



Assessing the Feasibility of Fairtrade Living Income-Based Shared Value Model for Sustainable Coffee Value Chains

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Amid volatile coffee prices, which often result in inadequate income for smallholder farmers, this study examines the feasibility of a Fairtrade Living Income (FLI)-based shared value model. It assesses how developing shared value chains, aligned with FLI standards, can close income gaps and lower financing risks. This study employs a mixed-methods approach, collecting and analyzing data from four differentiated coffee clusters in Indonesia with distinct value chain structures and governance. The Fairtrade Living Income Reference Price (LIRP) was applied to benchmark decent income standards. The findings indicate that the FLI-based shared value model whether Creating Shared Value (CSV) or Inclusive Value Chain (IVC) can stabilize incomes through minimum price guarantees, institutional development, capacity building, and improved market access. Notably, the IVC model demonstrates superior performance in empowering farmers and promoting equitable value distribution compared to the CSV type. This offers a practical framework for enhancing smallholder farmer livelihoods and promoting sustainable development in the global coffee industry. A key strategy is establishing LIRP-based minimum price guarantees.

1. Introduction

Smallholder farmers, who represent 95% of the world's coffee producers, face significant economic challenges due to the volatility of global coffee prices (International Trade Centre, 2021). This instability often renders coffee production economically unsustainable, particularly for those who depend on it for their livelihood. For example, in 2020, coffee prices fell 30% below the ten-year average, and a significant decline in producers' annual income occurred between 2017 and 2018, pushing many below the poverty line (Fromm, 2023). Even premiums from certified coffee, such as fairtrade or organic, frequently fail to cover production costs (Estevez, Bhat, & Bray, 2018). These financial pressures are compounded by

the growing threats of climate change and declining productivity, which together jeopardize the future of global coffee production (Adane & Bewket, 2021; Biswas-Tortajada & Biswas, 2015; Moreaux et al., 2022; Verburg et al., 2019).

In response to these challenges, the third-wave coffee movement has spurred the growth of alternative value chains centered on differentiated products like single-origin and specialty coffees (Hernandez-Aguilera et al., 2018). This market shift is driven by a growing consumer demand for high-quality coffee distinguished by its origin, unique processing, and superior taste. Unlike traditional commodity chains, these differentiated markets often utilize direct trade models, which cultivate closer

relationships between farmers and buyers (Edelmann, Quiñones-Ruiz, & Penker, 2022; Grabs & Ponte, 2019; Panhuysen & Pierrot, 2021). This evolving structure creates opportunities for smallholders to assume more prominent and valuable roles within the supply chain (Hernandez-Aguilera et al., 2018).

The trend toward differentiated coffee links product quality not only to taste but also to broader concerns such as environmental impact and farmer welfare. While this shift presents a clear opportunity for smallholder farmers to access premium markets, it also introduces new complexities. Farmers must navigate inequitable power dynamics with international buyers and meet rigorous, often subjective, quality assessment standards, which can create new barriers to entry and equitable participation (Boaventura et al., 2018). Hence, in today's complex agribusiness landscape, the sustainability of global coffee production must be approached from economic, environmental, and social perspectives. Farmers need stable income sources to invest in sustainable agricultural practices. This is achievable only through fair incomes that empower farmers to make necessary investments.

Discussions around fair incomes for coffee farmers have been elaborated in prior literature with the focus on promoting decent living standards. Poverty often prevents farmers from investing in efficient and sustainable production methods. This financial limitation also limits their ability to pay workers a living wage, and in some instances, contribute to the exploitation of child labor (Fromm, 2023). While fairtrade minimums and premiums as practiced in fairtrade certifications have the potential to stabilize incomes, their effectiveness can be hampered by free entry mechanism and excess certification (de Janvry, McIntosh, & Sadoulet, 2015) and structures of power in the value chain (Luetchford, 2008). This can dilute the benefits for farmers. Hence, there is a pressing need for healthier pricing strategies, underlining the importance of fair living incomes.

Fairtrade Living Income (FLI) scheme is founded on the principle that fair and stable income levels are critical for securing sustainable livelihoods and the long-term viability of smallholder farming communities in fluctuating agricultural markets. The FLI scheme is based on four standards: (1) Cost of a decent standard of living, which encompasses food expenses, housing, education, healthcare, clothing, and other essential needs, with a provision for unexpected events; (2) Sustainable yields; (3) Viable farm size, to fully employ the available household labour; and (4) Cost of sustainable production, to achieve sustainable yields.

