



Coffee producer country profile: Brazil

An overview of the economic model of Brazilian coffee farms

REPORT

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1. Relevant context regarding economic viability

1.1. Production and export profile

Brazil is the world's number one producer and exporter of coffee, representing approximately 40% of world production and 32% of world exports in 2021.¹ For the 2023/2024 harvest, Brazil's projected harvest was 66.4 million 60 kg bags. Of this, 21.7 million bags were forecasted for Robusta and 44.7 million bags for Arabica.² Robusta volumes have been increasing since the mid-2010s, more than doubling between 2017 and 2023 but plateauing since then.³

Most Robusta produced in Brazil is directed to the domestic market, while Arabica is destined for the export market. In 2023, Brazil exported 30.81 million bags of Arabica coffee and 4.70 million bags of Robusta, together representing approximately 64% of its 2022/2023 production of 55.07 million bags.⁴ Domestic consumption of coffee is significant and reached 23.655 million bags in 2021/22, making Brazil the third-largest coffee consumer in the world.⁵

In the last thirty years, Brazil's production has also shown a slow but steady increase in volumes, as can be seen in Figure 1. Critically, it is yields, not surface area, that are driving the increase in production; surface area has actually decreased substantially since the 1960s, according to FAOSTAT. The fourfold increase in yields from 1989 to 2019 is attributable to technological improvements, increased plant density, agricultural mechanization, the development of new varieties, and irrigation.⁶

In 2023, the total export value of coffee from Brazil reached 6.61 billion USD.⁷ Exports to Germany represented 18% of total value of coffee exported, and 13% of total volumes exported (just over 5 million bags of coffee⁸), making Germany Brazil's number-two trading partner for coffee.⁹ Brazil is also one of the world's largest exporters of soluble coffee and was the leader until 2019.¹⁰

¹ Rossi Moda et al., "Brazilian Coffee Sustainability, Production, and Certification." In Sustainable Agricultural Value Chain, Alem and Ranjan Jena, eds., IntechOpen, 2022. <https://doi.org/10.5772/intechopen.105135>.

² USDA Foreign Agricultural Service, "Coffee: World Markets and Trade," June 2023.

³ Ibid.

⁴ For export data: Cecafé. "Brazilian Exports: 2023." 2024. <https://www.cecafe.com.br/en/statistics/brazilian-exports/>. For production data: CONAB. "Acompanhamento Da Safra Brasileira," January 2024. p.14.

⁵ Siahaan, Natasha Sonia, and Roseno Aji Affandi, "A Comparative Study of the Indonesian and Brazilian Coffee Industry: A Porter's Diamond Approach," 2022.

⁶ Volsi et al., 2019, "The Dynamics of Coffee Production in Brazil." Yield is highest in the north and north-eastern states of Brazil, at around 40 bags per hectare (2.4 tonnes); in other states in the centre and south of the country, yield is around 25 to 30 bags per hectare (1.65 tonnes). CONAB, "Crop Historical Series," 2023.

⁷ Cecafé, "Brazilian Exports: 2023." 2024, op. cit.

⁸ Ibid.

⁹ UN Comtrade, 2023. As of 2022, the United States was the no. 1 importer (20% of volumes), followed by three European countries: Germany (18%), Belgium (9%), and Italy (8%). Japan was next (6%), followed by Spain (3%), Colombia (3%), Turkey (3%), France (2%), and Russia (2%). USDA Foreign Agricultural Service 2022, "Coffee Semi-Annual - Brazil," 22 November 2022.

¹⁰ FAO 2019, cited in Takano et al., "Cadeia Produtiva e Mercado Cafeeiro No Brasil: Desafios e Potencialidades," 2020.

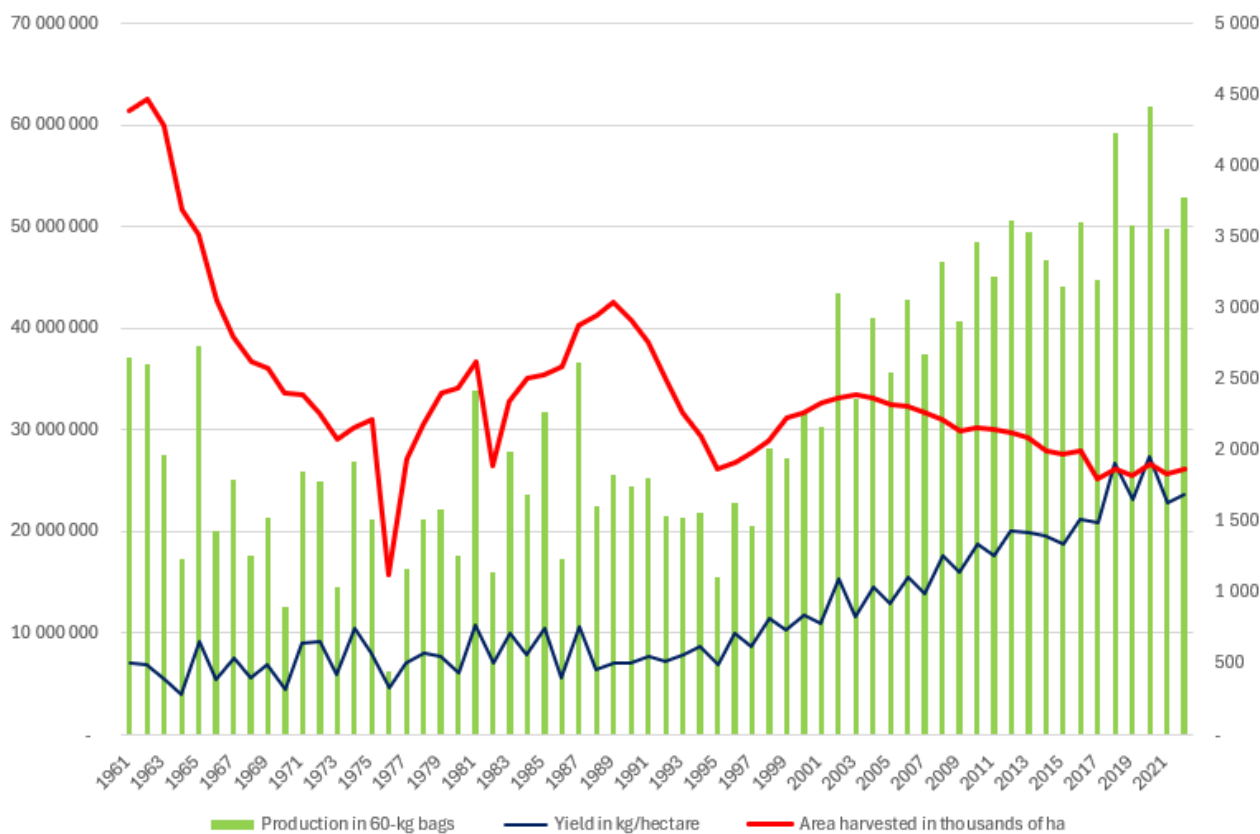


Figure 1. Brazil coffee production (left axis), surface area (right axis), and yield (right axis), 1961-2022

Source: BASIC, based on FAOStat¹¹

Remark: the decision was made to represent area harvested in thousands of hectares to better show the relative trends of yield and area harvested, and their relationship with total production.

Brazil’s marketing strategy has historically been to produce large volumes at affordable prices.¹² Despite this historical trend, efforts are increasingly being made to develop specialty coffees with a high cupping profile, mainly with Arabicas but also with Robustas.¹³ Brazil also specializes in natural

¹¹ FAOStat database, <https://www.fao.org/faostat/en/#data/OCL>.

¹² Caldarelli, et al., “The Coffee Market in Brazil: Challenges and Policy Guidelines,” 2019.

¹³ The Brazil Specialty Coffee Association (BSCA) was established in 1991, and in 1998 the first Cup of Excellence challenge was held, available to all Arabica-producing Brazilian coffee farmers. (Casa Brasil Coffees, “Coffee History,” 2022 and Brazil Specialty Coffee Association, “A BSCA,” 2022.) In recent years, the volumes of specialty/quality coffee produced has grown significantly – on average, by 15% annually in recent years, jumping from 5.2 million bags in 2015 to around 8.5 million in 2017 (Barbosa et al. “A participação de Minas Gerais e do Brasil na cadeia produtiva global do café,” 2021.) Thus, “about 25% of the bags produced in the domestic market are classified above 80 points by the Specialty Coffee Association (SCA) score.” (Teixeira dos Reis, “Comercialização de Café.” Serviço Nacional de Aprendizagem Rural, 2020.) Specialty coffees also fetch a substantial premium on the international market. Prices for auctions of specialty coffee from Brazil organized by the BSCA average around 12.5 USD/lb (27.5 USD/kg), with the highest quality batches fetching around 43 USD/lb (94.6 USD/kg). (BSCA. “Leilão dos melhores cafés especiais do Brasil rende R\$ 1,2 milhão,” 2023.) Farmers who produce specialty coffee will usually not go for commercializing through a cooperative, because the cooperative cannot pay him or her the specialty price. The exception to this is in some places (such as Minas Gerais) where the chain is more organized and one finds entire cooperatives dedicated to specialty coffee. BASIC Interview with Brazil coffee sector expert, 3 March 2023.

and semi-washed “peeled cherry” (*cereja descascada* or CD coffee).¹⁴ Another trend is the creation of Geographical Indications, which is used as a marketing tool for coffee from individual regions.¹⁵

1.2. Overall farming context

Brazil has an extremely varied profile of coffee farms, from smallholders farming a few hectares to plantations farming thousands of hectares. Brazil is unique in that it has large, mechanized plantations in regions where the terrain is relatively flat, such as in the Cerrado Mineiro region in the state of Minas Gerais, in Sul de Minas, and in São Paulo.¹⁶

“Family agriculture,” as it is called in Brazil, uses less machinery and more labour than “entrepreneurial farms,” which are characterized by a larger size, and a greater use of machines for tending to the crop and harvesting it (more on this in the producers’ archetype section below). Across all categories of farms, there is a high dependence on synthetic inputs, such as fertilizer and pesticides.

