

# Assessing Sustainability Potentials

## of a New Mode for Coffee Trade

A Study with small-scale coffee producers in Jardín, Antioquia, Colombia



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*Research concept*

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*Hilo – Coffee's Common Thread*

Title page illustration by Barbara Nino Ortiz

*Hilo – Coffee's Common Thread*

## ABSTRACT

While the consumption of coffee is deeply rooted in many cultural contexts, conventional systems of international coffee production and trade perpetuate various challenges for sustainability. Smallholder coffee farmers frequently find themselves locked into economically insecure situations, while social and environmental costs of the ever-growing coffee agriculture are high. Against this background, a new mode of coffee trade, inspired by the principles of community-supported agriculture, has been developed and implemented with coffee producers in Jardín, Colombia. This document proposes a research concept aiming to assess the impacts of this system on the economic security, the sustainability of agricultural practices and well-being of the participating smallholders. Based on institutional analysis, stakeholder engagement, farmer surveys and secondary data from national accounts, a decision model is proposed which aims to estimate participation potentials and sustainability contributions of this system on larger geographical scales.

## BACKGROUND

With 2 billion cups consumed every day, coffee can be considered the most consumed legal drug in the world. Coffee consumption is deeply rooted in society both culturally and economically and as many as 25 million people worldwide are employed in the different stages of its production (Shanker et al., 2018). In Colombia alone, 540,000 rural families earn their livelihood through coffee agriculture on roughly 900,000 hectares of land (USDA, 2019).

Coffee supply chains typically rely on one of three different modes of international trade: the oldest and most widespread is conventional international coffee trade. This 'commoditized' trading system is dominated by few international corporations and characterized by long, frequently untraceable supply chains delivering large quantities with little emphasis on quality. International commodity markets for coffee result in minimal margins for farmers of coffee beans and leave their livelihoods susceptible to price shocks, price swings, and market vulnerabilities. Price pressure and the industrial character of this system exacerbate environmental issues such as soil degradation, deforestation and erosion: Every year, 100,000 ha of tropical forest are lost to coffee plantations worldwide (Baker, 2014).

In an attempt to develop a more sustainable coffee trade, the *Fairtrade System* came to existence nearly 50 years ago. While the margin for the producers could be slightly improved, many challenges were not addressed by this system, such as farmer debt (e.g. Wilson, 2010) or the anonymous nature of supply chains. More recently, the development of *specialty coffee* trading systems has gained importance. Such systems rely on high quality standards along the supply chain. The required resource-intensive marketing, however, usually keeps this market exclusive to more affluent, well-connected farmers.

Many small-scale coffee farming families in Colombia face high economic and ecological vulnerability. Lacking more promising alternatives, many work very long, hard hours, assume high risks, and sacrifice economic and social stability, which frequently results in vicious cycles that generate exploitative structures. Key challenges producing this vulnerability are infrequent pay days depending on seasonal harvests, prices that barely cover the costs of production, and the high rate of illiteracy in local communities. In addition to trapping farming families in dire economic situations, mass coffee production has been associated with environmental impacts such as soil degradation and loss of native forests (Arce et al., 2009).

In short, the conventional system of trading coffee restricts both economic and environmental alternatives for coffee farmers and is therefore unsustainable. While policies have sought to address this situation in Colombia, in particular, a stability fund to sustain the price to farmers; these have not produced the desired results (Arango-Aramburo et al., 2019).

To address these challenges, a different system for trading coffee has been developed. Inspired by the principles of long-established community-supported agriculture (CSA) initiatives, the social enterprise *Hilo* creates a transparent and direct linkage between coffee growing families in Colombia and final consumers of the beans in Germany. A key component of this new coffee trading mode is a

system of monthly payments for the farmers independent of harvested quantities of coffee. This monthly payment enables farmers to (i) cover costs of production without high-interest loans and (ii) receive a monthly living income. The beans are processed and consumed both in Germany and Colombia, organized by *Hilo*.

The system aims at providing three key contributions as compared to the conventional coffee trading modes:

- (1) Increasing economic stability of farmers through frequent pay days;
- (2) Linking producers and consumers of coffee directly through a transparent supply chain;
- (3) Encouraging a transition to sustainable agricultural practices by relieving the pressure to produce the highest possible quantities and by providing suggestions for agricultural practices that farmers can implement on their farms.

## RESEARCH OBJECTIVES & OVERVIEW

Against this background, the proposed research project aims to pursue two main objectives:

- i) to measure the **effects** of the Hilo system on economic vulnerability, agricultural sustainability, and the well-being of coffee farming families.
- ii) to identify **conditions** under which coffee producers in Colombia would participate in this system and to empirically estimate potential participation.