In another body of literature, the development of Shared Value Models (SVMs) within farming communities has been linked to increased efficiencies and a more equitable distribution of income (Borda et al., 2021; Devaux & Ordinola, 2019). Within SVMs, two models frequently discussed are Creating Shared Value Model and Inclusive Value Chain Model (Biswas-Tortajada & Biswas, 2015; Doherty & Kittipanya-Ngam, 2021). The Creating Shared Value (CSV) model is a company-centric approach aligning corporate profit with social progress. It focuses on reconceiving products and markets, redefining value chain productivity for sustainability, and building supportive local clusters (Menghwar & Daood, 2021). In contrast, the Inclusive Value Chain (IVC) model integrates marginalized communities, such as smallholders, into larger business value chains (Doherty & Kittipanya-Ngam, 2021). It develops producer capacity through training and financial access, fostering equitable relationships to build a more resilient and sustainable supply chain.

The critical distinction between the two models lies in their approach to empowerment and inclusivity. The CSV focuses on advancing profitability through socially responsible business practices, while IVC model centers on promoting equity by transforming the value chain relationships. Regardless of the difference, both models of SVMs promote investments in infrastructure, capacity building, and market development to enhance productivity and product quality. They emphasize direct trade relationships, transparency, and traceability, promoting fair compensation for smallholder farmers. In contrast to traditional value chains, where intermediaries often capture most profits, SVMs aim to ensure that smallholder farmers get more benefits from the value chain.

Theoretically, integrating FLI scheme into SVMs has the potential to transform agroindustry value chains into systems that simultaneously generate economic profits while ensuring social equity and sustainability. Notably, fairtrade pricing and value chains have traditionally been studied as separate topics. Furthermore, collective action among farmer groups is crucial for producing high-quality coffee (Pratama & Wisika, 2022). Achieving these standards requires a governance system with clear production guidelines, support for essential services (e.g., input supply, post-harvest processing), and sanctions to ensure compliance. By fostering accountability, these collective efforts are essential for successfully implementing shared value models.

This study aims to examine the relationship between

differentiated coffee production and farmers' income levels using a value chain approach (Grabs & Ponte, 2019). Key factors include product quality, direct trade models, and access to market and financing, along with the Fairtrade Living Income (FLI) scheme. The study incorporates elements from Jacobi et al. (2024) and Horton et al. (2020) that emphasize sustainable value chain development for smallholder farmers through commercial innovation, competitiveness, and multi-stakeholder collaboration. To achieve its objective, this study inspects the differentiated coffee value chains in Indonesia. As the world's fourth-largest coffee producer, Indonesia relies heavily on smallholder farmers, who contribute 96% of the country's total coffee production. However, these farmers struggle to maintain sustainable production and making further investment due to the risks associated with agribusiness financing.

Fairtrade pricing and value chains have traditionally been studied as separate topics. This study addresses a critical gap in the literature by theoretically integrating the FLI scheme into Shared Value Models (SVMs) and empirically examining their potential to transform agroindustry value chains into systems that generate both economic profits and ensure social equity and sustainability. The paper is structured as follows: first, an exploration of FLI and SVMs integration within the agribusiness sector; next, a discussion of the research methodology and presentation of findings; and finally, a conclusion offering areas for future study and policy recommendations.

2. Materials and Method

This study utilizes a mixed-methods design. To effectively evaluate the adoption of FLI standards to SVMs within coffee value chains, this study explores empirical data from four clusters of differentiated coffee value chains in East Java, Indonesia. Areas producing differentiated coffees in this region include the regencies of Banyuwangi, Bondowoso, Jombang, Pasuruan, and Jember. In 2019, East Java had a total coffee plantation area of 90,735 hectares, yielding 45,279 tons of coffee. Large state-owned plantations encompassed 12,036 hectares and contributed 3,513 tons (16.3%) to the overall production. Private plantations covered 5,591 hectares, producing 776 tons (17.7%). In comparison, smallholder farmers, totaling 338,776, cultivated 73,108 hectares and accounted for 40,990 tons (66%) of the region's coffee output.

Primary data in this study include key actors (farmers, processors, and international buyers), governance mechanism, value distribution, productivity, agricultural techniques, also cost structure of a differentiated coffee

value chain. Meanwhile, secondary data include descent costs of living and coffee prices. Data for descent costs of living were gathered from statistical reports of Central Bureau of Statistics, while local coffee prices data were collected from reports of the Ministry of Agriculture. In addition, data for international coffee prices were collected from <https://www.barchart.com/futures/>. To properly select the respondents, a three-stage sampling technique was employed. In the first stage, the population of smallholder coffee producers in East Java was initially divided into seven clusters: Ijen-Raung, Anjasmoro, Arjuno, Argopuro-Gumitir, Semeru, Bromo, Wilis, and Lawu. These clusters are named after the mountain ranges where coffees are cultivated, considering the geographical and environmental significances of each location. Distinct climatic conditions, soil types, and altitudes in each mountain range contribute to the unique flavor profiles of the coffees produced.