While the area grown in coffee is significantly less than it was in the 1960s (see Figure 1 above), total acreage has stabilized since the early 2000s at around 1.8 million hectares.¹⁷ The most important states in terms of production are Minas Gerais, producing between 45% and 55% of the country’s annual crop,¹⁸ and neighbouring Espírito Santo, which produces about 22% of the crop.¹⁹

Brazil is also exposed to frost, and both “white” and “black” frosts have periodically severely damaged the country’s production.²⁰ Experts say that catastrophic frosts are expected every 15 to 30 years²¹ (the last three were in 2021, 1994 and 1975). As the saying goes, “when Brazil sneezes, the world catches a cold,” meaning that what happens in Brazil (including frosts) has a strong influence on the world price of coffee, due to Brazil’s important contribution to world coffee production. This is why

¹⁴ According to one interviewee, CD coffee is “a direct competitor of Colombian and Central American washed coffees, being a product of lower price that can be added to a blend without loss of quality.” BASIC correspondence with Brazil coffee sector expert, 3 July 2023 and 10 July 2023.

¹⁵ Rossi Moda et al. 2022, op. cit.

¹⁶ Almeida and Zylbersztajn, “Key Success Factors in the Brazilian Coffee Agrichain: Present and Future Challenges,” *International Journal on Food System Dynamics*, 2017. <https://doi.org/10.22004/ag.econ.254122>.

¹⁷ CONAB, “Crop Historical Series: Coffee,” 2023.

¹⁸ Teixeira dos Reis 2020, op. cit., citing CONAB, 2020 cites the figure 54%; Global Coffee Platform., “Living income in Brazilian coffee production,” 2023 cites the figure 43% and 65% for Arabica production.

¹⁹ CONAB 2019, cited in Souza Piao et al., “The Adoption of Voluntary Sustainability Standards (VSS) and Value Chain Upgrading in the Brazilian Coffee Production Context,” 2019. Some states specialize in one type of coffee over another: for instance, Rondônia State is a recent arrival on stage that produces exclusively Robusta, while Paraná, Bahia, São Paulo, Minas Gerais and others produce almost exclusively Arabica. Espírito Santo State produces approximately 68% of the domestic production of Robusta coffee. Global Coffee Platform 2023, op. cit.

²⁰ White frost occurs when ice crystals form on the surface of leaves, damaging their ability to conduct photosynthesis effectively. Black frosts occur when temperatures drop below 0°C with little humidity: the plant leaves “turn brown or black because of frost burn.” This kind of frost will kill small plants, and what young plants do survive will never bear fruit. Perfect Daily Grind. “Why Is Frost in Brazil Causing Global Coffee Prices to Increase?,” July 29, 2021; Coffee Research Institute. “Coffee Frost and Drought History,” 2006.

²¹ Perfect Daily Grind. “Why Is Frost in Brazil Causing Global Coffee Prices to Increase?,” 29 July 2021. <https://perfectdailygrind.com/2021/07/why-is-frost-in-brazil-causing-global-coffee-prices-to-increase/>. A catastrophic frost in Paraná state was responsible for the virtual disappearance of coffee production in the state, whereas it initially represented 1.8 million hectares of coffee, i.e. the equivalent of today’s surface area in coffee for the entire country. Teixeira dos Reis, “Comercialização de Café,” 2020.

the frost in 2021, which was the worst in 40 to 50 years and wiped out millions of bags of coffee production, helps to explain the accelerated price increase in coffee that began in that year.²²

Cooperatives in Brazil are large: in the words of one interviewee, “The cooperative movement in coffee cultivation is very relevant and has a strong penetration among family coffee growers.”²³ The country’s largest cooperative, Cooxupé, has 18,000 members, 90% of which are smallholders according to the legal definition (under 4 fiscal units).²⁴ Other cooperatives like Cocatrel have 6,000 members and Minasul 7,000 members.²⁵ Cooperatives disseminate information to smaller growers and provide them with technical assistance and training, and support on sustainability services. Larger cooperatives offer services such as “support for member farmers in areas like acquisition of inputs (fertilizers, machinery, and equipment), access to rural credit, coffee quality labs, storage, dry processing, and commercialization of coffee.”²⁶ In addition, “Brazilian cooperatives are not only better collateralized for financing, but they are likely able to finance themselves,” enable credit for their members, and handle exports by themselves.²⁷

2. Producers’ archetypes

Methodological remarks

Sections 2 and 3 examine production costs and income dynamics for different archetypes of farms in Brazil. It should be underlined that Brazil, like other countries, has an extraordinary diversity of farm profiles and that modelled figures are just that – our best model to translate a complex reality. Second, when discussing labour, we clearly distinguish between hired labour and family labour. In Brazil, for instance, most of our citations concerning labour are for hired labour, which is explicitly stated in the text. Third, we make a distinction between total farm coffee income and net farm coffee income. Total farm coffee income per kilogram is based on the coffee farmgate price obtained from a dedicated database.²⁸ Net farm coffee income is calculated as total coffee income minus costs of coffee production.

Compared to other coffee producing countries, Brazil stands out for its comparatively low share of smallholders and the existence of a large contingent of high acreage, highly technified plantations. Of Brazil’s estimated 264,000²⁹ to 300,000³⁰ coffee farms, smallholder farmers represent a much smaller share of farms than in the other countries studied – Vietnam, Colombia, and Ethiopia, where

²² Two frosts in a single week caused catastrophic damage to Brazil’s coffee crop; they are estimated to have wiped out about 10 to 12 million bags of production for the 2022 through 2025 harvests. Global Coffee Report. “The Big Brazil Frost,” November 3, 2021. <https://www.gcrmag.com/brazil-frost/>.

²³ BASIC correspondence with Brazil coffee sector expert, 3 July 2023.

²⁴ BASIC Interview with Brazil coffee sector expert, 3 June 2023.

²⁵ Coffee Intelligence, “How Brazil’s Cooperatives Could Disrupt the Specialty Coffee Status Quo,” 5 July 2023

²⁶ ALDI South Group. “Human Rights Impact Assessment Report: Coffee from Brazil,” December 2021.

²⁷ Coffee Intelligence 2023, op. cit.

²⁸ Farmgate prices are taken into account for the period September 2020 to August 2021, and costs of production from July 2020 to June 2021 (average of 2020 and 2021 costs).

²⁹ Instituto Brasileiro de Geografia et Estatística (IBGE) statistics, 2017.

³⁰ Teixeira dos Reis 2020, op. cit.

farms under 1 to 3 hectares represent around 90% of producers. In Brazil only 46% of Robusta plantations are under 5 hectares, and only 37% of Arabica plantations are under 5 hectares. The majority of farms are larger than 5 hectares, and coffee production is concentrated in farms above 10 hectares (see Figure 2 below). According to official statistics from the Brazilian Institute of Geography and Statistics, there are at least 8 Arabica farms in Brazil that are over 10,000 hectares,³¹ and at least 17 Robusta farms above 10,000 hectares.³²

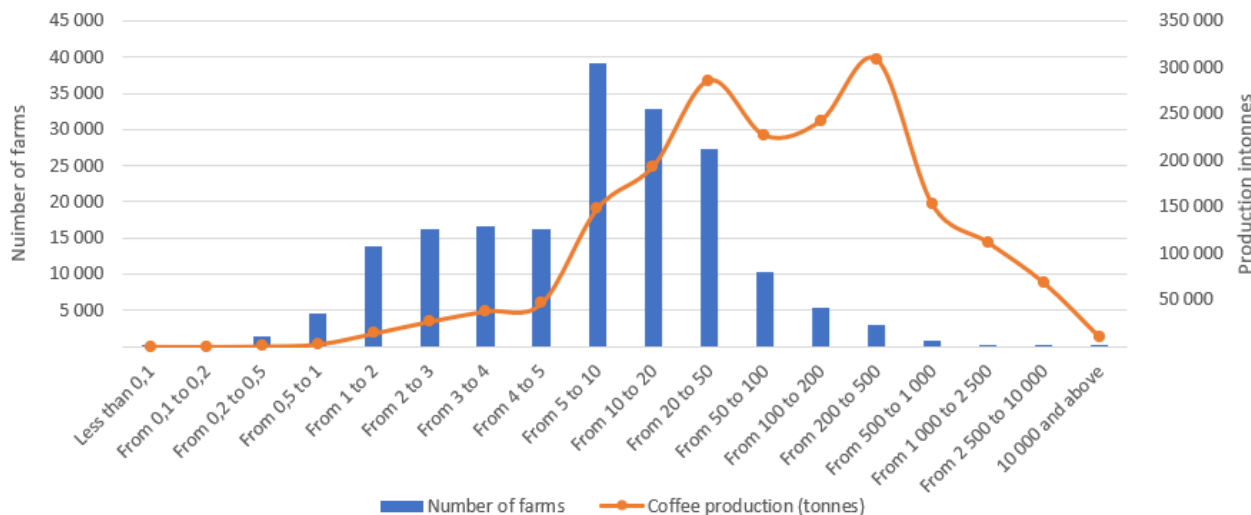


Figure 2. Number of producers and coffee production by acreage class in hectares – Arabicas in Brazil. Source: BASIC, based on IBGE, 2017³³

Before considering farm archetypes in Brazil, it is important to note that a “small” farm on the Brazilian scale is quite unlike small farms in the other countries. Legally speaking, a “small” farm can in fact span dozens if not hundreds of hectares.³⁴ The state also uses fiscal units, among other criteria, to separate “family farms” from “entrepreneurial farms.”³⁵ In its data, CONAB (the National Supply Company under the Ministry of Agriculture) also categorizes farms as either “family” or “entrepreneurial,” followed by “manual,” “low technology,” “medium technology,” “high technology,” “semi-mechanized,” “fully mechanized,” and “irrigated”; we rely on these distinctions to create the farm archetypes used in this study.