The objectives are pursued in three work packages and combine the use of quantitative and qualitative methods. Both primary and secondary data are required.

### ***Summary of WP1: Impact Assessment***

Based on in-depth interviews with participating coffee producers, impacts of the Hilo system across three categories will be measured: (i) economic vulnerability, (ii) agricultural sustainability and (iii) farmer well-being.

The results of the impact analysis will be used in WP3 to simulate larger-scale impact potentials of the system.

### ***Summary of WP2: Institutional Analysis & Stakeholder Engagement***

Based on a review of literature, expert interviews and stakeholder workshops, an analysis of the institutional landscape around coffee production in Jardin, Colombia, will be conducted. Key stakeholders will be brought together in workshops to discuss challenges of the conventional coffee trading system and alternatives to it.

The outcome of WP2 will contextualize and inform the analysis conducted in WP3.

### ***Summary of WP3: Potential Analysis***

Based on primary data gathered in in-depth interviews and a survey of coffee producers in Jardin, a *farmer decision model* will be developed (e.g. Arango-Aramburo et al., 2019). The model will subsequently use secondary input data to estimate the potential for participation of farmers in the Hilo system. Key insights from WP1 and sensitivity analyses will be employed to sketch potential impacts of the system on larger scales.

## DESCRIPTION OF PROPOSED ACTIVITIES

### Work Package 1: Impact Assessment

The goal of the first work package is to assess the impacts of the Hilo system on the economic situation, the agricultural practices and the well-being of participating coffee producers. To this end, the analysis will test the following hypotheses:

#### Hypothesis 1 - Reduction of economic vulnerability:

“The farming household experiences higher economic security resulting from the continuous living wage.”

The hypothesis will be tested by adopting established indicators of economic vulnerability from the literature on coffee producer resilience and vulnerability (Vargas et al., 2018; Meza, 2015) as well as from the literature on sustainable livelihoods (e.g. Bacon 2005, Meskela & Teshome, 2014).

#### Hypothesis 2 – Higher degree of agricultural sustainability:

“Farming under a guaranteed income leads to more sustainable agricultural practices.”

The hypothesis will be tested by tracking changes in key agricultural practices of participating farmers, such as biodiversity management, the share of fallow land area for soil revitalization, tillage, and the use of synthetic fertilizers and pesticides.

#### Hypothesis 3 – Enhanced well-being:

“The reduction of economic vulnerability, the use of sustainable agricultural practices and the increased connection to consumers of the own produce lead to a stronger identification with coffee farming and enhanced sense of purpose.”

The hypothesis will be tested by applying concepts from rural sociology linking the organization of agriculture to farmer well-being (e.g. Gilles & Dalecki, 1988) and the literature on the social effects of community-supported agriculture (Brown & Miller, 2008, Sharp et al., 2002).

The primary source of data for the testing of the hypotheses are in-depth, semi-structured interviews with participating farmers in which they are asked to recall their situation before and after participating in the Hilo system.

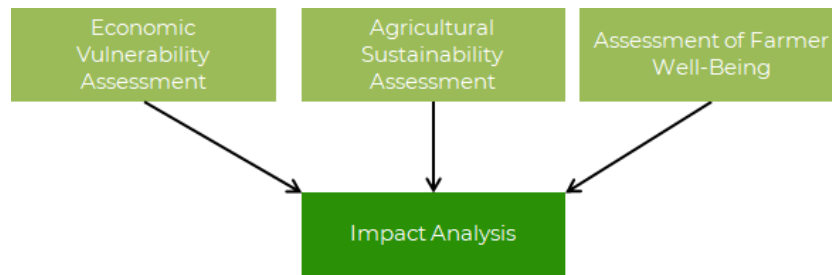


Figure 1: Research Approach of Work Package 1.

## Work Package 2: Institutional Analysis and Stakeholder Engagement

The objective of the second work package (WP2) is to understand the institutional framework conditions under which farmers grow and trade coffee in Jardín, Colombia. By doing so, necessary contextual information for the implementation of the research project, particularly WP3, will be gathered. The following research questions guide the process:

- What is the predominant model of coffee production in Jardín, Antioquia? Which incentives keep this model in place? Which alternatives exist?
- Which actors, networks, and rules (formal & informal) shape the system around coffee production?
- How are coffee trading and farm gate sales organized? To which extent do values, trust, and personal relationships shape these?

The research will be conducted through a review of academic and grey literature on coffee production in Colombia. In-depth interviews with experts on the topic will be used to inform and complement a stakeholder engagement process with coffee producers, their associations, civil society, and academia. The insights gained from literature, expert interviews and stakeholder workshops will be combined to derive an institutional and stakeholder analysis that forms the basis for the implementation of WP3.