The second stage focused on selecting communities cultivating differentiated coffee within each cluster. The selection criteria included possession of geographical indication certificates that is crucial for the production of differentiated coffees, also their engagement to the export markets. Only four clusters met these criteria: Ijen-Raung, Anjasmoro, Arjuno, and Argopuro-Gumitir. In the third stage, key informants within the four clusters were identified. Selection of key informants was conducted through multiple ways. First, we did survey to the list of participants in the Cup of Excellent event, which is annually organized by the Specialty Coffee Association Indonesia (SCAI). We did also survey to the presence of single-origin coffees in e-commerce platforms, using keywords of "single-origin coffee AND name of identified cluster". Then, access to key informants was then obtained through supports from the coffee farmers association, specialty coffee profession association, and coffee exporters association. Inputs from some traders and roasteries were also acknowledged. The details on key informants per cluster are summarized in Table 1.

In the Ijen-Raung cluster, respondents include representatives from smallholder farming communities in the Kalipuro subdistrict of Banyuwangi, with approximately 60 farmers, and the Sumber Wringin subdistrict of Bondowoso, with around 150 farmers. These two subdistricts are the primary producers of differentiated coffees in the cluster. Additionally, respondents from secondary processing entities include Ijen Lestari in Banyuwangi and Green Ijen in Bondowoso. In the Anjasmoro cluster, primary respondents consist of smallholder farmers who are members of the Asosiasi Kopi Wonosalam, a coffee farmers' association in the

Wonosalam subdistrict, Jombang. This association includes approximately 230 farmer members. Additionally,

respondents within this cluster include representatives from Rubath Kopi Jombang and Devarie Coffie.

Table 1: Summary of Key Informants and Data Collection.

| Cluster | Key Informant Groups (Primary Data) | Size/Group | Data Collection Timeline |
|---------------------|---|---|---|
| Ijen-Raung | Smallholder farmers (Kalipuro, Sumber Wringin); Secondary Processors (Ijen Lestari, Green Ijen) | ~60 farmers (Kalipuro); ~150 farmers (Sumber Wringin); 2 Processors | Primary data collection for income and cost data was conducted during the peak coffee harvesting period in 2024. Simulation data covered 2014–2023. |
| Anjasmoro | Smallholder farmers (Asosiasi Kopi Wonosalam); Processors (Rubath Kopi, Devarie Coffie) | ~230 farmer members; 2 Processors | |
| Arjuno | Smallholder farmers (Asosiasi Petani Kopi Pasuruan) | ~153 farmer groups | |
| Argopuro-Gumitir | Smallholder farmers (Ketakasi cooperative) | ~178 members | |
| In-depth Interviews | Cooperative leaders, Processors, Representatives from SCAI, GAEKI, APEKI, DEKOPI | Multiple key stakeholders | |

Respondents in the Arjuno cluster include farmer members of the largest coffee farmers’ association in the area, the Asosiasi Petani Kopi Pasuruan, which comprises approximately 153 farmer groups. Meanwhile, farmer respondents in the Argopuro-Gumitir cluster are members of the Ketakasi cooperative in Jember, consisting of 178 members. To assess the impact of shared value initiatives on smallholder incomes, this study employed a mixed-methods approach to benchmark farmer earnings against the Fairtrade Living Income (FLI) standard. The quantitative portion of the research was anchored by the Living Income Reference Price (LIRP), a metric that determines the price a typical farmer needs to earn a decent living from their crop.

We gathered detailed data on production techniques, costs, yields, and income by conducting structured surveys and interviews directly with farmers in each selected cluster. This information was then applied to the LIRP formula to calculate existing income gaps. To ensure accuracy, the cost components within the formula were defined using a Sustainable Livelihood Approach and validated against data from the National Socio-Economic Survey (Susenas). We also ran income simulations and scenario analyses, using variables like coffee prices and farm sizes, to project how different value chain arrangements could improve livelihoods. To complement these quantitative findings, we collected qualitative data through in-depth interviews and focus group discussions. These sessions included a diverse range of stakeholders, from smallholder farmers and cooperative leaders to processors and representatives from key coffee associations (SCAI, GAEKI, APEKI, and DEKOPI). This approach allowed for a more nuanced understanding of the initiatives’ real-world effectiveness and the complex socio-economic dynamics that influence income distribution. To ensure alignment with the research question, the study adopts a structured approach

to data analysis. The comparative analysis examines data from the different clusters to identify the impacts of shared value models on income levels, exploring variations in income stability, premium payments, and market access among the selected clusters.

