ANALYSIS OF DIFFERENCE IN SALES PRICE OF ARABICA COFFEE CERTIFIED BY SUSTAINABLE AGRICULTURE INSTITUTES RAINFOREST ALLIANCE AND FAIRTRADE IN CENTRAL ACEH
(Case Study of Rahmat Kinara Multi-Purpose Cooperative)

Ilma Fitri¹, Yusak Maryunianta², Riantri Barus³, Tavi Supriana⁴
¹Universitas Gajah Putih
²Universitas Sumatra Utara

email correspondence: riswandi170897@gmail.com

Received: 10 August 2022 | Accepted: 6 June 2023

ABSTRACT

Certification is the judgment of a third party as a liaison between the buyer and the seller, where both parties must meet all of their respective certification criteria or standards. The Rahmat Kinara multi-purpose cooperative is one of the cooperatives engaged in the trade of Rainforest Alliance and Fairtrade-certified Arabica coffee. This study aims to determine the difference between the selling price of Rainforest Alliance and Fairtrade-certified coffee at the Rahmat Kinara multi-purpose cooperative, Pegasing, Central Aceh. This research uses time-series data, analyzed using the Mann-Whitney Test (U Test). The results of the Mann-Whitney Test (U Test) showed a significant value of (0.000) < á 0.05, meaning that there is a significant difference between the selling price of Rainforest Alliance and Fairtrade-certified coffee. Sustainable Agriculture Support at the Rahmat Kinara multi-purpose cooperative improved the quality of the coffee crop (ecologically), helped withstand volatile price changes in global markets (economically), assisted in improving farm management, negotiating leverage, and providing access to premium markets (socially fair).

Keywords: Certification, Rainforest Alliance, Arabica Coffee, Fairtrade
INTRODUCTION

Arabica Coffee (*Coffea Arabica L*) is one of the mainstay agricultural commodities of Central Aceh (Ilma and Ridhana, 2019). Gayo Arabica coffee is in demand by the world market because of its taste, aroma, and the guarantee of various certificates such as Fairtrade, Organic Coffee, and Rainforest Alliance (Fitri and Gunawan, 2020). These certificates add value to the price of Arabica Coffee in the world market. Central Aceh has 14 sub-districts and is between 200 to 2,600 meters above sea level. Most of the coffee plantations in this district are 1,200-1,600 meters above sea level, which is an ideal altitude for Arabica Coffee (Ilma et al., 2020). Several coffee factories in Central Aceh process coffee beans into green beans that are ready for export. One of the coffee factories in Central Aceh is the Multipurpose Cooperative Rahmat Kinara. In general, cooperatives provide various benefits for small farmers, who become members of cooperatives, small farmers obtain agricultural tools such as tripe machines, hand spayer and hoes to support coffee farming activities, and ensure the determination of the selling price of green from farmers to the cooperative. Cooperation between cooperatives and farmers is very helpful in marketing coffee abroad, where the cooperative enters into cooperation contracts with foreign parties in marketing coffee production. Certification is the judgment of a third party as a liaison between the buyer and the seller, where both parties must meet all of their respective certification criteria or standards (Manurung et al., 2012).

The Rainforest Alliance (RA) is a secretariat or an agency of the Sustainable Agricultural Network (SAN) that manages the certification system. Farms can be certified and use the Rainforest Alliance label if they meet the standards of SAN. SAN is a coalition of independent, nonprofit conservation organizations that promote socially and environmentally sustainable farming activities by developing smallholder and exporter standards (Rainforest Alliance. 2013). The Rainforest Alliance certification can help smallholders withstand volatile price changes in global markets, help improve farm management, negotiate leverage, and provide access to premium markets. By implementing the SAN sustainable agriculture management system through the RA certification body, smallholders can control costs, increase efficiency, and improve the quality of their coffee (Rainforest Alliance. 2013).

