

MARKET LINKS BETWEEN ACTORS OF THE HONDURAN COFFEE SUPPLY CHAIN

Challenges and Opportunities

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1. INTRODUCTION

1.1 Background

Coffee is one of the major crops produced in Honduras. This country is the world's sixth largest producer and the largest producer in Central America. Its contribution to the economy cannot be overstated: it accounts for 5% of the national Gross Domestic Product (GDP) and 26% of the agricultural GDP. It is also the second most important source of foreign currency after international money transfers, bringing 1.165 million USD in the 2020/2021 harvest ([IHCAFE 2021](#)). Currently, up to 120,000 Honduran farmers produce coffee, 95% of which are smallholder farmers that produce less than 5000 pounds of coffee yearly ([Christian Bunn et al. 2018](#)). The sector employs an estimated 1,1 million people directly. Many more depend on it indirectly ([Mogrovejo 2020](#)). Its production is geographically dispersed, being grown in 15 of the 18 departments and in 221 of the 298 municipalities ([IHCAFE 2021](#)).

The Honduran coffee sector has made significant progress towards its modernization and, as a result, has increased both its aggregate production and farm productivity. Aggregate production measured in bags of 100 lb - known as quintals (qq) - has gone from 400,000 qq in 1972 to 7,700,000 qq in 2017, growing at a rate of 6.2% annually. Similar increases are seen in yield per unit of land: productivity has more than doubled, raising from 10.8 qq/mz in 2000 to 24 qq/mz in 2021 ([IHCAFE 2021](#)). Although it is difficult to pinpoint a single reason behind this positive change, most actors in Honduras and abroad coincide that IHCAFE's push to modernize Honduras' coffee park with high-yielding varieties, implement pruning practices, and promote fertilization has played a significant role ([Wiegel et al. 2020](#)).

Yet, these positive metrics contrast with increasing concerns about the environmental and social sustainability of the sector. Environmentally, Christian Bunn et al. ([2018](#)) estimate that 45% of the area that is potentially suitable under current conditions will become unsuitable for coffee production without adaptation by 2050. A fifth will require substantial adaptation efforts to production systems. The remaining third will be less affected and will only require incremental adaptation to improve the resilience of the system. In terms of social well-being, indicators continue to worsen, for instance, rural poverty increased from 70.6% in 2014 to 73.5% in 2017 even as the value of exports went from 800 million USD to just above 1.3 billion USD ([INE 2020](#)). In the face of these challenges, many farmers and workers in the sector fail to see the activity as a viable way of living. This has led to abandonment of plantations as coffee farmers and workers seek better income opportunities internally and abroad ([Semple 2019](#)).

There is a myriad of reasons, both internal and external, that help explain such lackluster outcome; however, there appears to be a consensus around two main issues: upstream to downstream provision of consistent coffee quality, and downstream to upstream transmission of rents from coffee commercialization (Ruben et al. 2018; Álvarez 2018). These problems, although present to varying extents in all supply chains, seem to be particularly widespread in the Honduran coffee supply chain. In terms of quality, Honduran coffees trade at prices consistently below their regional counterparts and more in line with inferior quality coffees such as Brazilian naturals. Honduran coffee farmers also receive a smaller share of the final price of their coffee, 60% of it, to be precise. To put this into context, Guatemalan coffee farmers receive, on average, 92% of the indicative price.

It is in this context that the initiative Rethinking Markets and Value Chains for Inclusion and Sustainability conducts this scoping study. Its goal is to review the agricultural policy context and describe the cof-

fee global value chain (GVC), identifying key constraints to reducing the costs of production and marketing and making the chain more inclusive. It will explore where and why is transfer of value¹ truncated across the Honduran supply chain. To do so, our analysis will look at two primary outcomes: quality of the coffee and prices paid as coffee changes hands between pairs of focal actors of the value chain. I have identified our focal actors as: workers, farmers, intermediaries (buyers/processors), cooperatives and other associations, exporters, and roasters. I still look at interventions by input providers, governments, subsectoral organizations, NGOs, certification agencies, and others, but only insofar as they influence one or many dyadic relationships between the focal actors. I will also look at secondary outcomes such as price volatility and quality traceability, and other outcomes such as gender/youth inclusion and environmental sustainability. The information that feeds this study is the result of a systemic review of the literature and the analysis of secondary data on the coffee supply chain in Honduras.

The review of existing literature identified 62 relevant publications comprising 20 theses (30%), journal articles (25%), 14 reports (21%), 13 working papers (19%), 2 conference proceedings (3%), and 1 book (2%). For each study I identified whether it mentioned a relationship between a pair of focal actors. Then, I classified the outcome of these economic relationships as either positive or negative. The results show that the worker-farmer and farmer-intermediary relationships have the most negative outcomes, being mentioned in negative terms in 45 and 52% of the publications studied, and only positively in 3 and 8% of studies, respectively. On the other hand, the farmer-cooperative relationship has the most reports of positive outcomes, being mentioned in positive terms in 60% of studies, and in negative terms in only 8%. It also shows that few publications study “the hidden middle” of the coffee value chain in Honduras, in fact, only 13 studies mention links between intermediaries, coops, exporters, and roasters.

1.2 Objective

To diagnose problems in the Honduran coffee supply chain, defined as obstacles or constraints which reduce the earnings of participants, limit participation of women and other disadvantaged groups, and/or exacerbate the environmental impact.

1.3 Methods

I conducted a systemic literature review adapting the protocol proposed by Liverpool-Tassie et al. (2020). The selection of relevant papers was done through database screening and consultations with experts in the supply chain, see Annex A.1 and A.2 for more details. This review was conducted to identify relevant contributions to the understanding of the Honduran coffee supply chain and explore what the literature says about the dyadic relationships between the main actors in the Honduran coffee supply chain, specifically, workers, farmers, intermediaries (buyers/processors), cooperatives, and exporters. The main goal was to understand which relationships could be cost-effectively improved so as to increase welfare across the value chain.

1. **Setting:** Honduras.
2. **Population:** Focal actors of the Honduran coffee supply chain: workers, farmers, intermediaries (buyers/processors), cooperatives, and exporters participating in the Honduran coffee supply chain.

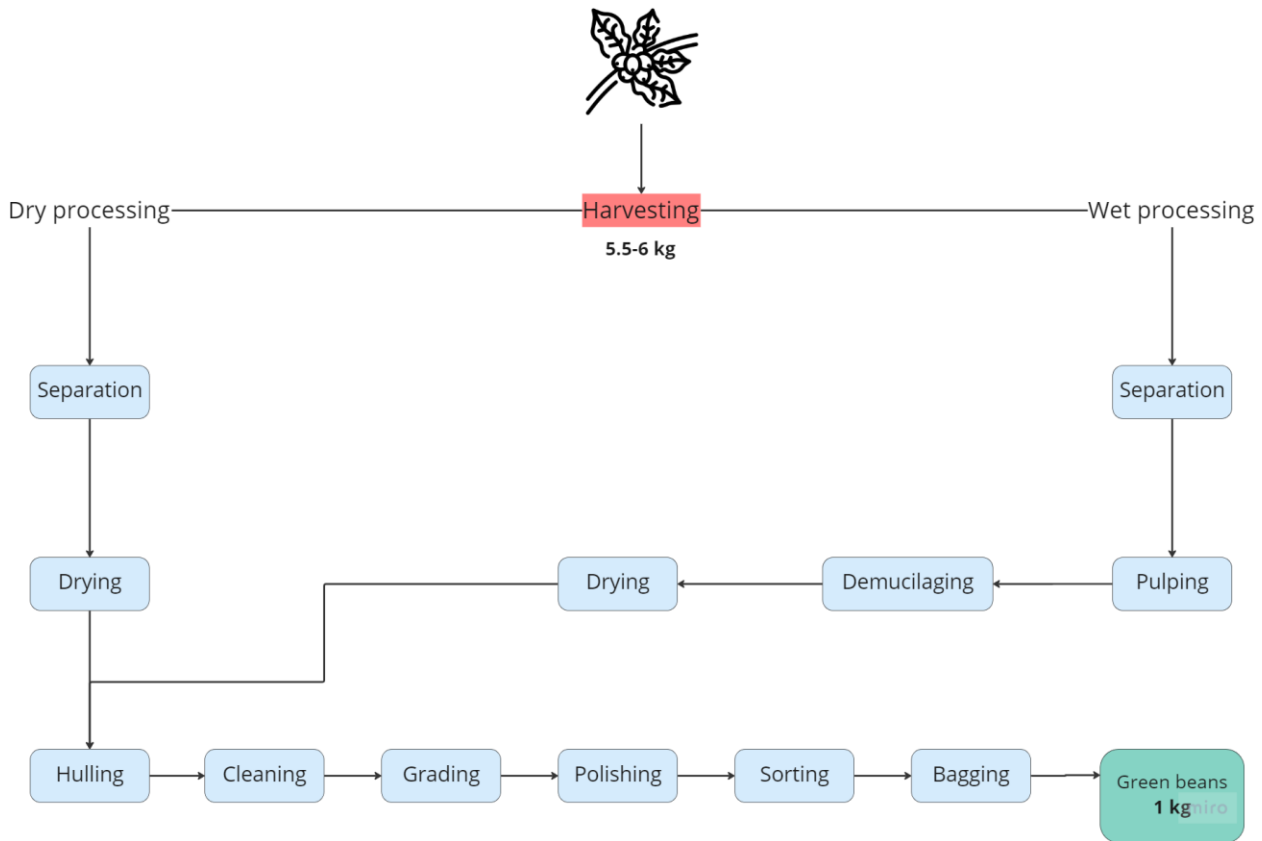
¹ I define value as coffee quality flowing upstream to downstream and rents from coffee sales flowing downstream to upstream.

3. **Intervention:** This review focuses on the transfer of value - coffee beans and rents from the sales thereof - between pairs of actors.
4. **Research question:** Within the Honduran coffee supply chain: where is value attrition (physical and/or monetary) highest, and what are the drivers behind it?
5. **Outcomes of interest:**
 - a. **Primary:** Upstream-downstream quality of coffee. Downstream-upstream transfer of rents.
 - b. **Intermediate:** traceability and price volatility.
 - c. **Others:** Gender/youth inclusion and sustainability, as defined in the Rethinking Food Markets and Value Chains Initiative for Inclusion and Sustainability Concept Note and Work Plan ([Vos and Wiegel 2021](#)).
6. **Study design/publication type:** I included experimental studies and observational (quasi-experimental, case studies, non-quasi-experimental survey-based studies, participant observation) studies. These studies came from peer reviewed articles, review articles, and high-quality grey literature (such as white papers and reports such as USAID, Interamerican Development Bank and CGIAR discussion papers).