3. Results

Originating in East Java, Indonesia, Java Coffee thrives in the region’s volcanic soil and tropical climate conditions ideal for cultivation. Introduced by the Dutch in the late 17th century, Javan Arabica quickly gained global significance. The area’s volcanic landscape enriches the soil with minerals, contributing to the coffee’s distinctive flavor profiles. The local agroindustry is characterized by sustainable practices such as shade-grown cultivation, which enhances climate resilience and supports social equity. To mitigate risks from price volatility, smallholder farmers typically diversify their income by cultivating other commodities like durian and clove and engaging in cattle farming. These high-quality production methods have secured Java coffee’s critical position in the global specialty market. The Ijen-Raung area, in particular, is renowned for its premium coffee, which features rich, earthy flavors and complex aromas that appeal to specialty roasters worldwide. Comparison of Fairtrade Living Income (FLI) analysis and the market price in the four clusters of differentiated coffee producer in East Java is presented in the following. Table 2, which is presented in the end part of this section, summarized the results.

3.1. Ijen-Raung Cluster

The Ijen-Raung Cluster is located in the volcanic regions of Bondowoso and Banyuwangi in Indonesia. This area is well-known for its exceptional Arabica coffee, which features distinct flavor profiles influenced



by the volcanic soil. The value chain supporting this single-origin coffee production involves a network of actors, primarily smallholder farmers and secondary processors. Farmers are the backbone of this system, while secondary processors integrate various functions, creating shared value throughout the process. Farmers in areas like Kalipuro and Sumber Wringin cultivate Arabica cherries, which secondary processors such as Ijen Lestari and Green Ijen procure and process. Processing involves pulping, fermenting, washing, and drying the cherries to produce green beans, later sold to international buyers for markets in Germany, Canada, Taiwan, and South Korea.

Income distribution shows that farmers receive 11% of the final price, processors 54%, and international buyers 35%, emphasizing the critical role processors play. They provide technical support, ensure fair trade practices, and maintain quality standards, fostering global market connections for farmers. Participation in the value chain has empowered farmers by improving their skills, market access, and incomes. Processors prioritize traceability, transparency, and infrastructure development to sustain coffee quality and consumer trust. This cluster exemplifies the principles of Creating Shared Value (CSV), strengthening the region's position in global coffee markets while fostering sustainable practices and mutual growth. The shared value chain model promotes collaboration and equitable pricing, enhancing market visibility through certification and branding. Despite this, power dynamics create farmer dependency on processors for market access and quality control.

Turning now to evaluate the applicability of LIRP for Ijen-Raung Cluster. In 2023, with a 1.3 ha farm, net income from coffee reached IDR 52,187,537, with production costs of IDR 23,944,371. The LIRP was calculated at IDR 14,641 per kg for cherries and IDR 87,845 per kg for green beans. Market prices far exceeded these benchmarks, with cherries selling at IDR 30,000/kg (2.05 times the LIRP) and green beans at IDR 120,000/kg (1.37 times the LIRP). These figures explain farmers' preference for selling cherries over green beans, as cherry sales yield nearly double the returns, mitigating processing risks and delays in payment. A long-term simulation (2014–2023) across various farm sizes in the cluster confirmed that market prices consistently exceeded LIRP levels. These results are driven by strong demand and relatively low living and production costs in the region. Even during periods of lower prices, coffee farming remained profitable, providing farmers and workers with a sustainable livelihood despite rising living costs.

3.2. Anjasmoro Cluster

The Anjasmoro Cluster in Jombang Regency is a notable example of differentiated coffee production, focusing on Excelsa coffee known for its robust flavor and high caffeine content. While Arabica coffee dominates the specialty market, Excelsa maintains a unique appeal, particularly in blends and instant coffee formulations. Smallholder farmers in Wonosalam Subdistrict are central to this value chain, supported by the Asosiasi Kopi Wonosalam, a 250-member farmer association. They cultivate Excelsa coffee using a mix of traditional and modern practices, often intercropping to diversify income. The association manages centralized processing facilities where cherries undergo pulping, fermenting, washing, and drying to produce high-quality green beans.

The association also handles marketing and distribution, connecting farmers to both domestic and international buyers, including markets in Germany, Malaysia, Egypt, and Japan. By aggregating produce, they enhance farmers' bargaining power and secure better prices. Farmers receive about 16% of the final price, with 52% going to processors and 32% to international buyers. This inclusive value chain model strengthens farmers' livelihoods by offering access to markets, technical assistance, and training. Quality management systems enable higher prices and encourage innovation in processing methods. Resource pooling improves production efficiency and capacity.