To obtain FT certification, smallholders must form or join a local organization such as a cooperative. This organization will register the smallholders for FT certification. The organization must do several things such as strengthening itself, documenting activities and production, making reports, and receiving visits from Fairtrade Labeling Organization (FLO) inspectors, who will visit periodically for coaching and auditing (Suhartana and Sumino, 2009). FLO is a nonprofit organization responsible for directing and executing orders, setting standards, and supporting producers and traders in trading activities within the FT environment (Chairawaty, 2012). The FT certification is given to products (mainly food...
products) that are imported and produced in developing countries under the social and environmental agreements contained in the International Labour Organization (ILO) conventions and the recommendations stated in Agenda 21 of the United Nations (UN) (Loureiro and Lotade, 2005).

The first criterion of FLO is small producers, and the second is plantation or industry workers (Fairtrade Labelling Organizations, 2005). The minimum standard for FLO is the willingness to practice environmental protection, specifically protecting the natural environment and making environmental protection a part of their agricultural management (Fairtrade Labelling Organizations, 2005). FT respects and encourages agricultural and environmentally sustainable production practices. Producers are also encouraged to apply organic principles, namely the principle of diversity in the environment (Fairtrade Labelling Organizations, 2010). While chemical pesticides will show more benefits in the short term, natural plant protection efforts with the principle of diversity will show comparative benefits in the long run (Sutanto, 2002). Institutionalization is a collective activity in control or jurisdiction, liberation, and the expansion of individual activities (Arifin, 2005). The role of institutions in an agribusiness system will determine the success of future agricultural development. Institutions drive the activities in an agribusiness subsystem; a series of activities require the drive of multiple institutions (Nuraini, 2016). Institutional revitalization requires a flexible strategy and the ability to understand the elements of formal and non-formal institutions and strategic approaches to determine entry points in a planning process supporting the development of autonomous regions (Suradisastra, 2006). The sustainability of innovation beyond the idea stage depends on how the actors change the norms and patterns of interaction through institutional innovation (Prasad and Shambu, 2007). Institutional innovation activities can help implement and encourage sustainable agricultural development. However, this requires expertise in market knowledge, agribusiness, and rural finance (Adekunle et al., 2012). Institutional analysis is necessary to provide in-depth information on actual conditions and the corrective steps needed to cover weaknesses in the institution, which will ultimately improve the business (Kusnandar et al., 2013). Sustainable agriculture is the use of renewable and non-renewable resources for agricultural production processes by minimizing negative impacts on the environment. In this case, sustainability refers to the use of resources, the quality and quantity of production, and the environment, that incorporate sustainable agricultural aspects, namely ecological, economic, and socially fair (Radar, 2021). In addition to better product prices, smallholders also gain several benefits from improving environmental quality: 1. Increased soil fertility; 2. Increased biodiversity; 3. Plant resistance to weather changes; 4. Reduced cost from purchasing chemical inputs; 5. Additional income from by-products; 6. Creation of job opportunities for local labor; 7. Strengthened smallholder organization for production and marketing; 8. Improved health. Coffee certification
programs provide good benefits if implemented correctly. Certification programs teach smallholders proper cultivation methods under the standards of the certification body (Suhartana and Sumino, 2009.). These programs also aim to guide smallholders to produce high-quality coffee, ultimately improving the overall quality of Indonesian coffee. Through these programs, smallholders will be more aware of their environmental and social conditions, encouraging them to practice sustainable farming (Ardiyani and Erdiansyah, 2012).

The price level is the number that represents the value, price, development speed, and production based on specific units of measurement, premium costs, insurance, or expenses (Kotler and Armstrong, 2012). An increase in prices greatly impacts the economic conditions of importing countries as they must use more of their foreign exchange reserves (Breunig and Chia, 2013). Theoretically, there are seven factors affecting prices, namely economic conditions, demand and supply, the elasticity of demand, competition, costs, goals of companies, and government supervision (Swastha and Irawan, 2005). Factors influencing pricing are as follows: 1. The elasticity of demand; 2. Cost structure; 3. Competition; 4. Positioning of products/services offered; 5. Targets to be achieved by the company; 6. Product life cycle/services; 7. Resources used; 8. Economic conditions (Fitri and Hikmah, 2019).