2. THE HONDURAN COFFEE SUPPLY CHAIN

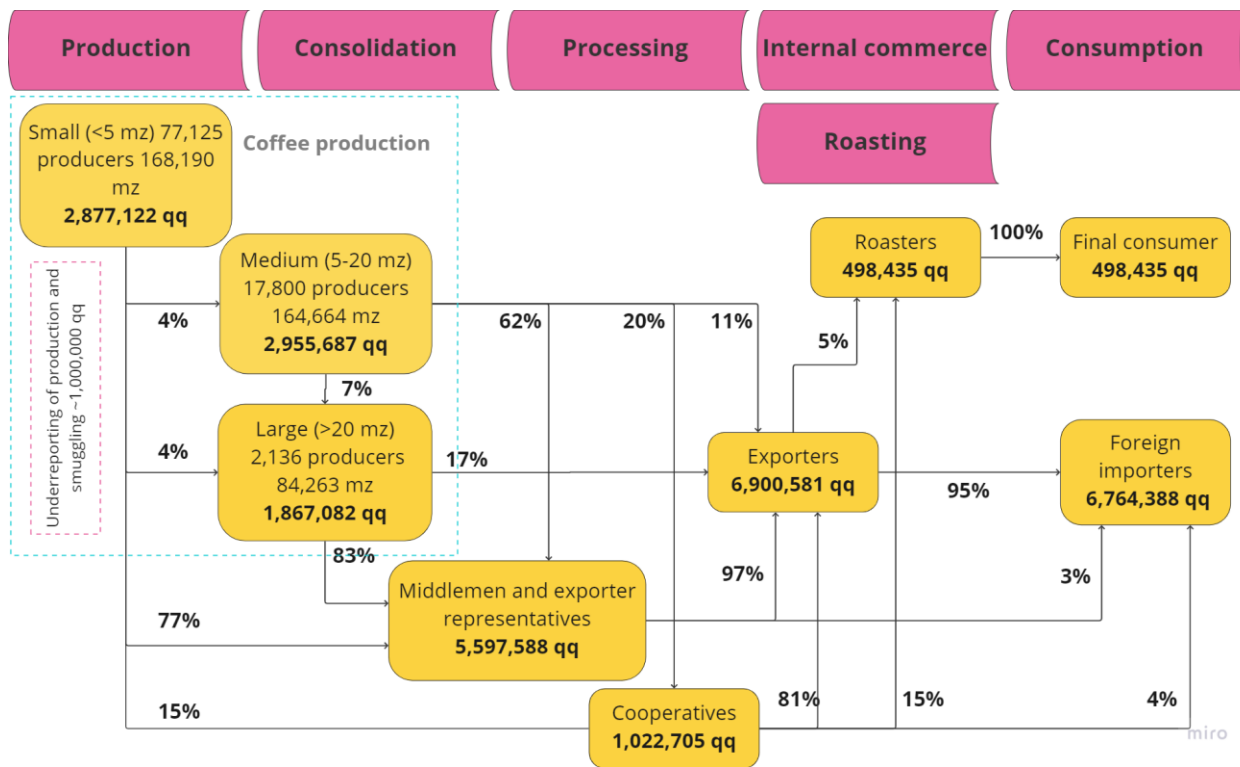
The goal of the internal coffee supply chain is to deliver green coffee beans of exportable quality FOB. The main input for this process is cherry coffee beans picked from dispersed plots across the country. The process of transforming cherry coffees into green coffee beans is described in Figure 1. This process entails the removal of undesirable layers, which include the fleshy pulp, the sugar coating (also known as mucilage), and the thin husk (also known as parchment). It is also necessary to dry the coffee beans to decrease their perishability, as moist coffee is more prone to quality degradation and microbial infestation ([Pimenta, Angélico, and Chalfoun 2018](#)). There are two alternatives to processing coffee: wet and dry processing. The main difference is whether the pulp and mucilage are removed when the beans are fresh or when they have been dried, respectively. Between 5.5 and 6 kilograms of cherry beans are needed to produce 1 kilogram of green coffee ([Montilla et al. 2008](#)).

Figure 1: Coffee processing from cherry to green beans



The process above is carried out by the focal actors of the supply chain, which are vertically integrated to a greater or a lesser extent. Highly solvent and technologically advanced farmers own processing facilities for wet/dry processing and parchment removal and have commercial links abroad to which they export their coffee directly. On the other end of the spectrum are less advanced farmers that lack any sort of processing facilities who therefore sell their coffee in cherry to consolidators/processors. From there it can change hands several times before it is exported. Figure 2 shows the flows of coffee for the 2015/2016 harvest.

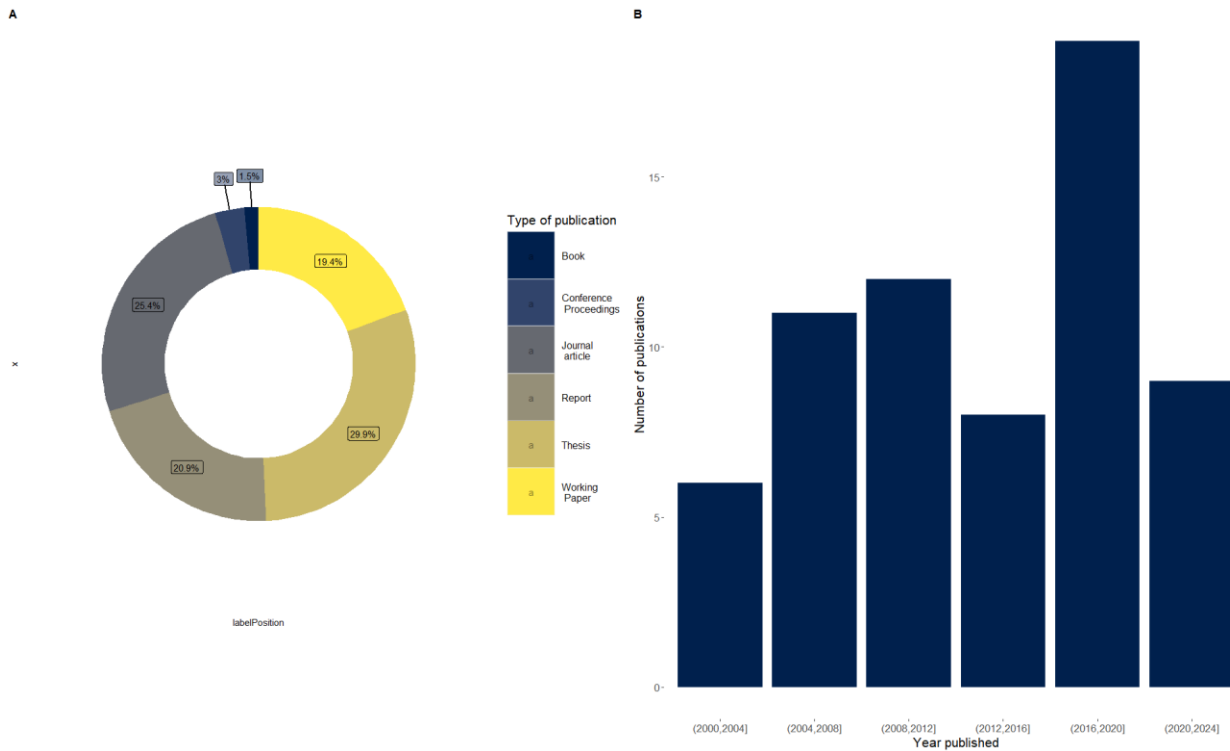
Figure 2: Flows of coffee in the Honduran supply chain. Adapted from Ruben et al. (2018) and Álvarez (2018)



3. DIAGNOSIS OF PROBLEMS AFFECTING THE SUPPLY CHAIN

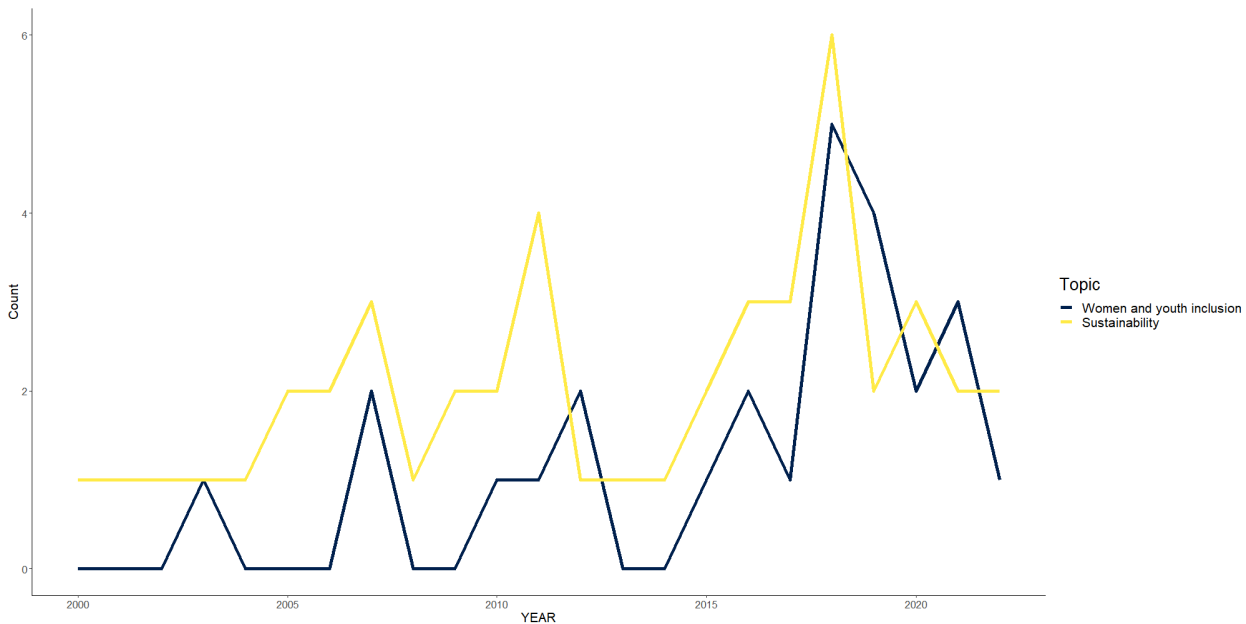
The initial database screening identified 105 publications that met the search criteria. After removing nine duplicate publications, a further 36 publications were excluded following the criteria described in the research protocol (see annex 1 for the list of inclusion and exclusion criteria). After the inclusion of two papers suggested by experts, the final count comprised 62 relevant publications in which at least one link between the focal actors is discussed and assessed. These publications included 20 theses (30%), 17 journal articles (25%), 14 reports (21%), 13 working papers (19%), two conference proceedings (3%), and one book (2%) (Figure 3.A). There was a steady flow of studies on the Honduran Value chain during the study period: the lowest number of publications in this period was six (2000-2004), and the peak was 19 (2016-2020) (Figure 3.B), showing that this is an active area of research.