Key principles of the model include collaboration, transparency, and equitable profit-sharing. The association also supports capacity building and promotes collective branding, securing geographical indication certification to highlight the unique attributes of Anjasmoro Excelsa. While the association empowers farmers and fosters resilience, it can become a center of power, influencing decision-making and benefit distribution. Its effectiveness depends on strong governance, transparency, and accountability to its members. Turning now to evaluate the applicability of LIRP for Anjasmoro Cluster. In 2023, a 1.3 ha coffee farm yielded a net income of IDR 56,759,119 with production costs of IDR 15,071,650. The LIRP was IDR 13,814/kg for cherries and IDR 82,882/kg for green beans. However, actual market prices fell below these benchmarks, with cherries selling at IDR 12,000/kg (0.87 times the LIRP) and green beans at IDR 40,161/kg (0.48 times the LIRP). These figures explain why farmers prefer selling cherries over green beans, as cherry sales offer higher returns while spreading processing risks among farmer associations.

A long-term simulation (2014–2023) across different farm sizes revealed that market prices consistently remained below LIRPs, especially during low-price periods (2019–2020), likely reflecting low productivity in the cluster. Hence, smallholder farmers cannot rely solely on coffee and must diversify income sources (e.g., other crops or livestock). Moreover, they should join associations to pool resources and enhance product value through producing roasted beans and ground coffees. Despite rising living costs, market prices have not kept pace, threatening the viability of coffee farming in the cluster. Without proper interventions, local farmers may abandon coffee production altogether.

3.3. Arjuno Cluster

The Arjuno Cluster in Pasuruan Regency, located at the foothills of Mount Arjuno, is known for its premium Arabica coffee. These beans are sought after by local and international coffee roasters, owing to the region's unique microclimate and volcanic soil, which impart distinctive flavor notes. The flourish of the Arjuno Cluster relies on an innovative value chain model. In this model, lead farmers act as integrators, building an inclusive network that links farmers directly to the global market. Coffee products from this area are marketed globally, for instance to markets of South Korea, Japan, Taiwan, Malaysia, Saudi Arabia, and New Zealand. The lead farmers connect smallholders to global buyers, ensuring higher prices and eliminating intermediaries. About 15% of the final price goes to farmers, 50% to processors, and 35% to international buyers.

Smallholder farmers, especially in Prigen Subdistrict, cultivate coffee alongside other crops. Lead farmers manage primary processing pulping, fermenting, washing, and drying ensuring quality and sustainability. They also oversee marketing, distribution, and branding, creating a recognizable identity for Arjuno coffee. This lead farmer-driven model promotes inclusivity, better pricing, and sustainable practices. Quality management systems help farmers secure higher prices, while innovations in processing and common branding enhance market value. While the model empowers farmers, it creates a hierarchical structure that may marginalize less experienced farmers. The success of this system hinges on lead farmers fairly representing local interests and ensuring equitable benefit distribution.

Let's now assess the applicability of LIRP for the Arjuno Cluster. In 2023, a 1.3-hectare coffee farm generated a net income of IDR 57,307,723, with production costs at

IDR 22,474,439. The LIRP was IDR 20,970/kg for cherries and IDR 125,819/kg for green beans. However, actual market prices were significantly lower cherries sold at IDR 15,000/kg (0.72 times the LIRP) and green beans at IDR 70,000/kg (0.56 times the LIRP). As in other clusters, these figures explain why farmers prefer selling cherries to lead farmers rather than processing green beans. Cherry sales offer higher returns while distributing processing risks. A simulation (2014–2023) across various farm sizes showed market prices consistently below LIRPs, particularly during low-price periods (2019–2020), likely due to low productivity. Therefore, smallholders cannot rely solely on coffee and must diversify income sources. Joining lead farmers allows them to pool resources and enhance higher value products. Moreover, despite increasing living costs market prices have not kept up. Without targeted interventions, it may become unsustainable for local farmers.

3.4. Argopuro-Gumitir Cluster

The Argopuro-Gumitir Cluster in Jember Regency, East Java, is renowned for producing high-quality Robusta coffee, valued for its bold flavor, high caffeine content, and disease resistance. This makes it a popular choice for espresso blends and instant coffee. The cluster thrives due to collective action led by cooperatives like Ketakasi, which foster an inclusive value chain. Smallholder farmers, particularly in Bangsal Subdistrict, cultivate Robusta coffee alongside other crops. Cooperatives support resource sharing, improve production practices, and facilitate primary processing through centralized facilities with modern technology, enhancing bean quality and reducing post-harvest losses. In marketing and distribution, cooperatives establish direct trade relationships with international buyers in Europe, the U.S., Singapore, and Brunei. By consolidating farmers' products, they enhance bargaining power and secure better prices. Farmers receive around 15% of the final price, with 49% allocated to processors and 36% to international buyers, excluding cooperative profit-sharing. This cooperative-driven model promotes inclusivity, transparency, and fair profit distribution. Training programs on quality improvement, sustainability, and financial literacy empower farmers to actively participate in the value chain. Quality management systems enable higher prices, while investments in technology boost efficiency and reduce costs. The Argopuro-Gumitir Cluster exemplifies the power of collaboration in creating a sustainable and competitive coffee value chain.