The act of selling is an integrated effort to develop strategic plans to satisfy the needs and wants of buyers to generate sales and, in turn, profits (Marwan, 2010). The concept of sales refers to the orientation of a company that emphasizes sales volume or profits (Laksana, 2008). In addition, this concept prioritizes products produced for selling purposes, which are supported by sales and promotions so that the company can achieve its short-term goals through achieving sales targets (Assauri, 2007).

To gain the trust of foreign markets, Arabica coffee products are required to be officially certified. The products will undergo a standard assessment test carried out by well-known coffee certification bodies, such as Organic, Fairtrade, Rainforest Alliance, 4C (Common Code), and several others. Each certification body has different standards and added value and will impact the selling price differently. All certification bodies have one goal namely the sustainability of coffee production. Sustainable management will have an impact on the quality and quantity of coffee produced, which by increasing the quality and quantity will increase the source of income for the farmers themselves.

The certification bodies owned by rahmat kinara are Organic Control Union (CUC) from the Netherlands with registration number 818584, Rainforest Alliance (RFA) from Costa Rica, Central America with registration number SFC-C -06696, and Fairtrade International from Germany with registration number FLO -ID 31376. As of March 2015, Rahmat Kinara received recognition as a Temporary Coffee Exporter (Eksportir Kopi temporary /EKS) from the Ministry of Trade of the Republic of Indonesia.
Certified coffee has a higher quality and selling price, also known as the premium price, than its non-certified counterpart. This price signifies that the smallholder practices sustainable farming. The principles and criteria (P&C) of the Rainforest Alliance certification help coffee smallholders increase efficiency, improve quality, and control production costs. Fairtrade (FT) is a movement, process, or set of principles. There are two types of FT products, namely products that have been certified by Fairtrade International/FLO and products sold by members of FLO who are recognized by the FT community. Rahmat Kinara has 475 and 368 smallholders certified by Rainforest Alliance and Fairtrade, respectively (Stenzel, 2012). With this research, it is hoped that the certifications owned by the Mercy Kinara cooperative, namely Fairtrade (FT) and the Rainforest Alliance will bring sustainability in improving the quality and quantity of coffee production which has an impact on improving the welfare of the coffee farmers themselves. Based on the background and problem formulation, this study hypothesized that institutional roles play a large part in determining the price of Arabica green coffee beans in Central Aceh, Aceh.

**METHOD**

**Location and Time of Research**

Multipurpose Cooperative Rahmat Kinara is one of the cooperatives that has the Rainforest Alliance and Fairtrade certification. This research was conducted from April 19, 2022, to April 25, 2022.

**Sampling Method**

The method in determining the samples in this study is to use the total number of sales transactions for Arabica coffee certified by the Rainforest Alliance (22 sales transactions from January to June 2021) and Fairtrade (22 sales transactions from September 2021 to January 2022).

**Data Collection Method**

Time-series data is chronologically arranged. In time-series data, variations between variables occur due to time differences. This research observes the sales price of 44 transactions of Arabica coffee, spanning from January 2021 to January 2022, in the Rahmat Kinara Multi-Purpose Cooperative, Central Aceh, using internal data. Internal data is sourced from within the organization or company. The sales prices are broken down into those certified by Rainforest Alliance from January to June 2021 and Fairtrade from September 2021 to January 2022.

**Data Analysis Method**

The Mann-Whitney test (U-Test) is an alternative to the t-test. The Mann-Whitney test is a non-parametric test used to compare two population means.