Modelling methodology. The five archetypes of farms that we developed are based on a study by the

³¹ Instituto Brasileiro de Geografia et Estatística (IBGE), “2017 Agricultural Census: Table 1.6.31 – Arabicas,” 2017.

³² Instituto Brasileiro de Geografia et Estatística (IBGE), “2017 Agricultural Census: Table 1.6.32 – Robustas,” 2017.

³³ Instituto Brasileiro de Geografia et Estatística (IBGE), “2017 Agricultural Census: Table 1.6.31 – Arabicas,” 2017.

³⁴ This is because “small,” “medium,” and “large” farms are defined not in terms of acreage but in terms of “fiscal units”. Each municipality in each State sets the surface area that corresponds to one fiscal unit. For example, in the Cerrado Mineiro in Minas Gerais, an area that produces a considerable amount of coffee, fiscal units in the various municipalities range between approximately 40 and 80 ha. Subsequently, the national thresholds for each category are as follows: small, 1 to 4 fiscal units; medium, 4 to 15 fiscal units; and large, above 15 fiscal units. This means that a “small” farm in the Cerrado Mineiro can potentially be over 300 ha in size. (In some Amazonian states, individual fiscal units are up to 110 hectares, such that a “small” farm is 440 ha.) (Brazilian Agricultural Research Corporation (Embrapa). “Fiscal Modules,” 2012.) Yet another system of classification exists, corresponding to the vocabulary commonly used in Brazilian Portuguese to designate farms. These are: *chácara*, i.e. farms under 12 hectares; *sítio*, between 12 and 96 hectares; and *fazenda*, originally referring to colonial-era plantations but now referring to farms above 96 hectares. CompreRural. “Diferença entre chácara, sítio, fazenda e medidas de terra no Brasil.” 2022.

³⁵ To be a “family” farm, a farm must be no more than 4 fiscal units, use mainly family labour, have a minimum percentage of income derived from the agricultural business, and be family-run. Brazil, Câmara dos Deputados. “Legislação define quem é considerado agricultor familiar,” 5 July 2018.

Global Coffee Platform (GCP), which published in 2023 a detailed study on living income in the coffee sector.³⁶ The archetypes are organized according to farm size, in increasing increments of size; under 5 hectares, 5 to 10 ha, 10 to 20 ha, 20 to 50 ha, and 50+ hectares.³⁷ As for the information on costs, we matched the profiles of individual archetypes (acreage profiles) to data from CONAB, the National Supply Company, which regularly publishes data on production costs for nine municipalities representing different archetypes of production.³⁸ Out of the nine municipalities for which CONAB presents data, we found five that best matched our ideal types: they are, in increasing order of size, Manhuaçu; Barra do Choça; Venda Nova do Imigrante; Guaxupé; and Luís Eduardo Magalhães (see details in the table below).

| Farm profile | Economic model | Economic performance |
|---|--|---|
| <p>Extra-small farms: “manual,” “medium technology” “family” farm Under 5 ha ≈37% of Arabica producers (60,092 farms), 7% of Arabica production (129,787 tonnes)</p> | <ul style="list-style-type: none"> - Source of data: Manhuaçu - Family farming with resort to hired labour - Very low levels of pesticides - Often on hilly terrain where mechanization not possible - Outsource hulling (rent machine) | <ul style="list-style-type: none"> - Top cost structure elements: fertilizer and hired labour - Yield: Manhuaçu is at 1.56 tonnes/ha; GCP data suggests yield for this farm size is at 1.77 tonnes/ha |
| <p>Small farms: “manual,” “high technology” “family” farm 5 to 10 ha ≈21% of Arabica producers (39,192 farms), 8% of production (148,674 tonnes)</p> | <ul style="list-style-type: none"> - Source of data: Barra do Choça - Family farming with resort to hired labour - Very low levels of pesticides - Very high yields (based on GCP survey) - May outsource hulling | <ul style="list-style-type: none"> - Top cost structure elements: hired labour and fertilizer - Yield: Barra do Choça is at 2.4 tonnes/ha; GCP data suggests yield for this farm size is at 2.60 tonnes/ha |
| <p>Medium-sized, “high technology,” “manual” family farm 10 to 20 ha ≈18% of Arabica producers (32,912), 10% of Arabica production (194,002 tonnes)</p> | <ul style="list-style-type: none"> - Source of data: Venda Nova do Imigrante - Family farm with medium reliance on hired labour - High technology farm (may own a hand-held harvester or a small-scale huller or depulper, for example) | <ul style="list-style-type: none"> - Top cost structure elements: fertilizer and hired labour - Yield: Venda Nova do Imigrante is at 2.1 tonnes/ha; GCP data suggests yield for this farm size is at 1.88 tonnes/ha |
| <p>Large, “high technology” and “semi-mechanized” family farms 20 to 50 ha ≈15% of Arabica producers (27,286), 15% of Arabica production (286,235 tonnes)</p> | <ul style="list-style-type: none"> - Source of data: Guaxupé - Semi-mechanized and high technology - Less reliance on hired labour - High technology (may own a hand-held or tractor-like harvester, medium-size huller, depulper, or irrigate if needed...) | <ul style="list-style-type: none"> - Top cost structure elements: fertilizers and hired labour - Yields: Guaxupé is at 1.8 tonnes/ha; GCP data suggests yield for this farm size is at 2.17 tonnes/ha |

³⁶ Global Coffee Platform, “Living Income in Brazilian Coffee Production,” 2023.

³⁷ The fifth GCP typology was limited to farms of 50 to 100 hectares. We chose to expand the category to all farms above 50 hectares, because to limit oneself to up to 100 hectares entails excluding 5% farms above 100 hectares which represent a full 48% of Arabica production.

³⁸ CONAB (the National Supply Company) is a public company under the Ministry of Agriculture, Livestock & Food Supply. Among other activities, it publishes an annual series of production costs for coffee in 9 municipalities representing different profiles of types of farms.

Large, fully mechanized plantations

50+ ha

≈11% of Arabica producers (19,900), 60% of total Arabica production (1,121,456 tonnes)

- Source of data: Luís Eduardo Magalhães
 - Entrepreneurial farm: more reliance on mechanization, less on hired labour
 - Fully mechanized (may own a tractor, a large harvester, weeding machines, machines for raking drying patios, or a huller or depulper, and irrigation where needed)
 - More likely to process coffee all the way to green coffee (*bica corrida*)
 - Rely on volumes rather than specialty coffee (in most cases)
- Top cost structure elements: fertilizer, pesticides, depreciation, and tractors
 - Yields on plantations may go up to 3 tonnes/ha³⁹; Luís Eduardo Magalhães is at 3 tonnes/ha; GCP data suggests yield for this farm size is at 1.97 tonnes/ha

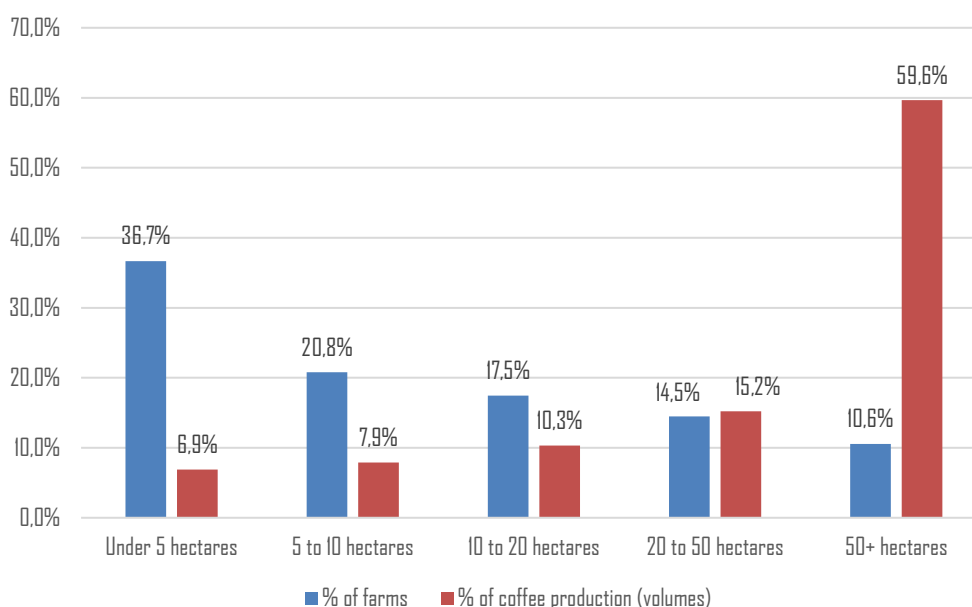


Figure 3. Breakdown of number of farms, and coffee produced, by farm size/archetype – Arabica coffee. Source: IBGE⁴⁰

Archetype 1: Extra-small family farms (under 5 hectares). This category encompasses farms under 5 hectares that rely entirely on manual labour for the harvest (both family and hired labour). They represent 37% of farms but only 7% of the coffee harvested.⁴¹ What is distinctive about this category is that (as we will detail later) these farmers cannot live off coffee alone; they need to diversify their income sources. They are often located in hilly or mountainous regions where mechanization is impossible.⁴² The coffee production may be dried on-site or washed, if the farm has this equipment; alternatively, it is common for farmers to sell their dried or red cherries to either a cooperative or a trader. Regarding the costs of production linked to this archetype, we relied on Manhuaçú, which lies

³⁹ Almeida and Zylbersztajn 2017, op. cit.