Figure 3: A. Distribution of publications by type. B. Distribution of publications by year published.



There is a strong and growing environmental focus on the literature (figure 4). Roughly 75% of papers have some reference to the environmental sustainability of the Honduran coffee supply chain; 40% of those references were made during the last six years. In contrast, mentions of women empowerment and youth inclusion appear only in 42% of papers. However, there also seems to be a growing understanding of the relevance of this topic for the improvement of the value chain, as two thirds of those mentions have happened in the last six years.

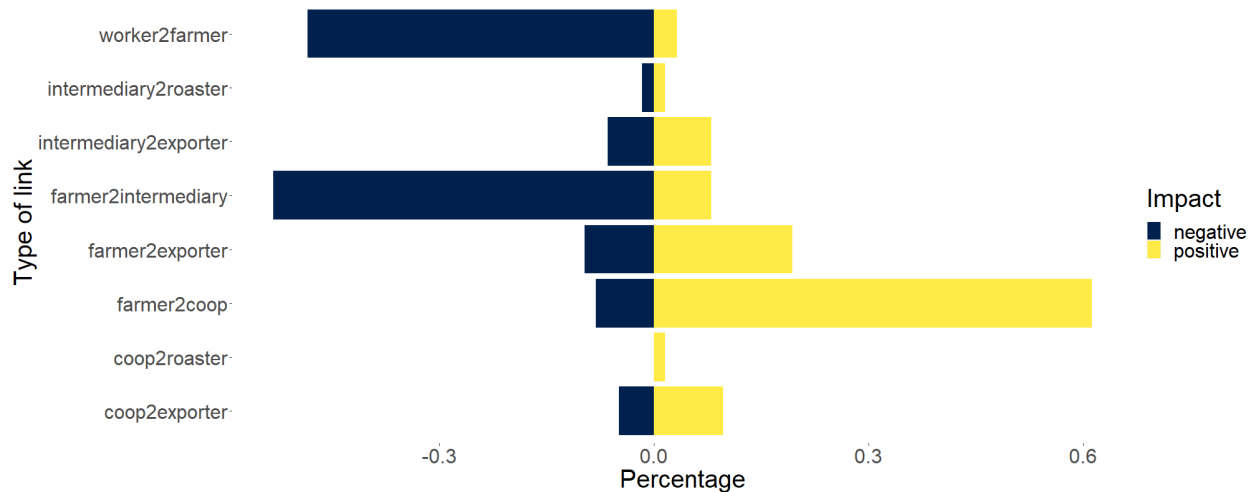
Figure 4: Number of publications that included a focus on women and youth inclusion and sustainability, per year.



For each study I classified the outcome of the economic relationships as either positive or negative. The results are presented in Figure 5. They show that the farmer-intermediary relationship has the most negative outcome, being mentioned in negative terms in 52% of the publications studied, and only positively in 8% of studies. Most studies identify the little bargaining power that individual farmers have when they sell coffee and the lack of incentives for intermediaries to improve either farmers' income or quality upgrading. However, intermediaries are also seen as more stable partners that have built strong relationships with farmers over many years ([Ruben et al. 2018](#)). The worker-farmer relationship has the second most negative outcome, with 45% of cases being negative and only 3% positive. The majority of mentions point to informal labor relationships, lack of social protections, and worker exploitation as the cause for the negative outcomes.

In contrast, the farmer-cooperative relationship has the most reports of positive outcomes, being mentioned in positive terms in 60% of studies, and in negative terms in only 8%. Cooperatives provide services such as training, consolidation, processing, and marketing, among others, and often improve the commercial prospects of farmers selling coffees through them. However, they also carry a negative reputation due to many of them having gone bankrupt, with negative consequences to associated farmers. Value judgements on subsequent links are sparser, which can be interpreted as evidence that these relationships are mutually beneficial, or that more research must be done on them.

Figure 5: Impact by dyadic link



Based on this analysis, I have selected the following three problems to focus on: (i) informal labor markets particularly at production, (ii) unfavorable first-sale conditions due to local oligopsonistic markets, and (iii) limited high-quality contracting between international buyers and domestic sellers. The next subsections describe these issues in-depth.

3.1 Problem #1: Informal labor markets particularly at production

Between 800,000 and one million workers, permanent and itinerant, help produce and pick Honduras' coffee harvest ([Orellana 2022](#); [Mogrovejo 2020](#)). Despite this crucial role, the health and safety conditions offered to them in exchange for their labor are scant ([Ruben et al. 2018](#)), and when existing, often fail to incentivize them in a way that ensures the sustainability of their work ([J. U. S. Palma 2013](#); [C. Bunn et al. 2018](#); [Mogrovejo 2020](#); [Hernández 2020](#)). Multiple reasons have been posited for this failure, the most common being chronically low profits among smallholder farmers for whom state-mandated social provisions are a burden too large to shoulder ([Donovan and Blare 2018](#)). The pervasive consequences of this market failure are mostly felt by workers and employers yet have negative spillovers onto other spheres of activity in the country and abroad.

By and large, workers suffer most from this problem. For those willing to engage in the flawed labor market, monetary payments constitute the largest share, if not the entirety, of the benefits from being employed ([Ruben et al. 2018](#); [Augustin 2019](#)). Health and safety benefits are rare, which pushes workers to rely on the State's weak social security network, known as the Honduran Institute for Social Security (IHSS). The outlook for those depending on this network is grim: given logistic and financial constraints, only major cities have health infrastructure, leaving 9 in 10 workers effectively not covered by the health service.

For those too alienated by the poor employment standards, the alternatives are not much better. Deteriorating economic conditions in the coffee sector are linked to an increase in crime, as it reduces the opportunity cost of engaging in criminal activities ([Dube and Vargas 2013](#)). This phenomenon has been documented in Honduras: the economic recession brought by Hurricane Mitch had a negative impact on coffee exports and has been linked to a surge in gang membership ([Aid 1999](#)). Similarly, there is a link between poor economic performance in the coffee sector and international migration. Although emigration was uncommon in Honduras before the 1980s, it became a growing trend accentuated by the

devastation brought by Hurricane Mitch in 1998. Ever since, emigration has been a coping strategy for impoverished coffee workers, who engage in temporary and permanent migration, usually toward the United States of America ([United States Agency for International Development, FHI 360 2017](#)).

Second to workers, coffee farmers are the group most vulnerable to this problem. Labor accounts for 43% of production costs in Honduras and 49% in Guatemala ([Promecafe 2018](#)). Sparse labor markets, driven by higher rates of emigration to the United States, have led to chronic labor shortages, especially among seasonal coffee pickers known as “corteros” ([Piñuela 2016](#); [Peña 2019](#); [Wiegel et al. 2020](#)). This situation is exemplified by ever-present calls of seasonal workers around harvest time, which have risen from 650,000 workers in 2020 ([ElHeraldo 2020](#)) to a million workers in 2022 ([Canal8 2022](#)). Those same calls show how challenging it is to find enough workers: in some regions, seasonal workers only filled 50% of the need for coffee pickers ([Canal8 2022](#)). Some industry leaders in the region joke that if the caravans in recent months were “the laborer caravans,” the next wave will be “the grower caravans.”([Sullivan 2006](#))”

Yet the negative consequences of this issue are not circumscribed to workers and farmers: its spillovers are felt at the national and international spheres. Nationally, it puts an additional burden on an already strained national health service ([Donovan and Blare 2018](#); [Mogrovejo 2020](#)). Internationally, external migration has caused a humanitarian crisis, as workers travel from Central American borders and are detained in the southern border of the United States. The upward trend of migration has put the issue on the top of the agenda of the US and Mexico and has been used as a pressure mechanism by tying foreign aid to the curtailment of external migration in Central America ([Reuters 2019](#)). Finally, external factors such as climate change and deteriorating economic conditions nationwide suggest that this problem, far from improving, is bound to get worse posing a serious threat to the sector’s sustainability if not addressed promptly ([Semple 2019](#)).

3.1.1 Evidence that this is a problem.

The issues in the Honduran coffee labor market have been documented extensively. In terms of remuneration, wages in the coffee sector are often lower than the national minimum wage ([Ruben et al. 2018](#); [Mogrovejo 2020](#)). Child labor has been documented independently by Ruben et al. ([2018](#)), Donovan and Blare ([2018](#)), and Mogrovejo ([2020](#)).

3.1.2 Prevalence of the problem

Statistics on the Honduran labor market are scarce, even more so for the coffee sector. Estimates point to a workforce of around a million people, 300,000 of which are employed in permanent positions. There are no estimates as to how many of these workers are affiliated to the social security services; however, it is believed that conditions within the coffee sector are worse than the national average ([Mogrovejo 2020](#)). Taking this statement at face value, it is possible to estimate a lower bound for the prevalence of this problem: if affiliation to the national health system is 20% among active workers, which would mean that at least 800,000 coffee workers are not affiliated to the social security system. Some estimates are more pessimistic: the International Labor Organization claims that social protection provisions are virtually non-existent within the sector.

3.1.3 Policies or projects attempting to address the problem

The issue of labor informality is being tackled by public and private stakeholders. Efforts in the public sphere have been reactive in nature, mainly to avoid sanctions by international labor authorities. For

instance, in 2016, US Bureau of International Labor Affairs included Honduras in the list of countries that use child labor in the production of coffee. Facing potential sanctions, the Honduran Government and IHCAFE, with the support of the International Labor Organization, designed a Code of Conduct to address shortcoming in collective bargaining rights, discrimination, forced labor, and child labor. The impact of this and similar initiatives is not clear.