Mann-Whitney Test Formula

\[ U_1 = n_1 n_2 + \frac{n_1 (n_1 + 1)}{2} - R_1 \]

Or equivalent to

\[ U_2 = n_1 n_2 + \frac{n_2 (n_2 + 1)}{2} - R_2 \]

Comparing U values with the U value in the table (the smaller U value is used).
The proposed hypothesis is:

$H_0$: two samples come from the population with an equal mean

$H_1$: two samples come from populations with an unequal mean

The decision-making criteria are:

$H_0$ is accepted if $U \geq U_a$

$H_1$ is accepted if $U < U_a$

RESULTS AND DISCUSSION

Rahmat Kinara Multi-Purpose Cooperative

Rahmat Kinara is a multi-purpose cooperative established under a notarial deed on March 5, 2007, with a legal entity number of 62.01/09/BH/III/2007. The cooperative is located in Jalan Takengon-Icaq KM 6.5 Kampung Simpang Kelaping, Pegasing, Central Aceh, Aceh. Rahmat Kinara mainly operates in coffee plantations, from production to sales. In addition, Rahmat Kinara provides electricity bill payment services for the community. The cooperative exists to cultivate and produce Arabica coffee in Central Aceh. Rahmat Kinara is certified by several international certification bodies, namely the Organic Control Union (CUC) from the Netherlands with registration number 818584, the Rainforest Alliance (RFA) from Costa Rica, Central America with registration number SFC-C-06696, and Fairtrade International from Germany with registration number FLO-ID 31376. In March 2015, Rahmat Kinara received recognition as a Temporary Coffee Exporter (Eksportir Kopi Sementara/EKS) from the Ministry of Trade of the Republic of Indonesia. Many parties are involved with Rahmat Kinara in the coffee trade, most of them being exporters.

Pricing Process at Rahmat Kinara

In determining its prices, Rahmat Kinara references the United States market, specifically the New York terminal. However, the price of coffee beans at the New York terminal tends to fluctuate. Therefore, Rahmat Kinara must also observe the price development of coffee in the world market, which is available daily at the New York terminal.

Rainforest Alliance-Certified Coffee Price Reference

Rahmat Kinara references the coffee prices in the New York terminal. The pricing is set with a contract from Medan. The Rainforest Alliance coffee contract on January 11, 2021, sets the price at $6.85.

<table>
<thead>
<tr>
<th>No</th>
<th>Date</th>
<th>Dollar Price (USD)</th>
<th>Rupiah Total Price (Rupiah/kilogram)</th>
<th>Export Fee (Rupiah/kilogram)</th>
<th>Selling Price (Rupiah/kilogram)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>January 11, 2021</td>
<td>$6.85</td>
<td>14,084</td>
<td>96,476</td>
<td>7,000</td>
</tr>
<tr>
<td>2</td>
<td>February 10 to June 25, 2021</td>
<td>$6.85</td>
<td>14,229</td>
<td>97,469</td>
<td>7,000</td>
</tr>
</tbody>
</table>

Therefore, the base price of Rainforest Alliance-certified coffee at Rahmat Kinara on January 11, 2021, was Rp. 89,476. Therefore, the base price of Rainforest Alliance-certified coffee at Rahmat Kinara from 10 February to 25 June, 2021, was Rp. 90,469.
Table 2 The coffee pricing process at the New York terminal

<table>
<thead>
<tr>
<th>No</th>
<th>Date</th>
<th>Dollar Price (USD)</th>
<th>Rupiah Total Price (Rupiah/kilogram)</th>
<th>Export Fee (Rupiah/kilogram)</th>
<th>Selling Price (Rupiah/kilogram)</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>03 September 2021</td>
<td>$7.2</td>
<td>14,307</td>
<td>103,010</td>
<td>7,000</td>
<td>96,010</td>
</tr>
<tr>
<td>2</td>
<td>04 October 2021 until 31 January 2022</td>
<td>$7.2</td>
<td>14,199</td>
<td>102,232</td>
<td>7,000</td>
<td>95,233</td>
</tr>
</tbody>
</table>

Fairtrade-Certified Coffee Price Reference

Rahmat Kinara references the coffee prices in the New York terminal. The pricing is set with a contract from Medan. The Fairtrade coffee contract on September 4, 2021 sets the price at $7.2.