⁴⁰ Instituto Brasileiro de Geografia et Estatística, Census data for 2017, Table 1.6.31

⁴¹ Ibid.

⁴² Mechanized harvesting is still possible by using portable, hand-held harvesters known as *derricadeira*. However, larger harvesters – either self-standing machines or implements mounted on tractors – cannot be used on slopes above 30%, and even *derricadeira* harvesters with tarpaulins may be too unwieldy to use on very steep land. Barista Hustle, “Exploring Coffee Production in Brazil,” 2023, citing Watson and Achinelli, 2008.

in a hilly region (Matas de Minas) where the many farms are small, and the default is to use manual labour for the harvest.⁴³ The municipality is described by IBGE as “medium technology” and “manual.”

Archetype 2: Small family farms (5 to 10 hectares). This category encompasses farms of 5 to 10 hectares that also rely entirely on manual labour for the harvest (mainly hired labour). They represent 21% of farms and 8% of the Arabica harvest.⁴⁴ For this category, we have used Barra do Choça as our reference, because it is the family farm that has the highest yield (2.4 tonnes/hectare), just like in the Global Coffee Platform study⁴⁵ (this municipality is characterized as “high technology” and “manual” by IBGE). Despite their often being in the “family” legal category, these farms resort to hired labour.

Archetype 3: Medium family farms (10 to 20 hectares). Medium-sized family farms of 10 to 20 hectares represent 18% of farms and 15% of Arabica production. These farms may start to become more capital-intensive, for instance using a hand-held harvester, which decreases hired labour costs by a factor of four.⁴⁶ As our template for this farm archetype, we relied on Venda Nova do Imigrante, a family farm municipality that is “high technology” but “manual” labour, with a yield more in line with the average in the GCP study (2.1 tonnes/hectare).

Archetype 4: Large family farms (20 to 50 hectares). Family farms in this category represent 15% of farms and 15% of Arabica production. As surface areas and revenues start to increase, farms in this category can become more capital-intensive, with investment in machine harvesters to offset the cost of hired labour: it is estimated that mechanical harvesters reduce the cost of labour by 62%.⁴⁷ Mechanization does not eliminate hired labour entirely, it just reduces it significantly – manual labour is still needed to accompany mechanized harvesting.⁴⁸ Thus, hired labour plays a critical role for farms of this size, and employees are more likely to be permanent rather than seasonal workers.⁴⁹ However, as a proportion of costs, hired labour is less than in the other family archetypes, reflecting a general trend of a decrease in hired labour costs as farms archetypes move from smallest to largest acreage (see discussion in the next section). This economic model is also underpinned – as for farms above 50 hectares – by better access to credit, which enables capitalization.⁵⁰ For our model for archetype 4, we used Guaxupé, which is a “family” farm municipality with “high technology” that is “semi-mechanized.” This municipality lies in a region where farms are typically between 10 and 100 hectares.⁵¹

Archetype 5: Entrepreneurial farms (50+ hectares). Farms above 50 hectares represent 11% of farms and 60% of coffee production in Brazil.⁵² These farms are highly technified. This includes tractors and

⁴³ “The region holds an Indicação de Procedência (IP) and is home to 36,000 producers, 80% of whom have farms less than 20 hectares in size. . . . Because of the steep slopes and small farm sizes, mechanization is rare and coffees are mainly hand-picked.” Barista Hustle, “The Coffee Buyer’s Guide to Brazil,” 2023.

⁴⁴ Instituto Brasileiro de Geografia et Estatística, Census data for 2017, Table 1.6.31

⁴⁵ Barra do Choça has an average yield of 2.4 tonnes/ha, while the Global Coffee Platform study has 2.6 tonnes/ha, the highest in the entire sample.

⁴⁶ BASIC Interview with Brazil coffee sector expert, 3 June 2023.

⁴⁷ Oliveria et al. 2007, cited in Barista Hustle, “Exploring Coffee Production in Brazil,” 2023.

⁴⁸ Labour is still needed post-passage of the harvester, to pick the last remaining ripe cherries on the branch and those that have fallen on the tarpaulins laid on the ground.

⁴⁹ Barista Hustle, “Exploring Coffee Production in Brazil,” 2023.

⁵⁰ BASIC Interview with Brazil coffee sector expert, 8 February 2024.

⁵¹ Barista Hustle, “Exploring Coffee Production in Brazil,” 2023.

⁵² Farms only 50 to 100 represent 6% of farms and 12% of coffee production volumes.

harvesters, weeding machines, other machines (motorcycles, small tractors, automated stirrers) to rake large quantities of coffee drying in patios under the sun, or irrigation where it is needed (approximately 22% of Brazil's coffee is produced under irrigation).⁵³ Mechanization in turn affects how the coffee is planted: full-sun in very dense rows, but with sufficient space between rows to allow machines to pass and to better control weeds, and with the right variety of coffee.⁵⁴ Full-sun planting may increase pesticide use relative to shade planting.⁵⁵

Given the size of plantations, it is relatively common for large plantations to have a depulper for pulped naturals production, if that is how they process their coffee (naturals represent around 85% of production, pulped naturals – *cereja descascado (CD)* in Portuguese – around 15% of total production, and fully washed coffee less than 1% of production).⁵⁶ This equipment (depulper) increases the plantations' profitability as it enables exclusion of defective beans and reduces the volume of coffee to be dried by almost half.⁵⁷ Many plantations process the fruit all the way to green (but not graded) coffee, called *bica corrida* in Portuguese. To fully capture the scale of mechanization and its impact on yields, we have used as our model for entrepreneurial farms the Luis Eduardo Magalhães municipality, which is located in western Bahia state and has yields of 3.00 tonnes/hectare. This area ("Oeste da Bahia") is known for its large, mechanized plantations – 300 hectares on average – with large-scale irrigation and fertilization.⁵⁸ We chose not to use Patrocínio as our model, although it was in Minas Gerais, because we wished to shed light on plantations that had the highest yield possible, and they were in the Luis Eduardo Magalhães municipality.⁵⁹

3. Results of the model

Brazil is the coffee producing country that has both the largest production and the cheapest prices of Arabica beans. It is the main source of Arabica coffee for the EU and German markets: Comtrade data indicates that in 2021, 40% of green coffee bean imports to Germany came from Brazil.

Within the scope of this study, Brazilian Arabica is present in each blend sold to German consumers; Brazilian coffee is everywhere in blends that contain Arabica and is also in a small portion of single

⁵³ Barista Hustle, "Exploring Coffee Production in Brazil," 2023.

⁵⁴ For example, Mundo Novo, which ripens all at the same time, or Yellow Catura or Catuaí, whose unripe cherries are more tightly bound to the branch and therefore will not be harvested until they are ripe. Barista Hustle, "Exploring Coffee Production in Brazil," 2023

⁵⁵ This is because "Shade plantations, in contrast, rely less heavily on pesticides because the variety of plants that surround the coffee trees reduce the system's susceptibility to pests." Lemeilleur et al., "Coffee Farmers' Incentives to Comply with Sustainability Standards." *Journal of Agribusiness in Developing and Emerging Economies* ahead-of-print (April 28, 2020). <https://doi.org/10.1108/JADEE-04-2019-0051>.

⁵⁶ Barista Hustle, "Exploring Coffee Production in Brazil," 2023, citing data from ECOM. The data from ECOM concerns only the 3,149,968 bags traded by ECOM in 2019-2020, but "ECOM's inventory spans across commodity and specialty sectors for Arabica and Robusta coffee, so this can be taken as fairly representative of Brazil's national production." Ibid.

⁵⁷ Interview with a family coffee farm in São Paulo, cited in Barista Hustle, "Exploring Coffee Production in Brazil," 2023. The lack of availability of water is one of the reasons why the fully-washed process has limited purchase in Brazil.

⁵⁸ A Lavoura, "Café Verde Do Oeste Da Bahia Surpreende Pelo Paladar," 20 September 2019. <https://alavoura.com.br/colunas/indicacao-geografica/cafe-verde-do-oeste-da-bahia-surpreende-pelo-paladar/>, citing INPI (National Institute of Industrial Property) and Abacafé.

⁵⁹ CONAB, "Conab - Série Histórica (Historical Series) - Custos - Café Arábica - 2003 a 2022," 14 March 2023. <http://www.conab.gov.br/info-agro/custos-de-producao/planihas-de-custo-de-producao/item/16300-serie-historica-custos-cafe-arabica-2003-a-2020>.

origin formats. IRI data suggests that only 1% of coffee products sold in Germany are certified single origin from Brazil, almost all of them sold by Tchibo and certified with either the Fairtrade or Rainforest Alliance scheme.⁶⁰ Consequently, Brazilian coffee is mostly incorporated into blends for all kind of products.

3.1. Farm level

This section presents the results of the quantitative model of the distribution of costs, taxes, and net profit margins in the Brazilian coffee chain at the farm level.

Three points need to be underlined at this stage.

First, due to lack of data, we were unable to ascertain whether the different archetypes of Brazilian coffee farms receive different farmgate prices on average for Arabica. We thus considered that the latter was the same across all five archetypes and equal to the average farmgate price for Arabica coffee published in Brazilian statistics for the 2020/2021 harvest, i.e. 1.94 euros/kg.

Second, we made the assumption – based on two independent sources – that Brazil has one of the highest percentage FOB captured (85%) of the countries studied, although due to country differentials this does not always translate into higher outright FOB values relative to other countries.