Private certification agencies have also made this issue a core tenet of their verification process. Rain-forest Alliance, Fair Trade, UTZ, among other, require that no child labor is used in-farm and that workers are provided with labor contracts that include social security guarantees.

3.2 Problem #2: Unfavorable first-scale conditions due to local oligopsonistic markets

The Honduran coffee supply chain is characterized by the production of raw coffee by a large number of spatially dispersed producers who act as price takers. Owing to lack of in-farm drying infrastructure, 85% of the coffee is sold in perishable form, either as cherry or wet parchment ([Ruben et al. 2018](#)). This creates a series of logistic challenges for consolidation and processing to dry parchment ([Álvarez 2018](#)). First, the costs of transporting coffee in its bulkier, perishable forms is high, a fact that is exacerbated by the chronically poor rural road infrastructure² ([Salazar et al. 2016](#)). Those farmers that cannot own or rent a truck, are forced to sell to local intermediaries that in turn transport the coffee to local processors ([Solstad 2007](#); [Smith and Loker 2012](#); [Z. Romero et al. 2016](#); [Ruben et al. 2018](#); [Wiegel et al. 2020](#)). Second, there is a consensus that processing capacity has not grown at the same pace as production, therefore, processing is done by few marketing firms that build relationships with local intermediaries ([Donovan 2004](#); [Silveira 2005](#); [IICA 2011](#); [Zhu 2012](#); [Peligros-Espada, Sevilla-Palma, and Uña-Juarez 2018](#)).

These conditions jointly suggest the occurrence of oligopsonistic markets across large swathes of the Honduran coffee region. Within those regions, private consolidators/processors capture rents that would otherwise go to the farmer if sturdier, more competitive channels for selling the coffee were available to them³ ([Eakin, Tucker, and Castellanos 2006](#); [Fromm and Dubon 2006](#); [IICA 2011](#); [J. U. S. Palma 2013](#); [Piñuela 2016](#); [Pérez 2016](#); [Álvarez 2018](#); [Peña 2019](#); [Hernández 2020](#); [Wiegel et al. 2020](#); [USAID 2019](#); [Orellana 2022](#)). However, this one-dimensional view of the role of intermediaries fails to capture the complexity of the relationship: first, intermediaries are in most cases the only agents willing to shoulder the transactions costs inherent to the sourcing of the coffee under the conditions described above ([Ruben et al. 2018](#); [USAID 2019](#)), thus providing a key service. Second, they provide financing to cash-stripped farmers during lean months, in some cases being the only ones willing to do so⁴ ([Álvarez 2018](#); [Ruben et al. 2018](#); [Hernández 2020](#)). As a result, they have built strong relationships with farmers that few other actors in the value chain have ([Ruben et al. 2018](#); [Wiegel et al. 2020](#); [Orellana 2022](#)). The fact that they use these connections strategically to increase their utility is understandable.

² Road density in Honduras is 0.13 *km/km²*, well behind the regional average of 0.35 *km/km²*.

³ This situation has been well documented in Honduras, for instance [Álvarez \(2018\)](#) found that the Return on Investment (ROI) for farmers belonging to producers' cooperatives is 21%, compared to the ROI of independent producers which ranges from -8% to 8%. Similarly, [Ruben et al. \(2018\)](#) found that farmers selling to intermediaries could receive up to 700 lps/qq less than those selling to cooperatives.

⁴ 47% of farmers had access to credit in 2018. The main sources of it were intermediaries (31%), the formal financial system (21%), and cooperatives (21%).

There are two negative consequences from farmers facing oligopsonistic markets at first sale: first, the aforementioned reduction in the rents perceived by farmers, which has a direct impact on the well-being of coffee producers, their families, and employees. Second, these markets do not prioritize quality, and often times diminish it. Private consolidators/processors rarely pay price premiums for coffee quality at point of purchase mixing poor and good quality coffee in different stages of drying ([IICA 2011](#); [Ruben et al. 2018](#); [Díaz 2018](#); [J. P. Romero 2019](#); [Orellana 2022](#)). As a consequence, there is little incentive for farmers to upgrade their quality ([Orellana 2022](#)). The lack of processing facilities is also a threat for coffee quality, as wet coffee can easily over-ferment and rot ([Donovan 2004](#); [Silveira 2005](#); [IICA 2011](#); [Zhu 2012](#); [Peligros-Espada, Sevilla-Palma, and Uña-Juarez 2018](#)). Finally, given the prospect of tightening legislation on traceability, market fragmentation is also a threat for compliance to the new standards of due diligence ([Wiegel et al. 2020](#)).

Oligopsonies can be broken if state-owned firms are engaged in the same line of business ([Shleifer 1985](#)). That is the case of the Honduran Institute of Agricultural Marketing (IHMA), which buys basic grains to build the strategic grain reserve ([Thiebaud 1985](#)). The purchase price is approximately 20 per cent higher than the market price, which encourages national production, generation of decent employment, and strengthens the local economy. This policy of guaranteed minimum prices has made it possible to increase national bean production by 25 percent ([CEPAL and FAO 2020](#)). Due to several historical reasons that are out of the scope of this document, no counterpart exists in the coffee market. However, the calls for more involvement from the Government have increased in recent years. They ask for stricter controls for intermediaries including banning intermediaries without a trading permit and instating laws requiring intermediaries to pay for coffee according to quality ([IICA 2011](#)). Their success has been limited, although the National Council for Coffee published the Ordinance for Internal Coffee Trading, regulating the sale of coffee in different states, there is evidence that it is not always followed ([IICA 2011](#)).

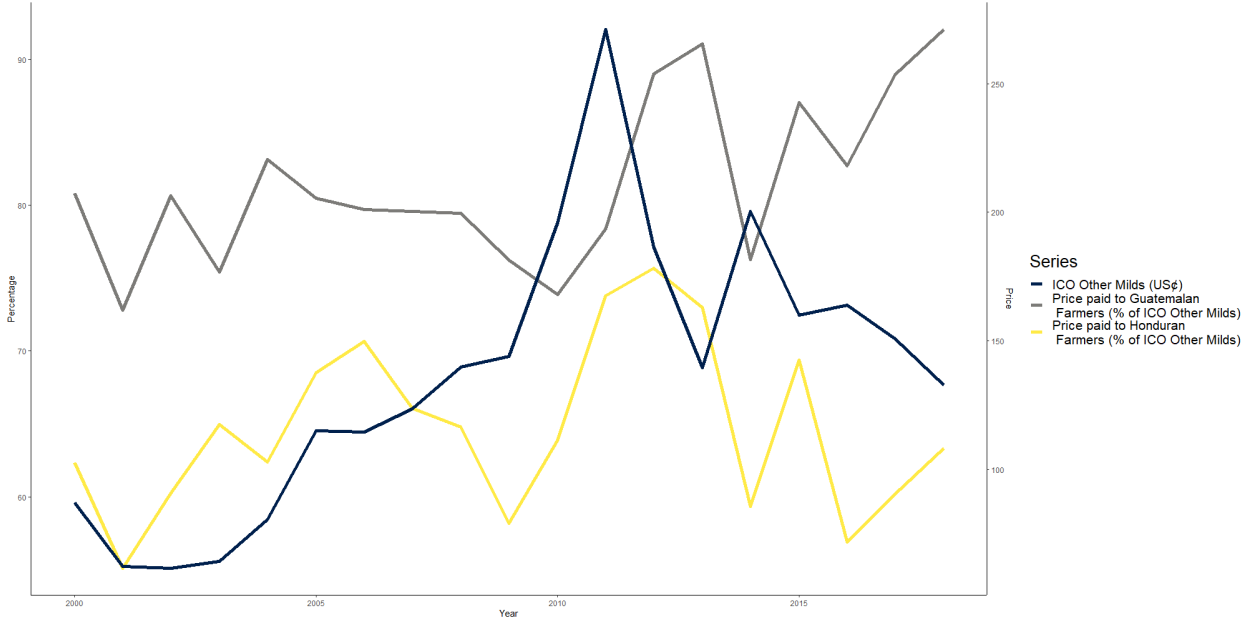
Alternatively, horizontal integration in the form of producers' cooperatives can also break local oligopsonies ([Sexton 1990](#); [Smith and Loker 2012](#); [Margadant 2016](#); [USAID 2019](#); [O. M. Palma, Díaz-Puente, and Yagüe 2020](#)). This model has been more successful in the Honduran coffee sector, and it is widely acknowledged that it brings important benefits to farmers, including transparency at point of purchase ([Chacón 2015](#)), centralized processing ([Barbier, Hearne, and Gonzalez 2003](#); [Eakin, Tucker, and Castellanos 2006](#); [Lara et al. 2011](#); [Piñuela 2016](#); [Álvarez 2018](#); [Augustin 2019](#); [Orellana 2022](#)), better prices through process and quality differentiation ([Solstad 2007](#); [Chacón 2015](#); [Ruben et al. 2018](#); [Alvarado 2018](#); [USAID 2019](#); [Augustin 2019](#); [Orellana 2022](#)), training ([Fromm and Dubon 2006](#); [Silveira 2005](#); [Ruben et al. 2018](#); [Alvarado 2018](#)), risk management ([Lara et al. 2011](#); [USAID 2019](#)), and gender and youth inclusion ([Chacón 2015](#); [Ruben et al. 2018](#); [Alvarado 2018](#)), among others. Despite these clear benefits, cooperative membership has remained stagnant around 15%-20% in the past ten years ([IICA 2011](#); [Álvarez 2018](#)). The lack of trust in cooperatives is the result of a long history of damaging bankruptcies has been cited as the main reason behind this fact ([Chacón 2015](#); [Álvarez 2018](#); [Ruben et al. 2018](#)). Two additional factors help explain low membership, first, cooperative commercial edge is dulled when prices increase above Fair Trade price floor ([Solstad 2007](#)) and second, they often do not pay for the coffee immediately, so farmers prefer intermediaries that pay cash on the spot ([Solstad 2007](#); [Lara et al. 2011](#); [Smith and Loker 2012](#)).

3.2.1 Evidence that this is a problem

Figure 6 shows the price paid to Honduran and Guatemalan farmers as a percentage of the indicative ICO prices for both countries, in this case, the ICO group "Other milds". Guatemalan farmers started

the century earning 80% of the ICO indicative price and have grown steadily to earning 92% of it by 2019. Seldom have they earned less than 70% of it. In contrast, Honduran farmers started the century earning slightly more than 60% of the ICO price, and where earning about as much by 2019. Their participation only increased between 2010 and 2013 when prices were at its highest suggesting that, when coffee is scarce, the seller power of Honduran farmers is increased.