Table 3 Sales Prices of Arabica Coffee Certified by Rainforest Alliance and Fairtrade in Central Aceh (Case Study of Rahmat Kinara Cooperatives Multi-Purpose Cooperative)

<table>
<thead>
<tr>
<th>No</th>
<th>Selling Price (Rp)</th>
<th>Delivery Period</th>
<th>Selling Price (Rp)</th>
<th>Delivery Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>89.476</td>
<td>11/01/2021</td>
<td>96.011</td>
<td>03/09/2021</td>
</tr>
<tr>
<td>2</td>
<td>89.476</td>
<td>13/01/2021</td>
<td>96.011</td>
<td>09/09/2021</td>
</tr>
<tr>
<td>3</td>
<td>89.476</td>
<td>20/01/2021</td>
<td>96.011</td>
<td>17/09/2021</td>
</tr>
<tr>
<td>4</td>
<td>89.476</td>
<td>29/01/2021</td>
<td>95.233</td>
<td>04/10/2021</td>
</tr>
<tr>
<td>5</td>
<td>90.469</td>
<td>10/02/2021</td>
<td>95.233</td>
<td>15/10/2021/</td>
</tr>
<tr>
<td>6</td>
<td>90.469</td>
<td>16/02/2021</td>
<td>95.233</td>
<td>21/10/2021</td>
</tr>
<tr>
<td>7</td>
<td>90.469</td>
<td>26/02/2021</td>
<td>95.233</td>
<td>25/10/2021</td>
</tr>
<tr>
<td>8</td>
<td>90.469</td>
<td>01/03/2021</td>
<td>95.233</td>
<td>29/10/2021</td>
</tr>
<tr>
<td>9</td>
<td>90.469</td>
<td>08/03/2021</td>
<td>95.233</td>
<td>05/11/2021</td>
</tr>
<tr>
<td>10</td>
<td>90.469</td>
<td>22/03/2021</td>
<td>95.233</td>
<td>11/11/2021</td>
</tr>
<tr>
<td>11</td>
<td>90.469</td>
<td>26/03/2021</td>
<td>95.233</td>
<td>16/11/2021</td>
</tr>
<tr>
<td>12</td>
<td>90.469</td>
<td>30/03/2021</td>
<td>95.233</td>
<td>26/11/2021</td>
</tr>
<tr>
<td>13</td>
<td>90.469</td>
<td>07/04/2021</td>
<td>95.233</td>
<td>30/11/2021</td>
</tr>
<tr>
<td>14</td>
<td>90.469</td>
<td>12/04/2021</td>
<td>95.233</td>
<td>08/12/2021</td>
</tr>
<tr>
<td>15</td>
<td>90.469</td>
<td>19/04/2021</td>
<td>95.233</td>
<td>13/12/2021</td>
</tr>
<tr>
<td>16</td>
<td>90.469</td>
<td>26/04/2021</td>
<td>95.233</td>
<td>20/12/2021</td>
</tr>
<tr>
<td>17</td>
<td>90.469</td>
<td>15/05/2021</td>
<td>95.233</td>
<td>27/12/2021</td>
</tr>
<tr>
<td>18</td>
<td>90.469</td>
<td>21/05/2021</td>
<td>95.233</td>
<td>07/01/2022</td>
</tr>
<tr>
<td>19</td>
<td>90.469</td>
<td>26/05/2021</td>
<td>95.233</td>
<td>13/01/2022</td>
</tr>
<tr>
<td>20</td>
<td>90.469</td>
<td>31/05/2021</td>
<td>95.233</td>
<td>21/01/2022</td>
</tr>
<tr>
<td>21</td>
<td>90.469</td>
<td>11/06/2021</td>
<td>95.233</td>
<td>27/01/2022</td>
</tr>
<tr>
<td>22</td>
<td>90.469</td>
<td>25/06/2021</td>
<td>95.233</td>
<td>31/01/2022</td>
</tr>
</tbody>
</table>

Source: Primary Data Processed in 2022
Arabica Coffee Sales Price

Initially, Rahmat Kinara determined the price based on its contract with the buyer. There were two contract dates with Rainforest Alliance, the first on January 11, 2021, and the second from February 10 to June 25, 2021. Rainforest Alliance only opens contract opportunities at the beginning of the year for Aceh as it opens contract opportunities with coffee producers in several other provinces in Indonesia at the end of the year.