Third, the data we could obtain for labour costs exclusively relates to hired labour. This means that family labour is not included in the labour cost category in our model as it only takes into account paid work. For the first four archetypes (up to 50 ha) which are categorized as “family farms,” farmers are self-employed and the net income they generate – after paying all their costs of production including hired labour – enables them to remunerate their personal work and the work of their family members. In other words, in the first 4 archetypes the family labour is paid according to the net income generated by the coffee farm. The fifth archetype corresponds to a very different economic model: that of an entrepreneurial farm/plantation where all labour is paid. As a result, there is no family labour in this last archetype that generates a net profit margin after all costs of production have been paid, as well as the corporate income tax (as in the case of all business actors situated in the German steps of the coffee chain analysed in this study).⁶¹

3.1.1. Cost comparison across all farm archetypes

Figure 4 shows costs for the five different farm archetypes. Some transversal observations can be made at this stage.

⁶⁰ There are some single origin Brazilian Arabica coffee products (mostly in whole beans & capsule formats, under national brands).

⁶¹ Only the corporate income tax is quantified in the model for incorporated companies. Other taxes such as income tax and real estate taxes are not included in the model because of the lack of publicly available data. Regarding self-employed actors such as farmers, we have not been able to quantify any tax also because of the lack of publicly available data.

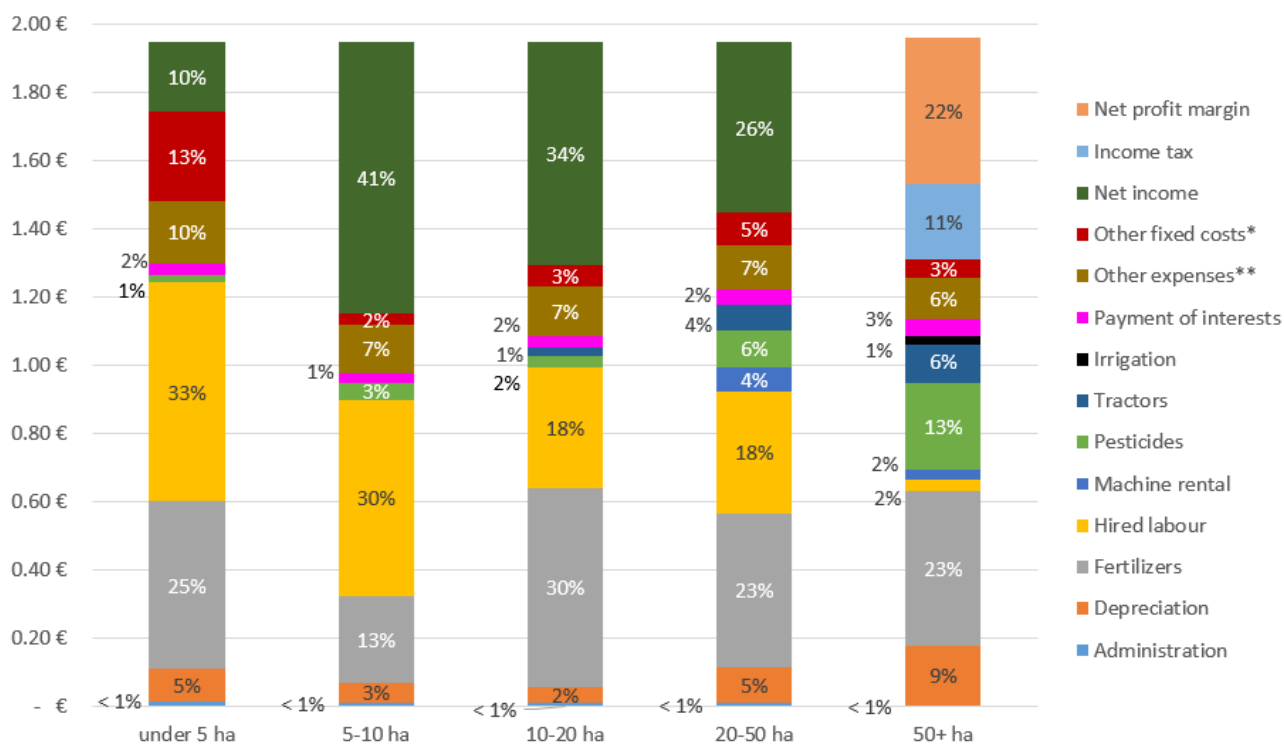


Figure 4. Production costs of coffee in €/kg for 5 archetypes of Arabica coffee farms in Brazil, with a farmgate price of 1.94 €/kg. Source: BASIC, based on CONAB, 2023⁶²

**Other fixed costs include periodic maintenance, social charges, fixed capital insurance and leases.

**Other expenses include packaging, external transport, administrative and storage expenses, processing, credit insurance, and technical assistance.

Regarding **hired labour**: First, hired labour is a significant expense in all family farm categories under 50 hectares. In absolute terms the cost of hired labour decreases as farm size increases. The data we collected and analysed suggests that farms under 10 hectares have higher hired labour costs than farms above 10 hectares – in both relative and absolute terms – because of an absence of mechanization (no tractors, no hired machine rental). Conversely, increasing mechanization leads to a decreased reliance on hired labour – dropping from 33%, to 30%, to 18% and again 18% in farms under 5 ha, 5-10 ha, 10-20 ha and 20-50 ha respectively – and represent only 2% of sales/farmgate price on farms larger than 50 hectares.

Larger farms are also more intensive in terms of **pesticides**: the latter represent 13% of per-kg sales/farmgate price for farms 50+ hectares and 6% of sales/farmgate price for farms 20-50 hectares, while all other archetypes have 3% or less. There is no clear trend in terms of costs of **fertilization**.

In absolute terms, the **costs per kg** for the 5-to-10-hectare archetype is the lowest because **yield** is quite high for this category of coffee farms, as in the GCP study (2.4 tonnes/hectare). Conversely, per-kg costs for the under-5 hectare category are the highest, reflecting the low yields of this archetype (1.56 tonnes/hectare).

For the first 4 archetypes, once all the production expenses – including management, capital, and hired labour – are covered, all that remains is the net coffee income. As it stands, **net coffee income**

⁶² CONAB, “Conab - Série Histórica (Historical Series) - Custos - Café Arábica - 2003 a 2022,” 14 March 2023. <http://www.conab.gov.br/info-agro/custos-de-producao/planilhas-de-custo-de-producao/item/16300-serie-historica-custos-cafe-arabica-2003-a-2020>.

on these family coffee farms (from under 5 hectares up to 50 hectares) is the amount of money left after all costs of production have been paid – including waged workers – to remunerate the work of the farmer who is self-employed and the work of his/her family members but also to invest on the farm, to spend on contingencies and emergencies, etc. Beyond these costs borne by coffee producers' families, the information collected in this study did not allow any estimate of 'net profits' for the first 4 archetypes of coffee farms, in large part because of their self-employed structure. This contrasts with the model of the fifth archetype which reflects the case of entrepreneurial farms in which all labour is salaried, and that generate net profits, after all costs have been paid including the income tax. These net profits are documented in their annual published accounts (as for the business actors in the other stages of the coffee chain in Germany).

We consider that only entrepreneurial farms are properly incorporated as corporations, and that only they are subject to corporate income tax and generate net profit margins. For the family farm archetypes (up to 50 hectares), the net coffee income has been assimilated as a cost for the reason noted above.

In the final section of this report, the net income generated on a coffee farm is compared to the source of income from coffee farming to achieve the living income benchmark. The comparison informs the discussion on whether or not coffee farmers can reach the living income benchmark solely relying on coffee as a source of income.

3.2. Collection and export level

Estimating the costs of doing business at the collection and export level is challenging, for many reasons. First, the road from farmgate to FOB is incredibly diverse both within countries and across countries. Stakeholders on this rung of the value chain can include small private self-employed traders, medium-sized self-employed traders, traders working for international exporters, cooperatives that export, cooperatives that do not export, cooperative unions, international companies, and the export companies themselves. In reality, all these actors have different business models and costs, making it difficult to build a single estimate of costs at this stage of the chain (in this case, the Collection and export stage of the model).

Further, data on this subject is virtually non-existent in the public domain. To our knowledge, there are no official statistical databases on coffee exporter costs, taxes, and net profit margins in Brazil – only isolated information in academic papers, “grey” literature, or the websites of parastatal agencies that regulate, survey, or support the coffee sector.

Finally, being an exporter or an importer is all about taking risks and managing uncertainties. Our understanding from interviews is that the core of the work done by exporters and importers is to foresee the high volatility of the coffee market, make stocks, lose money on sales sometimes and make money at other times, trying to equate profits of sales with the costs of borrowing capital. In our understanding, only a national statistical agency with the power to hold confidential and exhaustive business data could make a statement on profit levels and taxes of coffee exporters.

For Brazil, we were unable to identify taxes and net profit margins for collectors and exporters. We can only confirm that the difference between FOB and farmgate is 0.34 euros/kg (for the 2020/21 harvest) for all farm archetypes for non-certified coffee, and that this represents the value added by

traders/cooperatives and exporters. Notwithstanding the data limitations, the 0.34 euros/kg can be broken down into 0.02 euros/kg for transport, 0.21 euros/kg for logistics, and 0.11 euros/kg for trading and administrative obligations. As noted above, farmgate prices are assumed to be the same across all producer types, standing at 1.94 euros/kg. They represent 85% of the FOB price of coffee, as can be seen from the grey part of the pie chart in Figure 6.