Figure 6: Price paid to growers in Guatemala and Honduras as a percentage of the ICO other milds composite price.



The fact that Honduran farmers haven't been able to reclaim a larger share of the rents from coffee sales over the last 20 years suggests that the buyers power in the local markets is still strong. As of 2018, 85% of the coffee was still traded through the producer-intermediary-exporter channel, the remainder of it being traded directly between producer and exporter or through cooperatives ([Álvarez 2018](#)).

3.2.2 Prevalence of the problem

Exact numbers on the extent of this phenomenon are hard to come by, yet it is still possible to get some sense of the prevalence. First, previous studies found that as much as 39% of coffee coming from smallholder farmers is sold at farm gate to larger farmers and local intermediaries ([Álvarez 2018](#)). The upper bound of the estimate can be as high as 85% of coffee traded as perishable. The true extent is somewhere in-between.

3.2.3 Policies or projects attempting to address the problem

In 2005, the National Council for Coffee (CONACAFE) published the first regulation for the commercialization of coffee. The latest version, Agreement S.O. No. 136/2015, was published in 2015 ([Wiegel et al. 2020](#)). Among the provisions consigned in this agreement are the different types of coffee that can be traded in Honduras (cherry, wet, dry parchment, green, roasted, and ground) and the factors for converting between each of these types. There are also requirements for trading coffee, namely that producers, intermediaries, brokers, exporters, and roasters have to be registered in order to buy and

sell coffee. Finally, there are rules on how to weigh coffee, and the appropriate discounts for each container, be it sack, tin can, or other. Although this ordinance was well received, there are still concerns about its enforceability, as for instance, many producers and intermediaries are still unregistered, there are still complaints about unjust discounts made by producers and ambiguity about what the qualities mean. Nevertheless, this agreement is seen as a positive step towards the formalization of the internal market for coffee.

IHCAFE has also worked towards solving this issue. Their approach has been to transfer in-farm drying technologies and practices to farmers. The rationale behind this approach is that if coffee's perishability is lessened, farmers can bide their time and seek more distant markets looking for better selling conditions ([Díaz 2018](#)). Along with the Inter-American Institute for Cooperation on Agriculture (IICA), they implemented a project that sought to offer producers better conditions to improve classification, drying, and storage on the farm, through investments in infrastructure and equipment and adoption of innovations for post-harvest of coffee ([IICA 2011](#)). This line of work continues to this day and the number of independent farmers with adequate in-farm facilities for wet processing is 23%. However, the scalability of this approach is in question, given how costly it is to provide infrastructure and equipment to all farmers in Honduras.

Other projects have sought to strengthen cooperative organizations in Honduras ([Cortés 2002](#)). For instance, the Spanish Agency for International Development Cooperation (AECID) implemented a project with the Café Orgánico Marcala (COMSA) and Western coffee coops. The rationale behind this approach is that producer organizations often lack the managerial and commercial skills necessary to consolidate their business. As a result of this project, the Managerial School for Coffee Enterprises and the Managerial School for Cooperative Business were inaugurated. By 2004, 73% of coops that participated in this project had financial statements. In addition to this, the project helped coops obtain Fair Trade, Organic, and other certifications. As a result, in 2004, 10000 qq were exported under these seals, fetching an average USD 15.45 per sack more. The impact of this project can still be seen today: in 2005 Marcala was awarded its own Denomination of Origin, and in 2018 the Honduras Western Coffee Geographic Indication was awarded to the western regions of Copan and Opalaca.

Finally, there has also been a push for sourcing directly from farmers bypassing intermediaries ([Bonilla 2014](#)). Examples of this are: Maximizing Opportunities for Coffee and Cocoa in the Americas (MOCCA) Initiative, Olam Direct Marketing Program, Neumann Foundation/International Coffee Partners, TechnoServe MAS+, USDA, among others.

3.3 Problem #3: Limited quality contracting between international buyers and domestic sellers

Figure 7: Lengthwise dissection of the Honduran coffee value chain

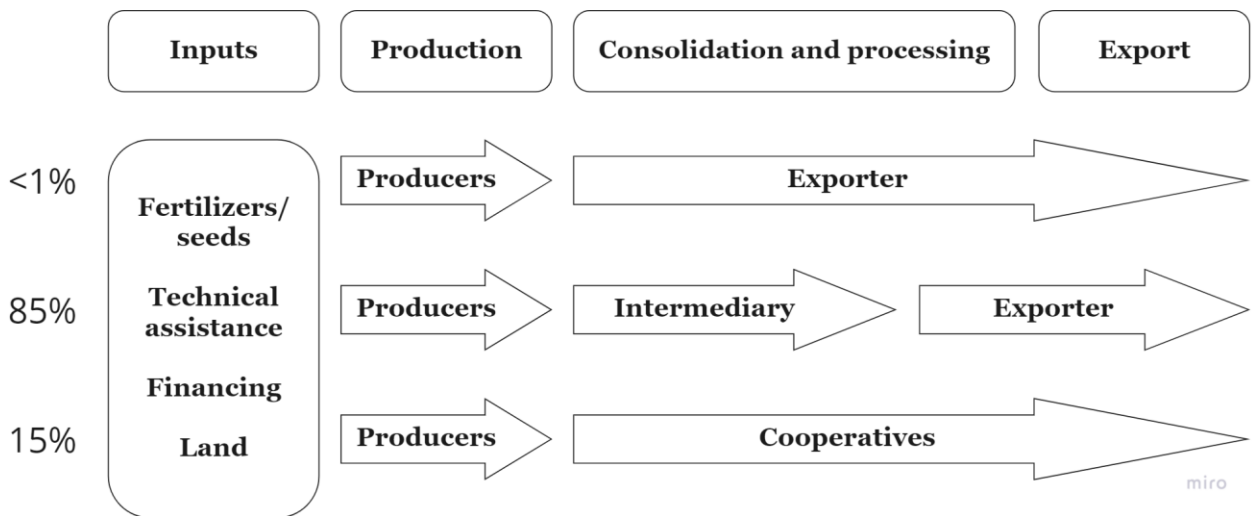


Figure 7 shows a simplified lengthwise dissection of the Honduran supply chain. Most of the conventional coffee moves through the intermediary channel, although some intermediaries have also started trading differentiated coffee. Most of the differentiated coffee associated with sustainable seals is sold through cooperatives, being an important tool of their commercial strategy for attracting more producers and offering them better prices. Some cooperatives also play an important role in trading coffees with Denomination of Origin, this is the case of the COMSA cooperative and the Marcala D.O., and the cooperatives in Western Honduras. Finally, the producer-exporter channel of trade is where most of the gourmet coffee is traded. However, it is worth noting that this channel moves less than 1% of the volume of coffee traded.

The primary reason behind this configuration are contracting costs, in particular, the search and monitoring costs incurred by the buyers (Swinen and Vandeplass 2015). The direct purchase channel and the cooperative-led channels are both examples of high-quality contracting, however, each channel deals with these contracting costs differently. On one hand, direct purchase channels rely on the quality of the coffee and its potential to fetch price premiums. These price differentials dominate search and monitoring costs making it feasible for buyers to source those coffees directly (Álvarez 2018). On the other hand, cooperatives' approach of "meeting in the middle" decreases search and monitoring costs so that buyers are attracted by volumes they can buy that can be backed by more formal contracts with the cooperatives (IICA 2011). This outcome holds even for qualities of coffee that are inferior to those from direct purchases. Unfortunately, the search and monitoring costs of 85% of the coffee produced in Honduras are higher than the price premiums they can fetch, and therefore are excluded from high-quality contracting.

The first hurdle to enact high-quality contracting for these volumes of coffee is that they are geographically dispersed and heterogeneous in processing and quality, which means search costs are high. It is possible to get an approximation of coffee quality by geographic region taking into account environmental characteristics (Decazy et al. 2003; Mickle 2009). Yet this profiling only gives a broad idea on expected quality of coffee, ignoring that the realized quality depends as much on environment as it does

on agronomic, processing, and storing practices. To fill in the gaps, local buyers use anecdotal information as well as their own experience to narrow the search even further. This information is costly to obtain, and constitutes the basis of their business, therefore they guard it zealously ([Zhu 2012](#)). Coming up with that kind of information as an outsider is even more expensive.

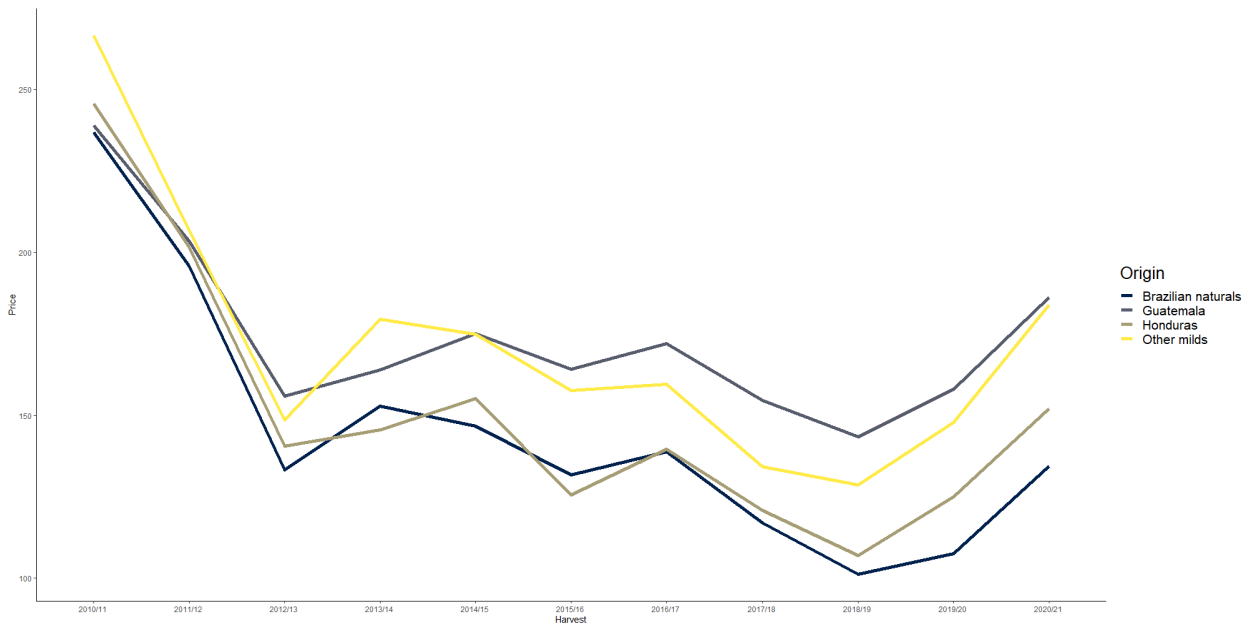
Once high-quality suppliers have been identified, the issue of monitoring them remains. Coffee is a food product that must be handled according to adequate sanitary practices. Furthermore, high-quality coffee must be processed such that the intrinsic characteristics of the product are not diminished. Some of the mistakes in handling are readily observable upon visual inspection, yet a number of more subtle defects require tasting the coffee, also known as cupping. Ensuring that coffee meets the physical, biological, and organoleptic standards can therefore be expensive, particularly with the volumes of coffee that Honduras produces.