In 2023, a 1.3-hectare coffee farm generated a net

income of IDR 53,099,071, with production costs at IDR 21,461,994. The LIRP was IDR 11,471/kg for cherries and IDR 68,826/kg for green beans. However, actual market prices were significantly lower cherries sold at IDR 10,000/kg (0.87 times the LIRP) and green beans at IDR 27,000/kg (0.39 times the LIRP). A simulation (2014–2023) over various farm sizes showed market prices consistently below LIRPs, particularly during

low-price periods in years 2019–2020, likely due to low productivity. Consequently, smallholders cannot rely solely on coffee. Aligning with lead farmers allows them to pool resources and enhance higher value products. As seen also in the Anjasmoro and Arjuno clusters, rising living costs in the cluster have not been matched by market prices. Coffee production in this cluster needs targeted interventions in order to be sustainable.

Table 2: Fairtrade Living Income (FLI) Analysis and Market Price Comparison at the Farm Size of 1.3 ha.

| Cluster and Products | Net Income (IDR) | Production Cost (IDR) | LIRP (per kg) | Market Price (per kg) | Market Price/LIRP Ratio |
|----------------------|------------------|-----------------------|---------------|-----------------------|-------------------------|
| Ijen-Raung | | | | | |
| Cherries | 52,187,537 | 23,944,371 | 14,641 | 30,000 | 2.05 |
| Green Beans | 52,187,537 | 23,944,371 | 87,845 | 120,000 | 1.37 |
| Anjasmoro | | | | | |
| Cherries | 56,759,119 | 15,071,650 | 13,814 | 12,000 | 0.87 |
| Green Beans | 56,759,119 | 15,071,650 | 82,882 | 40,161 | 0.48 |
| Arjuno | | | | | |
| Cherries | 57,307,723 | 22,474,439 | 20,970 | 15,000 | 0.72 |
| Green Beans | 57,307,723 | 22,474,439 | 125,819 | 70,000 | 0.56 |
| Argopuro-Gumitir | | | | | |
| Cherries | 53,099,071 | 21,461,994 | 11,471 | 10,000 | 0.87 |
| Green Beans | 53,099,071 | 21,461,994 | 68,826 | 27,000 | 0.39 |

4. Discussion

4.1. Fairtrade Living Income-Based Shared Value Model

Based on the findings presented in the earlier section,

there are differences in the aspects of institutions (governance mechanism), farmer capabilities (livelihood assets) and productivity levels (productivity level) among the four differentiated coffee clusters. The differences in the aspects of value chain form the following value chain typologies (see Table 3).

Table 3: Typologies of Four Differentiated Coffee Clusters in East Java.

| | Ijen-Raung Cluster | Anjasmoro Cluster | Arjuno Cluster | Argopuro-Gumitir Cluster |
|------------------------|---|---|--|--|
| Value chain type | Creating Shared Value (CSV) | Inclusive Value Chain (IVC) | Inclusive Value Chain (IVC) | Inclusive Value Chain (IVC) |
| Value chain integrator | Secondary processors | Farmer association | Lead farmers | Farmer cooperative |
| Governance mechanism | Secondary processors receive contract from overseas buyers, collect and buy coffee cherries from individual farmers at premium price | Farmers association receives contract from international buyers, collect and buy coffee cherries from individual farmers at premium price | Lead farmers receive contract from overseas buyers, collect and buy coffee cherries from individual farmers at premium price | Farmers cooperative receives contract from international buyers, collect and buy coffee beans from individual farmers at premium price |
| Planted area | 28,725 ha | 2,305 ha | 5,387 ha | 6,442 ha |
| Production capacity | 19,036 tons | 1,854 tons | 2,303 tons | 4,193 tons |
| Income allocation | Farmers (11%): Secondary processors (54%): International buyers (35%) | Farmers (16%): Farmers association (52%): International buyers (32%) | Farmers (15%): Lead farmers (50%): International buyers (35%) | Farmers (15%): Farmer cooperatives (49%): International buyers (36%); excluding cooperative's profit-sharing |
| Livelihood asset | Geographical Indication: Kopi Arabika Java Ijen-Raung Bondowoso (IG.00.2013.000001); Farmers only have capabilities on on-farm activities | Geographical Indication: Kopi Excelsa Jombang (E-IG.10.2022.000004); Farmers have both capabilities on-farm and off-farm activities | Geographical Indication: Kopi Arabika Pasuruan (E-IG.10.2020.000016); Farmers only have capabilities on on-farm activities | Geographical Indication: Kopi Robusta Java Argopuro Jember (E-IG.10.2022.000008); Kopi Robusta Java Raung Gumitir Jember (E-IG.10.2022.000009); Farmers have both capabilities on-farm and off-farm activities |