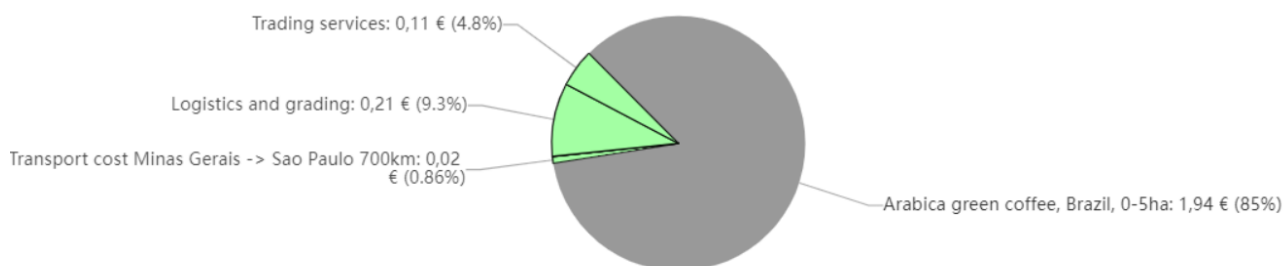


Figure 6. Main costs of production for collectors and exporters of conventional Arabica coffee from Brazil in 2021.
Source: BASIC, based on bibliography and interviews (2023)

3.3. Certifications

Certified coffee began arriving in Brazil in the late 1990s/early 2000s – especially Rainforest Alliance and Fairtrade.⁶³ At the time, the organizations that were best placed to apply for certifications were large plantations for Rainforest Alliance, and smallholders in the case of Fairtrade. Certified coffee was then a relatively rare commodity, and prices were high. Today, Brazil is seen as a leader in sustainability certifications, both third-party certifications (4C, Rainforest Alliance, Fairtrade) and corporate initiatives (such as Starbucks C.A.F.E. Practices or Nespresso AAA). The market share of these sustainability certifications has been rising steadily in the last 15 years: while in 2008 only 7% of exporters adopted voluntary sustainability standards (VSS), this number increased to 23% ten years later.⁶⁴

A widespread observation on certified coffee in Brazil is that it often ends up marketed as conventional coffee in the sense that premiums drop when demand, and thus prices, drops. Another criticism is that the price increase (premium) does not always reach the producer, or that is not paid by the first buyer. In 2016, it was reported that “production of sustainable coffee in Brazil is already greater than the demand” and that “one of the consequences is that the premium price paid to certified coffee producers is decreasing.”⁶⁵ Further, despite high levels of certifications with VSS, only around 12% of Brazil’s coffee is sold as certified.⁶⁶

⁶³ Veiga et al. 2016, summarized in Souza Pião et al., “Chapter 6 - Certification: Facts, Challenges, and the Future.” In *Coffee Consumption and Industry Strategies in Brazil*, Florêncio de Almeida and Spers, eds., 2020

⁶⁴ Dietz et al., 2018, cited in Rossi Moda et al., “Brazilian Coffee Sustainability, Production, and Certification,” 2022. Certifications included in this review include 4C, Bird friendly, EU-Organic, Fairtrade International, Fairtrade USA, Nespresso, Rainforest Alliance, Starbucks C.A.F.E. practices, USDA Organic, and UTZ Certified. Dietz et al., “Indicators to Compare and Assess the Institutional Strength of Voluntary Sustainability Standards in the Global Coffee Industry.” 2018.

⁶⁵ Veiga et al. 2016, op. cit.

⁶⁶ IDH et al., Country Production in the Face of Climate Change: Country Profiles,” August 27, 2019. https://www.sustaincoffee.org/assets/resources/CountryProfile_Climate_Coffee_ALL.pdf.

3.3.1. Results for Fairtrade certified Brazilian Arabica

Fairtrade certified coffee in Brazil is grown and sold by 25 producers' organizations with nearly 3,300 members, for a total of nearly 30,000 hectares, i.e., around 1.7% of total coffee-cultivated land in Brazil.⁶⁷

Our model of Fairtrade coffee is based on the family agriculture model, as the Fairtrade certification tends to focus on smallholders (for Fairtrade in Brazil, the maximum threshold is 30 hectares).⁶⁸

The farmgate price for Fairtrade coffee, estimated at 3.49 euros/kg, is the weighted average of:

- on the one hand, the Fairtrade minimum price for October 2020 to June 2021,⁶⁹ a period during which the farmgate prices were (much) below the 2021 Fairtrade minimum price threshold of 1.40 USD/lb, i.e. 2.60 euros/kg at the time (and therefore the Fairtrade coffee would have been paid at the Fairtrade minimum price); on top of this minimum price is added the Fairtrade *premium* which is paid to the producer organization.
- on the other hand, CEPEA⁷⁰ data for the remaining months of the study period (July 2021 to Sept 2021), i.e. after the coffee price increased above the Fairtrade minimum price; as previously, the Fairtrade *premium* is to be added to this farmgate price.

The resulting farmgate price for Fairtrade coffee, standing at 3.49 euros/kg, represents a substantial (+80%) differential of 1.55 euros/kg relative to the non-certified coffee price of 1.94 euros/kg.

Downstream in the chain, the increase in the export price of Fairtrade coffee follows the increase of the farmgate price estimated for Fairtrade coffee.

Figure 7 shows the distribution of value between family farms (in red), and collectors and exporters (in orange) in the Brazilian Fairtrade-certified coffee value chain in 2021.

⁶⁷ For the Fairtrade statistics: BASIC correspondence with Brazil Fairtrade coffee sector expert, 1 March 2023; for total surface area statistics, CONAB, "Série histórica de área em produção: Total (Arábica y Conilon)," 2023.

⁶⁸ BASIC Interview with Brazil Fairtrade coffee sector expert, 1 March 2023.

⁶⁹ The year used for the purpose of this study is October 2020 to September 2021, so as to accommodate the different calendars at which coffee is harvested in the four different countries.

⁷⁰ CEPEA, the Centre for Advanced Studies Economics hosted at Luiz de Queiroz College of Agriculture within the University of São Paulo. CEPEA published the daily Type 6 Arabica FOB price since 1996 at the following address: <https://www.cepea.esalq.usp.br/en/indicator/series/coffee.aspx?id=23>



Figure 7. Distribution of value for non-certified (left) and Fairtrade-certified (right) exported Arabica coffee from Brazil in 2021, for coffee producers (red) and collectors and exporters (orange). Source: BASIC, based on bibliography and interviews (2023)

As for exporters, we considered that the costs of exporting Fairtrade coffee (in light green below) also increase proportionally to the increase in farmgate price. This increase in value added is theoretical and assumes a fixed farmgate capture ratio, translating into higher costs for collectors/exporters but also higher potential revenue. Thus, trading services, logistics and grading, and transport costs increase, plus there is a small certification cost. As noted above, farmgate prices are assumed to be the same across all family farm types, standing at 3.49 euros/kg for Fairtrade coffee. This represents 85% of the FOB price of Fairtrade coffee, as can be seen from the grey part of the pie chart in Figure 8.

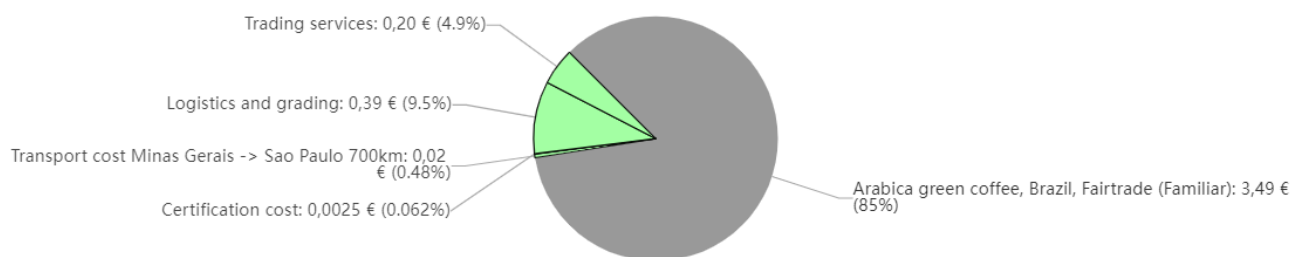


Figure 8. Main costs of production (in green) for collectors and exporters of Fairtrade Arabica coffee from Brazil in 2021. Source: BASIC, based on bibliography and interviews (2023)

3.3.2. Results for Rainforest Alliance certified Brazilian Arabica

According to interviewees, farms that sell Rainforest Alliance certified coffee tend to be large plantations over 50 (or even more) hectares which have the capacity to produce important volumes of RA certified coffee. Indeed, the end products sold in Germany that are certified Rainforest Alliance have a large market share, meaning that they rely for their supply on producers that are able to produce large volumes of coffee – something Brazilian plantations over 50 hectares are well placed to do. For the model, we therefore considered that all producers certified as Rainforest Alliance fell into the entrepreneurial farm archetype.

In terms of prices, based on the information collected for this study, Rainforest Alliance coffee is purchased from farmers at 2.07 euros/kg, i.e. 0.13 euros/kg more than conventional coffee.

Figure 9 shows the distribution of value between family farms (in red), and collectors and exporters (in orange) in the Brazilian Rainforest Alliance-certified coffee value chain in 2021.