Therefore, contract breaches are not uncommon in Honduras coffee supply chain. Cooperatives are specially prone to contract breaching as they have faced a steep learning curve when trying to insert themselves in global markets. Initially, their limited marketing capacity meant they often failed to sell their coffee to exporters and had to sell locally at depressed prices ([Smith and Loker 2012](#); [Ruben et al. 2018](#)). Some of them have struggled to deliver the quality and consistency required, which led some coops to integrate into their operations the wet and dry processes. More recently, their reliance on sustainability seals has become a double-edged sword: although it gives them an edge when prices are low, their operations are threatened when coffee prices surpass the price floors set by the Fair Trade seals. In those cases, intermediaries often offer better prices to growers, and cooperatives struggle to source the volumes they need to fulfill their commitments ([Smith and Loker 2012](#)). This hit and miss history of cooperatives partly explains why membership is low, and importantly, why the market share of cooperatives in direct exports is so low: in 2018, only 3.4% of exports made by cooperatives ([Álvarez 2018](#)).

3.3.1 Evidence that this is a problem

Almost half of Honduran coffee - 46% to be precise - is still exported as conventional coffee. In 2022, these coffees fetched prices almost identical to ICE's coffee C futures contract ([ICO 2020](#)). The remaining 54% was sold under some category of differentiation, a market in which Honduras has been growing recently. These coffees fetched an average of 40 cents more than conventional coffees. However, important distinctions have to be made within differentiated coffees. For instance, quality and origin differentiation accounted for barely 5% of differentiated coffees. These coffees were sold as Gourmet, Denomination of Origin Marcala, Project Origin, and Cup of Excellence. These coffees fetched upwards of five dollars more than the conventional coffees. The remainder 95% of differentiated coffee was sold through a combination of Rainforest Alliance, Fair trade, Organic, UTZ, 4C, C.A.F.E. Practices, and Lift Program seals ([Donovan and Blare 2018](#)). Yet it is important to note that the quality of these coffees is not different from conventional ones. The small volumes of coffee traded for quality are evidence that this market segment is still immature and, on average, fetch lower prices than their regional and group counterparts (See Figure 8).

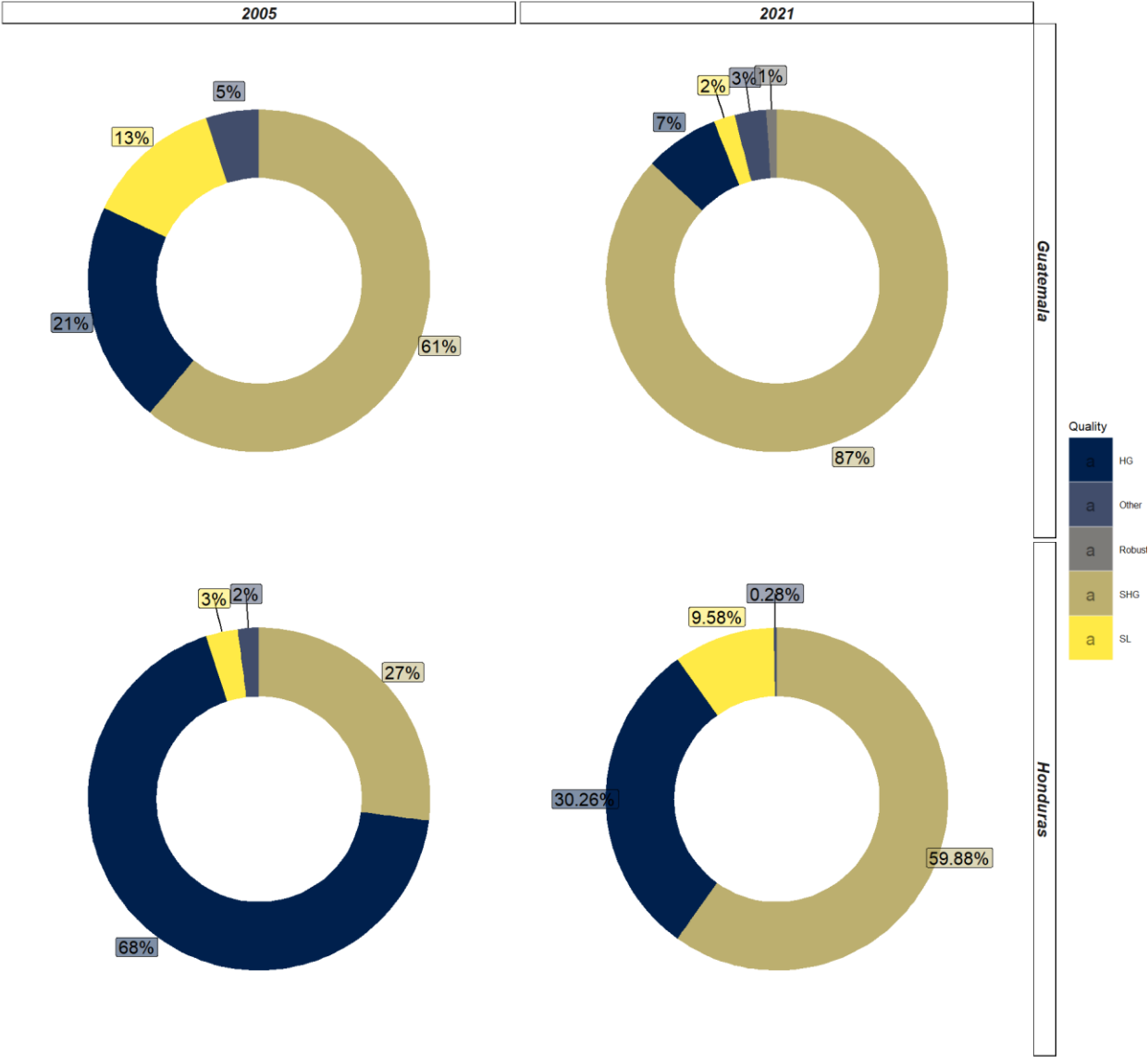
Figure 8: Price of Guatemalan and Honduran coffee compared to ICO composites for other milds and Brazilian naturals.



3.3.2 Prevalence of the problem

The contracts for the sale of coffee are not made public, therefore it is not possible to know which coffees are traded under what conditions. However, it is still possible to get some sense of the prevalence of this problem. First, it is safe to assume that conventional coffees are sold through low quality channels, making this the lower bound for this issue. . The upper bound would depend on the definition of high-quality: if sustainable coffees are taken into account, the estimate is narrowed down to 47-48%. If the goalpost is moved to mean coffee with superior organoleptic characteristics or an identifiable origin, then the upper bound for the prevalence of low quality contracting moves to 99% of coffee traded in Honduras. It is worth noting that Honduras has improved the quality of the coffee they sell over the last 16 years, yet still lags Guatemala (Figure 9).

Figure 9: Coffee qualities exported by Honduras and Guatemala, 2005 vs 2021.



3.3.3 Policies or projects attempting to address the problem

IHCAFE has made an effort to increase the share of coffee exported as gourmet. Their focus has been on increasing the number of quality laboratories where coffees can be cupped and scored following the Specialty Coffee Association guidelines. Currently, all six research and training centers have a quality lab. Other organizations have also helped farmers sell their coffee better, these include: IICA, SOCODEVI, Solidaridad, among others. As a consequence, the share of coffee old as gourmet has double in the last 5 years ([IHCAFE 2016](#), [2021](#)).

4. CONCLUSION

In conclusion, the Honduran coffee value chain is a complex and dynamic system that involves a variety of actors, including smallholder farmers, intermediaries, and cooperatives. They are responsible for the production and sale of coffee, and their interactions and relationships have a significant impact on

the overall performance and competitiveness of the value chain. Smallholder farmers are the backbone of the Honduran coffee industry, as they are responsible for the majority of coffee production in the country. However, they often face numerous challenges and constraints, such as limited access to funding and technology, which can impede their ability to increase productivity and profitability. Many of them are also weakly linked to the value chain through oligopsonistic local markets where they sell their coffee under disadvantageous conditions. Effective action on in-farm drying facilities, improved road infrastructure, and improved centralized processing facilities can help break these imperfect markets.

Cooperatives also play a key role in addressing these challenges by providing smallholder farmers with support and services such as access to markets, finance, and training. They can be a powerful tool for smallholder farmers to improve their competitiveness and bargaining power in the value chain. By pooling their resources and working together, smallholder farmers can gain access to markets, finance, and technology that they would not have access to individually. Additionally, cooperatives can also provide smallholder farmers with training and support to improve their production and marketing skills. However, they carry a reputation as unstable organizations, given that many have gone bankrupt over the years. A potential line of action to improve their impact on the value chain is to strengthen their associative, managerial, and commercial capacities.

Intermediaries, such as domestic traders and exporters, also play an important role in connecting smallholder farmers to international markets and providing them with the necessary support to improve their production and increase their income. However, their work is often vilified: they are seen as capturing unduly large shares of the rents from selling coffee, which has turned them into the scapegoat of many of the issues in the Honduran value chain. Nevertheless, they are often the only agents willing to shoulder the transaction costs inherent to sourcing small volumes of coffee from geographically dispersed producers. In such cases, the question is: can their activity be improved such that they provide socially optimal benefits, while still satisfying their incentive compatibility constraints? If so, how?

