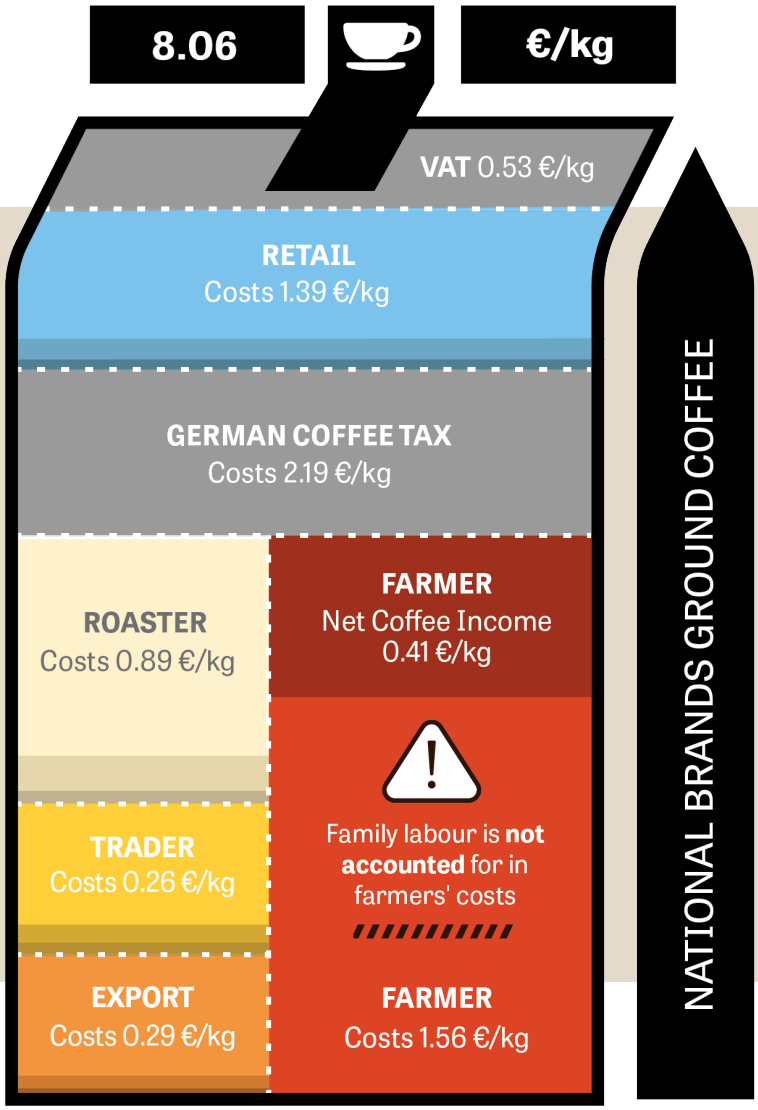

THE GROUNDS FOR SHARING

A study of value distribution in the coffee industry

Bonn, London, Paris, Utrecht

BASIC, Global Coffee Platform, IDH , Solidaridad.
Paris, Geneva, Utrecht, Panama City, 2024.
The Grounds for Sharing.
A study of value distribution in the coffee industry

DOI link [to be added]

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ISBN [to be added]

EXECUTIVE SUMMARY

BACKGROUND

With over 2.25 billion cups of coffee consumed globally every day, the international coffee market generates substantial and growing value. However, there has been a knowledge gap on how this value is distributed in the supply chain and how much of it reaches coffee growers.

The complexity of the coffee market and price volatility brings risks for all stakeholders in the supply chain. Risk mitigation has led to a concentration of value away from producers, in the hands of coffee buyers and brands. Rising costs of labour and inputs have hit the most vulnerable coffee producers hard. Having farmers in a disadvantaged position is a long-term risk for the sector as a whole.