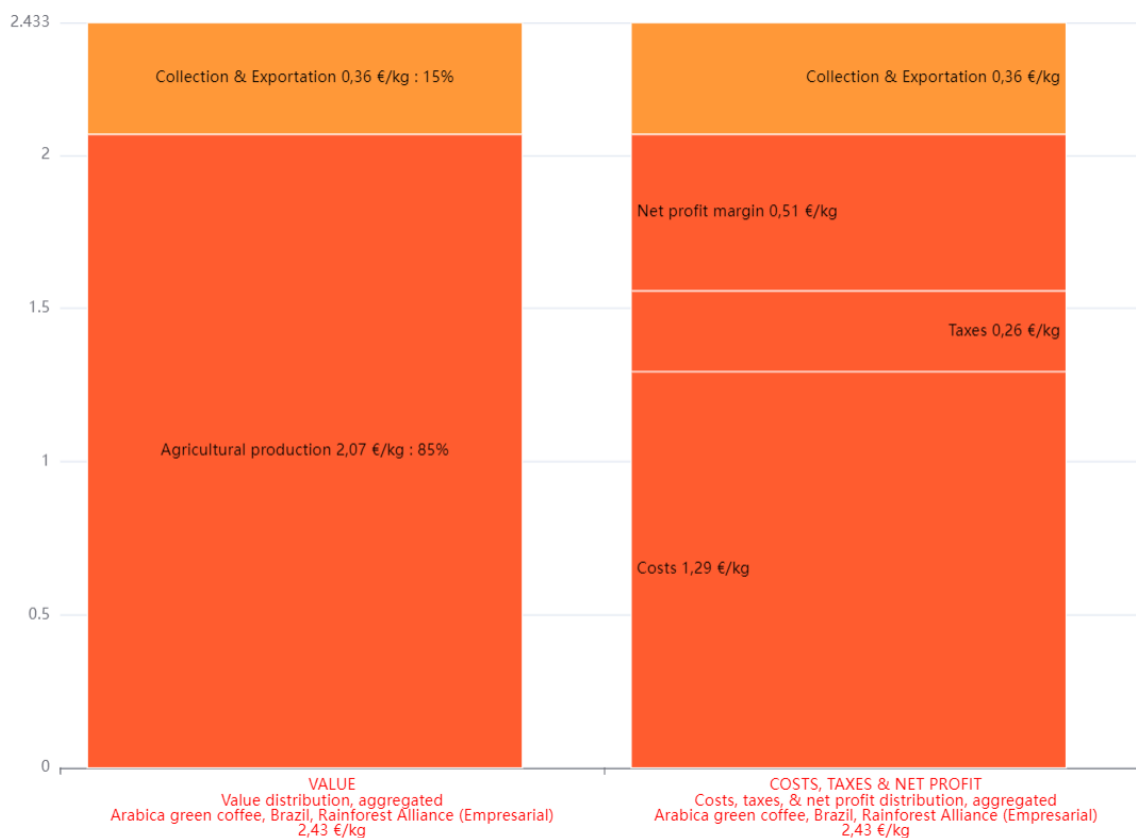


Figure 9. Distribution of value (left) and costs, taxes, and net profit margin (right) for Rainforest Alliance-certified coffee sourced from Brazil, for farmers (in red) and collectors and exporters (orange). Source: BASIC, based on bibliography and interviews (2023)

At the level of coffee plantations, the price differential of 0.13 euros/kg linked to Rainforest Alliance certification is distributed between an increase of 0.09 euros/kg in the net profit margin of entrepreneurial farms, and a 0.05 euros/kg increase in income tax due to a higher net profit margin, as can be seen in the pie chart in Figure 10.

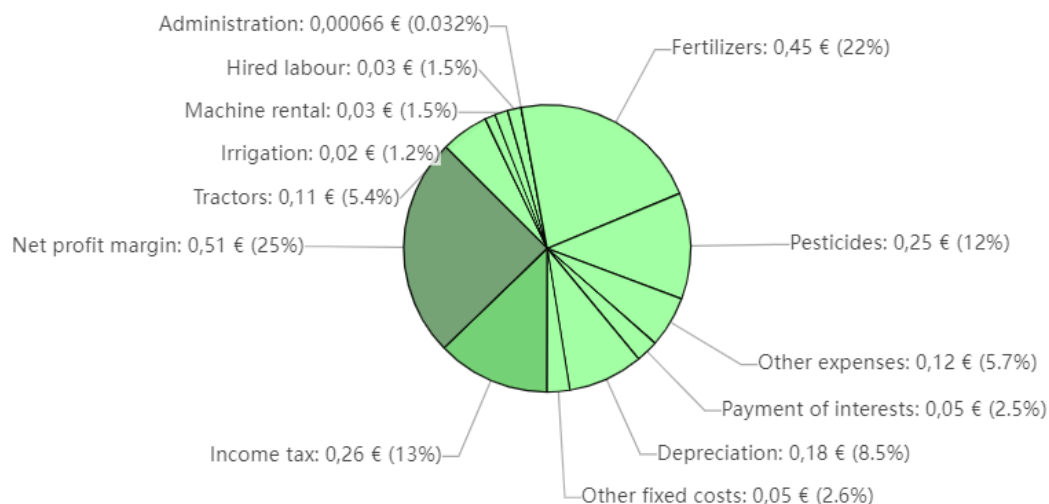


Figure 10. Main costs of production, income, and net profit margin for an archetype 5 farm (large Arabica plantation above 50 ha) selling Rainforest Alliance certified coffee in Brazil in 2021. Source: BASIC, based on CONAB, bibliography, and interviews (2023)

At the exporter level, there is a slight increase in costs associated with the Rainforest Alliance certification, which continue to represent 15% of the FOB price. As for conventional and Fairtrade coffee, we do not have taxes or net profit margin information for exporters.

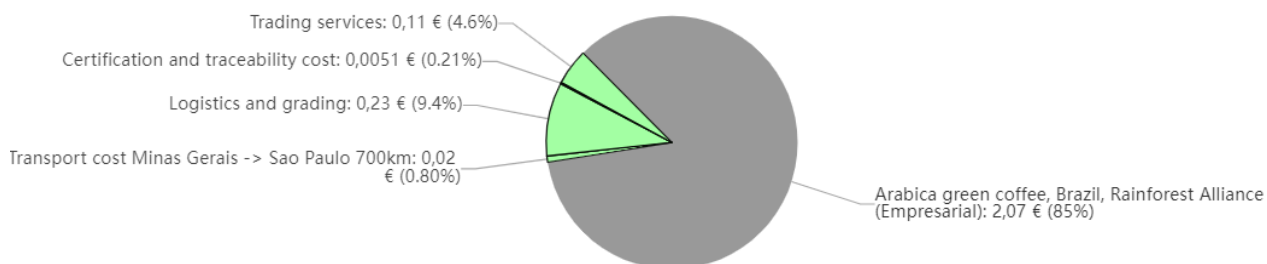


Figure 11. Main costs of production for collectors and exporters of Rainforest Alliance certified Arabica coffee from Brazil in 2021. Source: BASIC, based on bibliography and interviews (2023)

4. Comparison between net income and costs of decent living

4.1. Methodology to compare net actual income modelled to living income benchmark

At the cultivation stage there is a specific challenge, which is to estimate for coffee farming families (archetypes 1 to 4) whether the **net actual income**⁷¹ which they generate from coffee and other sources is sufficient to cover the costs of living of the family, to invest on the farm, to face contingencies and accidents of life, or even for future investments off-farm in other income-generating activities.

To inform this issue, **living income studies** offer a useful quantified basis that makes it possible to measure to what extent the net actual income generated from different activities can cover the costs of sustainable living of a typical farming family in coffee regions. Carrying out this analysis provides an informed insight into the actual viability of coffee farming as a source of income for the farmer, taking into account key variables such as typology of households, coffee farming features (yields, farm size...) and diversification of income sources beyond coffee.

To do so, the methodology that we have developed is the following:

1. **Modelling the costs of agricultural production and estimating the net actual income per kg of coffee** (cf. results described in the previous sections). The model consolidates several publicly available databases on production costs paid to external parties (fertilizers, hired labour...). It makes it possible to differentiate estimates by producers' archetypes which are defined based on yields, farm size, and level of mechanization. For each producer archetype, the modelled production costs, and taxes when applicable, are deducted from the farmgate prices to estimate the net actual income.
2. **Comparing the net income derived from coffee with the costs of decent living of coffee growers' households (according to archetypes).**

The total net actual income generated at coffee farm level can be calculated for each archetype by multiplying the net actual income per kg of coffee (see previous point) by the average land size dedicated to coffee and yields. The result can be compared with costs of decent living of coffee households covered by coffee⁷². The latter can be obtained by multiplying the costs of decent living of coffee households by the share of their total actual income that is generated by coffee production. The outputs of these calculations are the following:

- **If the net actual income generated by coffee at farm level is below the costs of decent living covered by coffee**, the negative difference between the two corresponds to the **living income gap**. In such situations, the farmgate price received by the farmer does not

⁷¹ Net actual income of a farm is calculated by discounting production costs from gross income (GCP, Living income study in coffee, 2023).

⁷² Living income gap is calculated by deducting cost of living to net actual income.

remunerate family labour at a level commensurate with costs of decent living, which questions the long-term viability of the farm.

- If the net actual income generated by coffee at farm level exceeds the costs of decent living covered by coffee, there is a potential additional income generated for the household that enables the families to invest on the farm or in other activities, to face contingencies and emergencies, etc.

4.2. Results for Brazilian coffee growers' families, according to archetypes

4.2.1. Benchmark estimation of living income of Brazilian coffee farmers

One of the most recent living income studies on coffee farming in Brazil is the GCP Living income study published in 2023 and based on data from 2019-20 and 2020-2021.