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REFERENCIAS

- Aid, Christian. 1999. *In Debt to Disaster: What Happened to Honduras After Hurricane Mitch*. Christian Aid.
- Alvarado, R F Alvarado. 2018. "Diseño de Un Sistema híbrido Renovable Para Una Planta Procesadora de Café En Honduras." riunet.upv.es. <https://riunet.upv.es/handle/10251/108975>.
- Álvarez, M Á. 2018. "Análisis de La Cadena de Valor Del Café En Honduras." *Tegucigalpa, Honduras: Heifer International*.
- Augustin, J. 2019. "Análisis de Indicadores de Sostenibilidad En Tres Sistemas de Producción de Café: Convencional, Orgánico y Especial, En Los Municipios de Morocelf, Marcala y Santa Elena, En Honduras Honduras." bdigital.zamorano.edu. <https://bdigital.zamorano.edu/handle/11036/6542>.
- Barbier, B, R R Hearne, and J M Gonzalez. 2003. "Trade-Off Between Economic Efficiency and Contamination by Coffee Processing: A Bio-economic Model at the Watershed Level in Honduras." *agritrop.cirad.fr*. <https://agritrop.cirad.fr/515144>.
- Bonilla, S M. 2014. "Percepción y Asociación Del término Orgánico En Los Consumidores de Café (Coffea Arabica), de San Pedro Sula, Honduras." bdigital.zamorano.edu. <https://bdigital.zamorano.edu/handle/11036/3389>.
- Bunn, Christian, Mark Lundy, Peter Läderach, Evan H Girvetz, and Fabio Castro. 2018. "Climate Smart Coffee in Honduras."
- Bunn, C, M Lundy, P Läderach, F Castro-Llanos, and... 2018. "Café Sostenible Adaptado Al Clima En Honduras." *cgospace.cgiar.org*. <https://cgospace.cgiar.org/handle/10568/105436>.
- Canal8. 2022. "Un Millón de Corteros Se Requieren Para La Cosecha de Café." <https://tnh.gob.hn/nacional/un-millon-de-corteros-se-requieren-para-la-cosecha-de-cafe/>. 2022.
- CEPAL, and FAO. 2020.
- Chacón, L O Gabarrete. 2015. "Sistematización Participativa de La Experiencia de La Cadena de Valor Del Café de La Labor, Ocotepeque, Honduras." *repositorio.catie.ac.cr*. <https://repositorio.catie.ac.cr/handle/11554/7199>.
- Cortés, A F. 2002. "Evaluación de Los Efectos Del Componente Café, Proyecto Zamorano-USAID, Departamento de El Paraíso, Honduras, 2000-2001." bdigital.zamorano.edu. <https://bdigital.zamorano.edu/handle/11036/5163>.
- Decazy, Frédéric, Jacques Avelino, Bernard Guyot, Jean-Jacques Perriot, C Pineda, and Christian Cilas. 2003. "Quality of Different Honduran Coffees in Relation to Several Environments." *Journal of Food Science* 68 (7): 2356–61.
- Díaz, N I. 2018. "Análisis de Factibilidad Para Establecer Una Central de Beneficio húmedo de Café En El Paraíso, El Paraíso, Honduras." bdigital.zamorano.edu. <https://bdigital.zamorano.edu/handle/11036/6249>.
- Donovan, J. 2004. "Rural Enterprise Development Involving Small Producers: Towards Strategic Specialty-Coffee Networks in Nicaragua and Honduras." 45.32.134.17. <http://45.32.134.17/bitstream/handle/11554/10112/A2705i.pdf?sequence=1&isAllowed=y>.
- Donovan, J, and T Blare. 2018. "Evaluation of UTZ Certification with a Focus on Coffee Businesses in Guatemala, Honduras and Nicaragua." *ICRAF Working Paper-World Agroforestry ...* *}. cabdirect.org*. <https://www.cabdirect.org/cabdirect/abstract/20193289326>.
- Dube, Oeindrila, and Juan F Vargas. 2013. "Commodity Price Shocks and Civil Conflict: Evidence from Colombia." *The Review of Economic Studies* 80 (4): 1384–1421.
- Eakin, H, C Tucker, and E Castellanos. 2006. "Responding to the Coffee Crisis: A Pilot Study of Farmers' Adaptations in Mexico, Guatemala and Honduras." *Geographical Journal*. <https://doi.org/10.1111/j.1475-4959.2006.00195.x>.
- ElHeraldo. 2020. "Caficultores Urgen de Personal Para Cortar Café En Zona Oriental." <https://www.elheraldo.hn/honduras/caficultores-urguen-personal-para-cortar-cafe-en-zona-oriental-ABEH1432288>. 2020.
- Fromm, I, and J A Dubon. 2006. "Upgrading and the Value Chain Analysis: The Case of Small-Scale Coffee Farmers in Honduras." In *Conference on International Agricultural Research for Development*. *researchgate.net*. https://www.researchgate.net/profile/Ingrid-Fromm/publication/242706970_Upgrading_and_the_Value_Chain_Analysis_The_Case_of_Small-scale_Coffee_Farmers_in_Honduras/links/541aa2760cf25ebee988af8b/Upgrading-and-the-Value-Chain-Analysis-The-Case-of-Small-scale-Coffee-Farmers-in-Honduras.pdf.
- Hernández, J O L. 2020. "Procesos y Mecanismos de Desigualdad En Pequeños Productores de Café En La Región Occidental de Honduras. El Caso de San Juan, Intibucá." *Revista Latinoamericana de Estudios Rurales*. <http://www.ceil-conicet.gov.ar/ojs/index.php/revistaalasu/article/view/494>.
- ICO. 2020. "December Coffee Market Report." International Coffee Organization.
- IHCAFE. 2016. "Informe Estadístico IHCAFE 2015-2015." IHCAFE.
- . 2021. "Informe Estadístico IHCAFE 2020-2021." IHCAFE.
- IICA. 2011. "Desarrollo Competitivo de La Cadena de Valor Del Café En Postcosecha y Comercialización Interna En Honduras."
- INE. 2020. "Actualización de La Metodología Para El cálculo de La Pobreza Monetaria En Honduras." Instituto Nacional de Estadísticas de Honduras.
- Lara, L, B Rapidel, D Stoian, J Argüello, and... 2011. "Estudio de Factibilidad Para La Implementación de Seguros Basados En Índices Climáticos En El Cultivo de Café En Honduras y Nicaragua." *Turrialba, Costa Rica ...* *}. researchgate.net*. https://www.researchgate.net/profile/Leonel-Lara-Estrada/publication/294579895_Estudio_de_factibilidad_para_la_implementacion_de_seguros_basados_en_indices_climaticos_en_el_cultivo_de_cafe_en_Honduras_y_Nicaragua/links/56c1ee7a08aeedba0567c2a8/Estudio-de-factibilidad-para-la-implementacion-de-seguros-basados-en-indices-climaticos-en-el-cultivo-de-cafe-en-Honduras-y-Nicaragua.pdf.