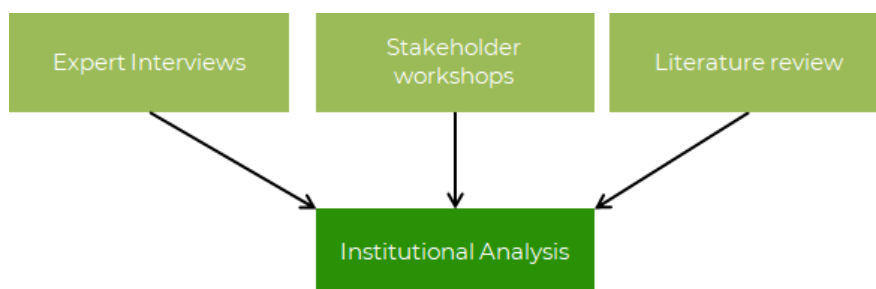


Figure 2: Research Approach of Work Package 2.



### **Work Package 3: Potential Analysis**

The goal of the third work package is to combine the results of WP1 & WP2 with primary and secondary data to empirically estimate the potential for farmer participation in the Hilo system in Jardín, Colombia. This objective will be pursued by (i) understanding and modeling the decisions of farmers to opt into different coffee trading schemes and (ii) by using census and survey data to estimate the participation potential of such a system on larger scales.

In-depth semi-structured interviews with both farmers participating in the Hilo system and farmers operating under traditional coffee trading systems will be conducted. The interviews will address the following topics in particular:

- Which are the major difficulties that farmers experience under the current system?
- What are farmers' perceptions about entering new modes of coffee trade? What are their opinions towards guaranteed income?
- How is knowledge of coffee production and trading systems disseminated?

The information obtained through these interviews will be combined with insights from WP1 to design a *coffee producer survey*. This survey will be implemented with a representative sample of coffee producers in different socio-economic conditions and farm sizes, ranging from 1 to 5 hectares of land, in Jardín, Antioquia.

Based on the results of the survey, interviews and stakeholder workshops, as well as the literature on farmer decision-making (Arango-Aramburo et al., 2019) and the diffusion of social innovations, a *farmer decision model* will be developed. The model aims to simulate under which conditions coffee farmers will opt-into a system such as the one proposed by Hilo to empirically estimate lower and upper-bound potentials for participation.

Subsequently, the model can use secondary input data from national statistics (e.g. *National Agricultural Survey - ENA*) and Cenicafé, the National Coffee Research Center of Colombia, to assess potentials on larger scales, such as the state of Antioquia, and other coffee producing regions in Colombia and beyond.

In a final step, the results of WP3 will be combined with the results of WP1. The estimated participation potential and the impact analysis will allow deriving a first idea of potential larger-scale impacts of transforming coffee trade. To account for uncertainties resulting from methodological challenges, sensitivity analyses for key parameters with regard to participation and impact will be carried out.



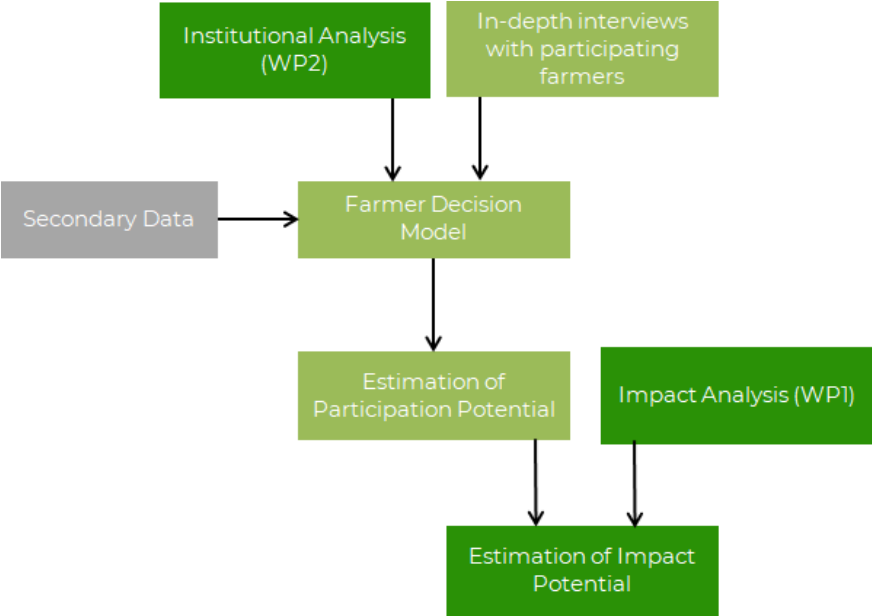


Figure 3: Combination of Results in Work Package 3.

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