This study advances the findings by developing a Fairtrade Living Income-Based Shared Value Model that demonstrates how shared value principles can be integrated with the fairtrade schemes. This integration establishes mechanisms to generate and distribute economic, social, and environmental value throughout the coffee value chain, benefiting smallholder farmers and other stakeholders. The model is structured around three main stages of the coffee value chain production, processing, and export

sales with specific mechanisms at each stage align with shared value and fairtrade objectives. To illustrate the interaction between shared value models (SVMs) and FLI within the coffee value chains, a conceptual model is presented in Figure 1.

This FLI-Based Shared Value Model emphasizes the flow of value and roles of actors in the coffee value chain. Smallholder farmers receive living incomes under the FLI

framework, ensuring they meet basic needs. Shared value chains improve productivity, product quality, and access to international buyers through technical assistance, quality inputs, and training. Effective governance is key to implementing this model. Transparent pricing, fair

compensation, and support for smallholder development are critical, as outlined by Wibowo, Widyarini, & Pradana (2021). SVMs enhance governance by fostering direct partnerships that benefit all actors and reduce power imbalances in traditional value chains.

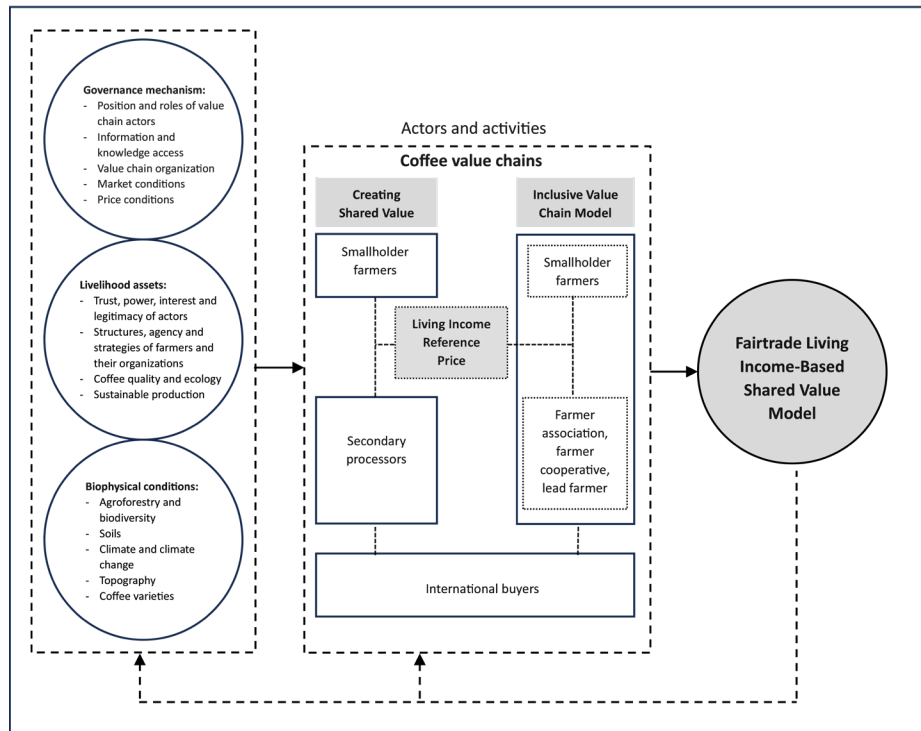


Figure 1: FLI-Based Shared Value Model.

In the processing stage, value chain integrators play crucial roles. Shared value chains invest in training, technology, and local infrastructure to help farmers produce higher-quality coffee and diversify products to better meet global consumer demands (Bro & Clay, 2017). When global coffee market fluctuations challenge smallholder farmers' incomes and sustainability, the FLI scheme addresses this by guaranteeing living incomes, providing a safety net and reducing financing risks. The model also aligns with consumer demand for ethically sourced products, enhancing coffee's market appeal (León-Bravo, Ciccullo, & Caniato, 2022). Next, applying a system dynamics approach to the proposed model, interdependent relationships among key variables within the FLI-Based Shared Value Chain Model can be drawn. A causal loop diagram presented in Figure 2 elaborates how economic, social, and environmental variables reinforce or counterbalance each other, providing insights into the dynamics of coffee production sustainability.

them a viable credit option for financiers (Swamy & Dharani, 2016). This empowers farmers to invest in climate-resilient practices, such as shade-grown coffee, water conservation, and soil health management. Income stability further boosts investments in production, leading to better yields, quality, and market opportunities.