- Liverpool-Tassie, Lenis Saweda O, Ayala Wineman, Sarah Young, Justice Tambo, Carolina Vargas, Thomas Reardon, Guignon Serge Adjognon, et al. 2020. "A Scoping Review of Market Links Between Value Chain Actors and Small-Scale Producers in Developing Regions." *Nature Sustainability* 3 (10): 799–808.
- Margadant, F. 2016. "Overcoming the Thin Months in Coffee-How Diversification Can Generate Stable and Higher Incomes in Marcala (Honduras)." poverty.ch. https://www.poverty.ch/wp-content/uploads/2017/10/Fabiana_Margadant_MA.pdf.
- Mickle, E. 2009. "Using GIS to Locate Areas for Growing Quality Coffee in Honduras." digitalcommons.unl.edu. <https://digitalcommons.unl.edu/envstudtheses/3/>.
- Mogrovejo, Carino, Rodrigo. 2020. "Incentivos y Limitaciones Para La Mejora de La Seguridad y Salud En El Trabajo En La Cadena Mundial de Valor Del Café de Honduras." International Labor Organization.
- Montilla, J, J Arcila, M Aristizábal, EC Montoya, GI Puerta, CE Oliveros, and G Cadena. 2008. "Caracterización de Algunas Propiedades físicas y Factores de Conversión Del Café Durante El Proceso de Beneficio húmedo Tradicional."
- Orellana, E L R. 2022. "Efectos de La Cadena de Valor Del Café En El Desarrollo Socioeconómico de Los Pequeños Cafetaleros de Corquín, Departamento de Copán-Honduras." *Ciencia Latina Revista Científica Multidisciplinar*. <https://ciencialatina.org/index.php/cienciala/articulo/view/3107>.
- Palma, J U Sevilla. 2013. "Análisis de La Agroindustria de Exportación de Centroamérica: Evaluación Económica y Sostenible de La Producción de Café de Honduras." burjcdigital.urjc.es. <https://burjcdigital.urjc.es/bitstream/handle/10115/12287/TESIS%20JOEL%20ULISES%20IMPRESA.pdf?sequence=1&isAllowed=y>.
- Palma, O M, J M Díaz-Puente, and J L Yagüe. 2020. "The Role of Coffee Organizations as Agents of Rural Governance: Evidence from Western Honduras." *Land*. <https://www.mdpi.com/880090>.
- Peligros-Espada, C, J U Sevilla-Palma, and O Uña-Juarez. 2018. "Importance of Crop Altitude Range for Coffee Production: Findings from Honduras." *Journal of Agricultural Science and Technology*. https://www.researchgate.net/profile/Joel-Sevilla-2/publication/324916039_Importance_of_Crop_Altitude_Range_for_Coffee_Production_Findings_from_Honduras/links/621ab34d2542ea3c3cb45380/Importance-of-Crop-Altitude-Range-for-Coffee-Production-Findings-from-Honduras.pdf.
- Peña, J H O. 2019. "Hacia Otro Paradigma de Economía Política Del Café y Desarrollo Humano En El Occidente de Honduras." *Revista Perspectivas Del Desarrollo*. <https://lamjol.info/index.php/RPDD/article/view/11965>.
- Pérez, C Cruz. 2016. "Estudio de Factibilidad Para La Elaboración e Implementación de Un Plan de Capacitación y Asistencia técnica Para Pequeños Productores de Café Del Municipio de Opatoro, Departamento de La Paz, Honduras, Centro América." tzi-balnaah.unah.edu.hn. <https://tzi-balnaah.unah.edu.hn/xmlui/bitstream/handle/123456789/2789/T-MSc00085.pdf?sequence=2>.
- Pimenta, Carlos José, Caroline Lima Angélico, and Sára Maria Chalfoun. 2018. "Challenges in Coffee Quality: Cultural, Chemical and Microbiological Aspects." *Ciência e Agrotecnologia* 42: 337–49.
- Piñuela, K M Castro. 2016. "Análisis de Las Líneas de Acción de Valor Agregado, Calidad y Fortalecimiento Institucional Del Proyecto de Cooperación Café AECID Referentes a La Obtención de La Denominación de Origen Del Café de Marcala (Honduras) y Su Aplicabilidad En Zamora Chinchipe (Ecuador)." repositoriointerculturalidad.ec. <http://repositoriointerculturalidad.ec/jspui/handle/123456789/3033>.
- Promecafe. 2018. "El Estado Actual de La Rentabilidad Del Café En Centroamérica." Edited by Central American Business Intelligence.
- Reuters. 2019. "As Promised, Trump Slashes Aid to Central America over Migrants." [reuters.com/article/us-usa-immigration-trump/as-promised-trump-slashes-aid-to-central-america-over-migrants-idUSKCN1T12C7](https://www.reuters.com/article/us-usa-immigration-trump/as-promised-trump-slashes-aid-to-central-america-over-migrants-idUSKCN1T12C7). 2019.
- Romero, J P. 2019. "Relevo Generacional En La Industria Del Café. Caso: Finca San Isidro, Honduras." bdigital.zamorano.edu. <https://bdigital.zamorano.edu/handle/11036/6620>.
- Romero, Z, R José, N Sibrian, and J Francisco. 2016. "Estudio de La Estructura de Mercado de La Comercialización Del Café En Honduras." bdigital.zamorano.edu. <https://bdigital.zamorano.edu/handle/11036/5874>.
- Ruben, R, P Sfez, T Pensioen, and N Meneses. 2018. "Análisis Integral de La Cadena de Valor Del Café En Honduras: Informe Final." library.wur.nl. <https://library.wur.nl/WebQuery/wurpubs/fulltext/450336>.
- Salazar, Alfonso, Miroslava Nevo, Daniel Torres-Gracia, Raúl Rodríguez-Molina, Eduardo Café, Laureen Montes, María Romero, et al. 2016. "Regional Road Integration Program II: Loan Proposal." Inter-American Development Bank.
- Semple, Kirk. 2019. "Central American Farmers Head to the US, Fleeing Climate Change." *The New York Times* 13.
- Sexton, Richard J. 1990. "Imperfect Competition in Agricultural Markets and the Role of Cooperatives: A Spatial Analysis." *American Journal of Agricultural Economics* 72 (3): 709–20.
- Shleifer, Andrei. 1985. "A Theory of Yardstick Competition." *The RAND Journal of Economics*, 319–27.
- Silveira, N D. 2005. "Sostenibilidad Socioeconómica y Ecológica de Sistemas Agroforestales de Café (Coffea Arabica) En La Microcuenca Del río Sesesmiles, Copán, Honduras." repositorio.catie.ac.cr. <https://repositorio.catie.ac.cr/handle/11554/5553>.
- Smith, E, and W Loker. 2012. "'We Know Our Worth': Lessons from a Fair Trade Coffee Cooperative in Honduras." *Human Organization*. <https://meridian.allenpress.com/human-organization/article-abstract/71/1/87/71967>.
- Solstad, G. 2007. "Organic and Fair Trade Coffee: Diverging Experiences Among Smallholders in Honduras." duo.uio.no. <https://www.duo.uio.no/handle/10852/32684>.
- Sullivan, Mark P. 2006. "Honduras: Political and Economic Situation and US Relations." In. LIBRARY OF CONGRESS WASHINGTON DC CONGRESSIONAL RESEARCH SERVICE.
- Swinnen, Johan, and Anneleen Vandeplass. 2015. "Price Transmission in Modern Agricultural Value Chains: Some Conceptual Issues." *Food Price Dynamics and Price Adjustment in the EU* 147: 148–66.
- Thiebaud, Jorge Antonio. 1985. "The Role of the Honduran Institute of Agricultural Marketing (IHMA)."

- United States Agency for International Development, FHI 360. 2017. "Honduras Labor Market Assessment." Edited by FHI 360 United States Agency for International Development.
- USAID. 2019. "Coffee Price Risk Management Models Guatemala & Honduras Summary of Findings and Potential Interventions."
- Vos, Rob, and Jenny Wiegel. 2021. "Rethinking Markets and Value Chains for Inclusion and Sustainability: Concept Note and Work Plan." CGIAR.
- Wiegel, Jennifer, Martha del Rio, Juan Fernando Gutiérrez, Luisa Claros, Derly Sánchez, Lorena Gómez, Carolina González, and Byron A Reyes. 2020. "The Coffee Market System in Honduras: Opportunities for Supporting Renovation and Rehabilitation." Alliance Bioversity; CIAT.
- Zhu, L. 2012. "A Preliminary Investigation of the Impact of Union Micofinanza on Coffee Producers in La Union, Honduras." repository.upenn.edu. <https://repository.upenn.edu/sire/13/>.

ANNEX A

A.1 Eligibility criteria:

For an article to be included in this study, it must meet all of the following inclusion criteria:

- ▶ Study includes explicit reference to interactions between the focal actors of this study as defined in this protocol. Where this is not clear during abstract and title screening, papers are kept in and this criterion is applied during full text screening.
- ▶ Study was published in 2000 or later given that the study focuses on the Honduran coffee supply chain. The study period should also be 2000 or later.
- ▶ Study type: e.g. experimental studies and observational (case studies, survey based studies, participant observation) studies. These studies can come from peer reviewed articles and review articles and grey literature. I will include only English and Spanish-language articles. Following the full text screening, additional papers may be solicited from experts in the field that were not captured in the process or which might have not yet been published.
 - ▷ I will include studies with a clear and well-accepted methodology but not necessarily in peer-reviewed journals. This is to avoid publication bias for statistically significant effects. By acceptable methodology, a study must have clear objectives linked to the study analysis and conclusions. For quantitative studies, the study must have at least 100 respondents or a clear justification for why there are less than 100 (for example, if 100 is the total universe). For qualitative studies, there should also be a clear justification for the sample size and/or methodology used.
- ▶ The paper must make clear reference to a link/interaction or potential link/interaction, in terms of exchange (physical and/or monetary) between the study's focal actors (i.e. workers, farmers, intermediaries, cooperatives and other associations, and exporters). When government programs are involved, there should be a marketing/exchange component to it exclusively on the output side. Thus, I exclude papers that focus on government provision of inputs at market or subsidized rates, extension services or the development of information systems, as well as those about cooperatives that have been established by governments. However, I will include studies when the NGO and/or government enable a relationship between farmers and focal actors that results in relevant outcomes for farmers.
- ▶ The paper must focus on (or explicitly mention/evaluate) one of our outcomes of interest; either primary, intermediate. Where the paper is about "processing" it must be related to the coffee value chains.
- ▶ For technology-focused studies, there should not be a focus on efficacy of the technology or service.

A study will be excluded from this scoping review if it meets any one of the following exclusion criteria:

- ▶ Study does not include explicit reference to the supply/value chain as defined in the Initiative's Concept Note and Work Plan.
- ▶ Study was published prior to 2000 and the study period was also prior to 2000

- ▶ Study type is not an experimental study or observational (case studies, survey based studies, participant observation) study, and is not in English or Spanish.
- ▶ Study methods are unclear.
- ▶ Study area is not Honduras.
- ▶ The study does not include reference to an interaction or link between focal actors.
- ▶ The paper does not mention any of our outcomes of interest.
- ▶ The study is focused on efficacy of a technology or service.
- ▶ The study focuses on any government and/or NGO program/activity that involves an exchange of a good or service for free or at a subsidized rate. I also exclude government programs that provide inputs at market rate, extension services or the development of information systems, as well as those about cooperatives that have been established by governments.
- ▶ Studies that focus on changes in perception, confidence or attitude, but with no reference to the focus outcomes, will be excluded. However, studies that focus on changes in perceptions of one's own higher income, more stable prices, or other focus outcomes, will be included.
- ▶ Studies that do not have sufficient information to enable us to characterize the mechanisms regarding the link between our focal actors and smallholder farmers will be excluded.

A.2 Search strategy:

I conducted a search of the following bibliographic databases, using the Publish or Perish app:

- ▶ Google Scholar
- ▶ Scopus

Additional searches will be conducted in the following databases and websites to capture additional peer-reviewed research, non-peer-reviewed research, and gray literature:

- ▶ AgEcon Search (<https://ageconsearch.umn.edu/collections/>)
- ▶ Gardian (CGIAR) (<http://gardian.bigdata.cgiar.org>)
- ▶ Escuela Agrícola Panamericana - Zamorano's Wilson Popenoe digital repository (<https://bdigital.zamorano.edu/home>)
- ▶ Centro Agronómico Tropical de Investigación y Enseñanza - CATIE's digital repository (<https://repositorio.catie.ac.cr/>)

Row	Title search string English	Title search string Spanish
	'coffee' AND 'Hondura?'	'café' AND 'Honduras'
	Keyword search string English	Keyword search string Spanish

Chain	'value chain' OR 'supply chain' OR 'market'	'cadena de suministro' OR 'cadena de valor' OR 'mercado'
Efficiency	'efficien*' OR 'price' OR 'premium*'	'eficiente' OR 'precio' OR 'prima'
Inclusion	'inclusion' OR 'wom?n' OR 'youth' OR 'young' OR 'smallhold*' OR 'LMIC' OR 'develop*' OR 'poor' OR 'poverty'	'inclusion' OR 'mujer*' OR 'joven*' OR 'pequeño*' OR 'desarroll*' OR 'pobre*'
Sustainability	'sustainab*' OR 'voluntary' OR 'certif*' OR 'standard*' OR 'due diligence' OR 'environment*' OR 'deforest*' OR 'services' OR 'degradation'	'sostenib*' OR 'voluntario' OR 'certif*' OR 'estandar*' OR 'debida diligencia' OR 'ambient*' OR 'deforest*' OR 'servicios' OR 'degrada*'
Digital	digital OR information OR trace*	digital OR informacion OR traza*

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