Similar conditions were found in the contract with Fairtrade. There were also two contract dates, the first on September 3, 2021, and the second on October 04, 2021, to January 31, 2022. The selling price of Arabica coffee at Rahmat Kinara is as follows.

Table 1 shows that the selling price of green bean Arabica coffee certified by Rainforest Alliance from January 11, 2021, to January 29, 2021, was Rp89,476/kg and totaled four transactions. From February 10 to June 25, 2021, the selling price of green bean Arabica coffee was Rp90,469/kg, totaling 18 transactions with CV. Harapan Bersama. The price increase obtained from the Rainforest Alliance certification from 10/2/2021, this is the second contract by the rahmat kinara cooperative, while from 4/10/2021 it is the second contract of the Fair Trade certification body with the rahmat kinara cooperative. The price fluctuations obtained by the rahmat kinara cooperative from each certification agency are in accordance with the contract agreement they run.

The selling price of Fairtrade-certified green been Arabica coffee from September 3, 2021, to September 17, 2021, was Rp96,011/kg and totaled three transactions. From October 4 to January 31, 2022, the selling price of green been Arabica coffee was Rp95,233/kg, totaling 19 transactions with PT. Maskawi Wijoyo.

Mann-Whitney Test (U-TEST) Analysis

Table 4 Results of the Mann-Whitney Test (U-Test) on the Price Difference Between Rainforest Alliance and Fairtrade-Certified Arabica Coffee at Rahmat Kinara Multi-Purpose Cooperative

<table>
<thead>
<tr>
<th>No</th>
<th>Variable</th>
<th>Mean Rank</th>
<th>Sig (2 Tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rainforest Alliance-certified coffee price</td>
<td>11.50</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>Fairtrade-certified coffee price</td>
<td>33.50</td>
<td></td>
</tr>
</tbody>
</table>

Table 4 shows that the significant value (0.000) is below 0.05, meaning that $H_0$ is rejected and $H_1$ is accepted. Two independent samples come from populations with unequal means. There is a significant difference between the price of Arabica coffee certified by Rainforest Alliance and Fairtrade. The mean price of Rainforest Alliance-certified coffee is Rp11.50/kg, while Fairtrade-certified coffee has a mean price of Rp33.50/kg.

Directives of the Institute for Sustainable Agriculture at Rahmat Kinara Cooperatives

The results of the Mann-Whitney Test (U-Test) analysis were the basis for determining the difference in the selling price of Arabica coffee. These results show a price difference between coffee products with Rainforest Alliance and Fairtrade certifications. This price difference will direct Rahmat Kinara
Cooperatives to implement sustainable agriculture by improving the quality of the coffee crop (ecologically), helping withstand price fluctuations in the global market (Economically), assisting in improving farm management, negotiating leverage, and providing access to premium markets (socially fair). The following diagram represents this statement.

CONCLUSION AND RECOMMENDATION

Conclusion

The results of the Mann-Whitney Test (U Test) showed a significant value of \((0.000) < \alpha_{0.05}\), meaning that there is a significant difference between the selling price of Rainforest Alliance and Fairtrade-certified coffee. The mean price of Rainforest Alliance-certified coffee is Rp11.50/kg, while Fairtrade-certified coffee has a mean price of Rp33.50/kg.

Recommendation

1. Rahmat Kinara should maintain its certifications as certified coffee has a higher selling price than its non-certified counterpart.

2. Assisted smallholders should follow directives from Rahmat Kinara to advance toward sustainable agriculture.

![Diagram showing the relationship between goals, actors, and criteria in sustainable agriculture](image)

**Figure 1** Goa and Criteria of Rahmat Kinara Cooperative in Sustainable Agriculture
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