more ideal post-harvest process than the collectors in the second channel. This collector can process coffee beans following the wishes of local roasters. As is the case in the research of Jaya et al. (2020), the highest profit is obtained by actors who can process coffee beans according to what consumers want.

The collector on the second channel only performs simple green beans post-harvest drying process. The process of buying and selling green beans on the second and third channels was accepted entirely or there are no green beans returned. Determination of the quality standard of green bean water content in the second and third channels only determines the final price of green beans and does not determine whether or not green beans pass in coffee trading. In contrast to the first channel, local roasters who are buyers from collectors determine the quality standard of water content as a standard for passing green beans that are traded. Therefore, the post-harvest collector process in the first channel is carried out more seriously, such as green beans that are traded and must be 100% clean and have a moisture content of 12-13%.

The main problem with the first distribution line is the imperfect flow of information related to market demand because farmers do not have direct access to information on market demand (Yunita et al., 2019). Whereas the standard information on the level of cleanliness and water content quality from local roasters should be able to be used by farmers in determining the harvest and post-harvest processes. Farmers are expected to be able to sell green beans directly to local roasters according to the specifications desired by local roasters so that farmer's shares can increase. It is essential to build a coffee supply chain information system so that the flow of information can flow more effectively.

5. Conclusions

The flow of the coffee supply chain in Ciamis Regency consists of the flow of material in the form of green beans that flow from upstream to downstream, the flow of information in the form of quantity that flows from upstream to downstream, and in the form of price and expected quality that flowing from downstream to upstream, and the flow of financial in the form of cash payment transactions that flowing from downstream to upstream.

The performance of the coffee supply chain in Ciamis Regency still needs to be improved, especially regarding readiness to face dynamic market changes and inefficient asset management. Green bean inventory management and the availability of green bean storage warehouse facilities and infrastructure need to be owned by all actors, especially farmers.

The highest farmer's share value in the coffee supply chain in Ciamis Regency is not found in the shortest distribution line. Because the benefits of the high final price are only felt by the collectors, not the farmers.

In the end, optimal supply chain management is not only determined by the length of the flow, but also by the effectiveness and efficiency of utilizing information from each of the existing actors. In line with what was stated by Borrella et al. (2015), Coffee producers must be able to take advantage of existing information to be taken into consideration in producing coffee beans that are following consumer desires. Umaran et al. (2022) in their research also explain that cutting supply chain channels cannot be a solution because it can lead to new and more complicated problems.

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