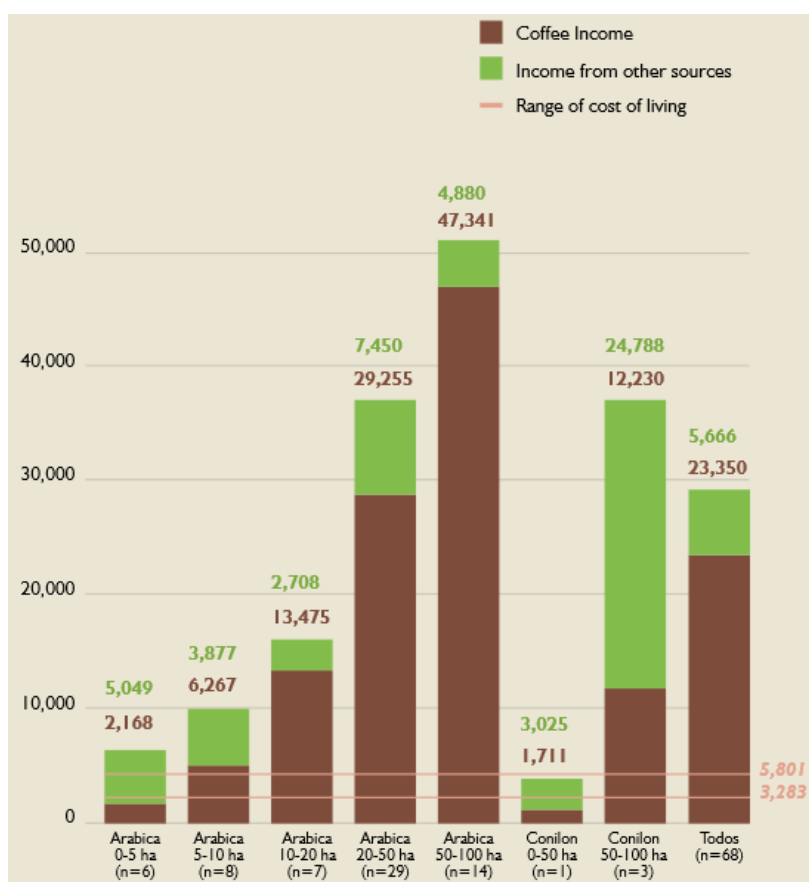


Figure 12. Comparison of income (coffee and other sources) depending on coffee farm size with cost of living for coffee growers 10 to 100 hectares (5,801 BRL/month) and coffee growers up to 10 hectares (3,283 BRL/month). Source: GCP 2023

The GCP survey found that in 2020-2021, all Arabica⁷³ farmers under 5 hectares of coffee did not earn a living income from coffee farming alone (see above figure); all other categories did clear the

⁷³ Figures for Robusta are less reliable (the sample size is 1). The study finds that Robusta (Conilon) farmers under 50 hectares fall far under the threshold of the cost of living. Global Coffee Platform 2023, op. cit., p. 25.

threshold.⁷⁴ As GCP notes, “smallholders [*note: here is meant farmers with under 5 hectares of coffee*] strongly depend on earnings not related to the property, such as outside work or governmental aids, to complement the household income. On the other hand, growers with medium-and large-size plots of land [...] obtain good earnings from coffee.”⁷⁵ The table below summarizes the diversity of sources of income per coffee farm size:

| | Area stratum | | | | | Total |
|---------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | 0-5 ha | 5-10 ha | 10-20 ha | 20-50 ha | 50-100 ha | |
| Annual Actual Income | | | | | | |
| Total (%) | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| 1 - Coffee (%) | 30.0 | 61.8 | 83.3 | 79.7 | 90.7 | 82.7 |
| 2 - Other products (%) | 30.0 | 1.0 | -6.8 | 5.9 | -2.3 | 1.5 |
| 3 - Insurance (%) | 0.0 | 0.0 | 0.0 | 0.5 | 1.9 | 1.1 |
| 4 - Other rural properties (%) | 1.8 | 0.0 | 0.0 | 0.3 | 0.1 | 0.2 |
| 5 - Outside work (%) | 0.7 | 12.3 | 6.5 | 4.7 | 3.7 | 4.6 |
| 6 - Services and rents (%) | 16.8 | 14.1 | 12.6 | 6.2 | 4.8 | 6.8 |
| 7 - Aid (%) | 20.7 | 10.9 | 4.4 | 2.8 | 1.2 | 3.1 |
| Sample frequency (n) | 6 | 8 | 7 | 29 | 14 | 64 |

Source: Research data (2022).

Table 1. Relative participation in the average annual actual income of Arabica coffee growers with up to 100ha, per area stratum.
Source: GCP 2023

As evidenced above, the other sources of income vary depending on the farm size. In Arabica farm under 5 hectares, where coffee is most likely cultivated by a family, non-coffee crops amount to 30% of income whereas on larger farms, the contribution was either negligible (max = 6%) or negative. Although other crops cultivated may vary depending on regions, the GCP study notes that coffee families tend to also cultivate banana trees, corn, sugar cane and other food varieties.⁷⁶ Family farms also work with polycultures to diversify income and for food sovereignty (milk, meats, grains, vegetables...⁷⁷).

4.2.2. Comparison between the model’s results, living income and the GCP study

Based on the estimates built in this study and described earlier we calculated for each archetype the net actual income generated at the level of the farm per kg of coffee produced (i.e. multiplying the net income per kg by the average yields and land of coffee cultivated by farms of each archetype).

The results are detailed in the following table:

⁷⁴ This, with one reservation: 5 to 10 hectares of coffee on average made the living income threshold, but as the average surplus above the living income threshold is only 8% of the total value of the living income threshold, it seems statistically likely that some of the farms in the 8-farm sample fell below the living income threshold from coffee alone.

⁷⁵ Global Coffee Platform 2023, op. cit.

⁷⁶ Ibid., p. 15.

⁷⁷ BASIC correspondence with Brazil coffee sector expert, 8 February 2024.

| | Archetype 1 | Archetype 2 | Archetype 3 | Archetype 4 | Archetype 5 |
|--|-------------|-------------|-------------|-------------|------------------|
| Farm size (<i>model</i>) | 0-5 ha | 5-10 ha | 10-20 ha | 20-50 Ha | 50+ ha |
| Productivity – bags/ha (<i>model</i>) | 26 | 40 | 35 | 30 | 50 |
| % net income (<i>model</i>) | 10% | 41% | 34% | 26% | N/A (plantation) |
| Coffee net income BRL/month (<i>BASIC calculation</i>) | 358 | 6 436 | 9 229 | 14 123 | N/A (plantation) |
| Costs of decent living - BRL/month (<i>GCP</i>) | 3 283 | 3 283 | 5 801 | 5 801 | N/A (plantation) |
| Costs of decent living covered by coffee (<i>GCP</i>) | 985 | 2 028 | 4 832 | 4 623 | N/A (plantation) |

Table 2. Overview table of productivity, percent coffee net income, coffee net income in BRL/month, cost of decent living, and cost of decent living covered by coffee, for the five farm archetypes

The results presented in the above table show that the net income generated by the farmers in archetype 1 thanks to coffee production (358 BRL/month) is well below the 3,283 BRL/month cost of decent living for a coffee family owning up to 10 hectares as documented in GCP study.

If taking into account that coffee only makes up 30% of the actual income of the farmers related to archetype 1, this means that coffee should at least cover 30% of their costs of living, i.e. 985 BRL/month, whereas the net income they generate from coffee was only 358 BRL/month in 2020/2021. As a result, coffee farmers in archetype 1 have to find other sources of income outside coffee growing to ensure a minimum standard of living. This echoes the situation of some actors downstream in the chain in Germany who make a loss on certain products and hence are obliged to find more remunerative opportunities through portfolio management to achieve profitability. But the difference lies in the much lower capacities of farmers of archetype 1, and the much fewer opportunities they have, to find diversified sources of income which are enough to close the living income gap, as demonstrated by the GCP study.

In comparison with archetype 1, the results presented in the above table show that the farmers of all other archetypes (2, 3, 4 and 5) seem to generate a net income from coffee production that is high enough to cover their cost of decent living, even in the absence of other sources of income.

These findings are in line with the results of the GCP study which shows that Arabica coffee growers with more than 5 ha manage to generate a coffee net income that is above the costs of decent living, while the growers with coffee areas smaller than 5 ha are in a high vulnerability situation and struggle the most to ensure a livelihood for their family.

In comparison with the GCP study, the analysis presented in this chapter on the net actual income generated by coffee cultivation according to archetypes and in the light of the living income benchmark brings two new insights.

Firstly, the more detailed data provided by CONAB on the costs of coffee production tend to show that the latter might be higher on average than the costs declared in the GCP study, and when combined with the lower farmgate prices of coffee in 2020/21, it appears very hypothetical that the

farmers associated with archetype 1 can achieve a living income, even with complementary sources of income outside coffee farming.

Comparing the different archetypes, it appears that the structuring and the functioning of the coffee value chain generates a very uneven income situation in which farmers of certain archetypes (2, 3 & 4) manage to make a (good) living from coffee cultivation alone, while other farmers (archetype 1) do not secure a decent livelihood.⁷⁸ Some may say that in this way the market regulates the efficiency of coffee production as the least productive farmers are pushed out of business. But these latter farmers, in the vast majority of cases, have no option other than to continue growing coffee and remain locked into poverty, or to emigrate in other regions or outside the country to make a living.

By identifying this group of farmers and connecting them with the value chains and the end products analysed in the present study (see the report on downstream actors for more details), this analysis can offer a first basis of risk assessment for due diligence in supply chains. Operationally, it can enable roasters and retailers to identify the final products linked to archetypes of farmers that cannot make a decent living because of the structuring of their value chain, and consider what they can do to offset the situation, taking into account the distribution of value, costs, taxes, and net profit margins all along the chain.

⁷⁸ This derives from the uneven costs of coffee production among archetypes and the quite homogeneous farmgate price of conventional coffee for archetypes 1 to 4, where small variations are primarily linked to the distance between the collector and the farmer and have (very) few links with the organoleptic quality of coffee.