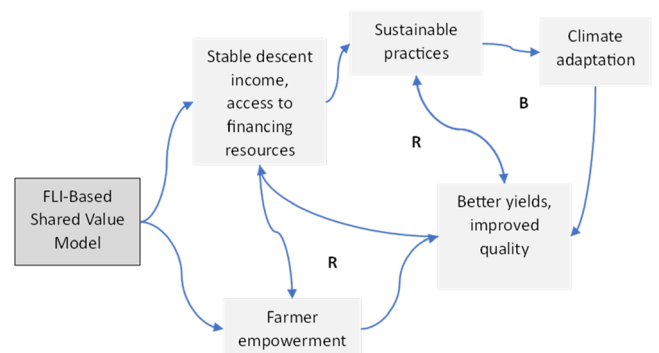


Figure 2: Causal Loop Diagram of Coffee Production Ecosystem Under FLI-based Shared Value Model.

As presented in the Figure 2, a stable descent income (economic variable) from the FLI-based shared value chain enables farmers to access financing, making

Farmer empowerment and improved skills (social variable) enhance production quality and income

stability. With equitable compensation and increased bargaining power, farmers actively engage in community initiatives, strengthening cooperatives and resilience to market and climate challenges. Then, sustainable practices (environmental variable) like agroforestry and organic farming reduce environmental degradation and enhance climate resilience. While requiring initial investment, these practices lower production costs and reliance on external inputs over time.

Thereby the proposed model has significant potential to foster a sustainable coffee production ecosystem by integrating economic, social, and environmental benefits. Economically, this model enhances financial resilience against market volatility, ensures better value distribution to upstream actors, reduces reliance on intermediaries, and lower risks of financing. Socially, it promotes farmer empowerment, equitable compensation, and community well-being. Environmentally, the model enables farmers to invest in climate-resilient practices, such as maintaining shade-grown plantations, organic methods, conserving water resources, and implementing soil health management.

5. Conclusion

Engaging in the export value chain presents both opportunities and challenges for smallholder coffee farmers. Benefits include access to stable markets and higher incomes. Export participation also strengthens collective bargaining through value chain integrators, facilitating fair pricing and improved infrastructure. However, export reliance exposes farmers to market volatility, rigid quality standards, and power imbalances with secondary processors, limiting control over pricing. This study finds that the Inclusive Value Chain (IVC) model offers a more balanced incentive structure than Creating Shared Value (CSV). IVC model allows farmers to have greater control over coffee beans production and equitable value distribution, leading to higher profits and reinvestment in the local infrastructure.

These findings align with previous studies. In Ethiopia, cooperatives enhance smallholder market access and pricing through collective bargaining (Minten et al., 2018), while similar effects are noted in Mexico (Stephen Pitts, 2019). Conversely, Brazil's large-scale plantations often restrict smallholder access to fair pricing and markets (Maguire-Rajpaul et al., 2020; Watson & Achinelli, 2008). These contrasts highlight the importance of cooperative development in supporting smallholder livelihoods. Furthermore, effective value

chain governance requires risk management strategies to mitigate market volatility. Farmers dependent on coffee production must strengthen governance mechanisms through collective action, direct trade, adherence to standards, and capacity building. In this regard, adopting LIRP as a price guarantee reference in shared value strategies could stabilize farmer incomes and enhance resilience.

The FLI-Based Shared Value Model proposed in this study offers a scalable framework for transforming global agricultural value chains by empowering smallholder farmers and advancing sustainability goals. Future research should assess its long-term viability under market fluctuations, conduct cross-regional comparisons, and further explore LIRP using SLA methodologies as in Jacobi et al. (2024). This study advocates for policies integrating fairtrade principles into shared value chains in the coffee agroindustry. A key strategy is implementing LIRP-based minimum price guarantees to stabilize farmers' incomes amid market volatility. The government, in collaboration with farmer cooperatives and associations, should establish a mandatory floor price for green beans and cherries tied directly to the LIRP for each cluster. This will reduce agribusiness financing risks and encourage investment in coffee production. This fairtrade policy will also improve transparency and traceability of differentiated coffee products. Additionally, governments should support direct trade relationships under the IVC model by fostering the role of farmer cooperatives. Specific support measures should include providing tax incentives for businesses that contract directly with IVC-type farmer cooperatives, offering subsidized loans for cooperative-managed centralized processing and quality control technology, and funding capacity-building training in financial literacy, sustainable farming, and export trade facilitation. These strategies collectively will create a conducive ecosystem for sustainable growth in the coffee agroindustry.

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