With this in mind, the Global Coffee Platform (GCP), IDH and Solidaridad commissioned BASIC (Bureau d'Analyse Sociétale d'Intérêt Collectif) to build a model to estimate the distribution of value, costs, taxes, and net profit margins along coffee value chains, from coffee farmers in Brazil, Colombia, Ethiopia and Vietnam, to retail consumers in Germany. The aim was to shed light on the value created, and the costs and margins, at each stage of the supply chain, to provide a starting point for additional ways to work on farmer prosperity, that think through value and risk distribution in the sector.

GERMAN MARKET FOCUS

Germany was chosen as the subject for the study because it is the largest consumer of coffee in Europe, and the world's third largest consumer after the USA and Brazil. It is also the largest importer of green coffee in Europe, with a major coffee roasting industry. Coffee retailing is very competitive in Germany, with store promotions being very common.

On the supply side, four coffee-producing countries were studied: Brazil, Colombia, Ethiopia, and Vietnam. These are in the top five countries exporting coffee to Germany and have a variety of production systems and farm sizes, as well as a mix of Robusta and Arabica cultivation. In this study, a key assumption was that coffee products included an average mix of 40% Robusta and 60% Arabica beans. For each origin, the report considered the impact of value distribution on different farm archetypes.

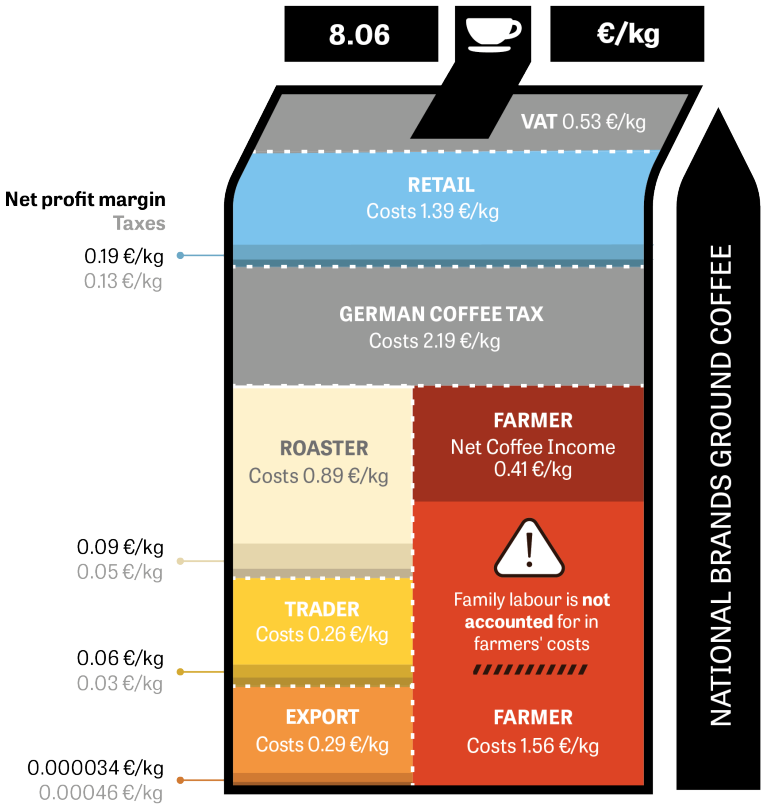
SCOPE AND METHODOLOGY

The scope of this study was to estimate the distribution of value and costs, taxes, and net profit margins of coffee sold in Germany (by retailers and discounters) at each step of the value chain: coffee cultivation, collection and export; international transport and trading; roasting and finished product manufacturing; and retail. The report considers private labels as well as international /national brands in the formats of ground coffee, whole beans, soft pods, and capsules (aluminium and plastic combined). It considers blended and single origin coffee, and also looks at the effects of two consumer-facing certification standards, Rainforest Alliance and Fairtrade.

Data for the study was gathered through:

- Thorough desk research using extensive and relevant publicly available data
- Extensive rounds of interviews and consultation with actors in the German coffee chain and countries of origin
- Convening events to inform coffee actors transparently on the research process, share the analysis and gather feedback for improvement.

The model developed by BASIC provided quantitative estimates founded on publicly available data, and also revealed the business dynamics at each stage. To ensure accuracy, it included a thorough counter-verification process.

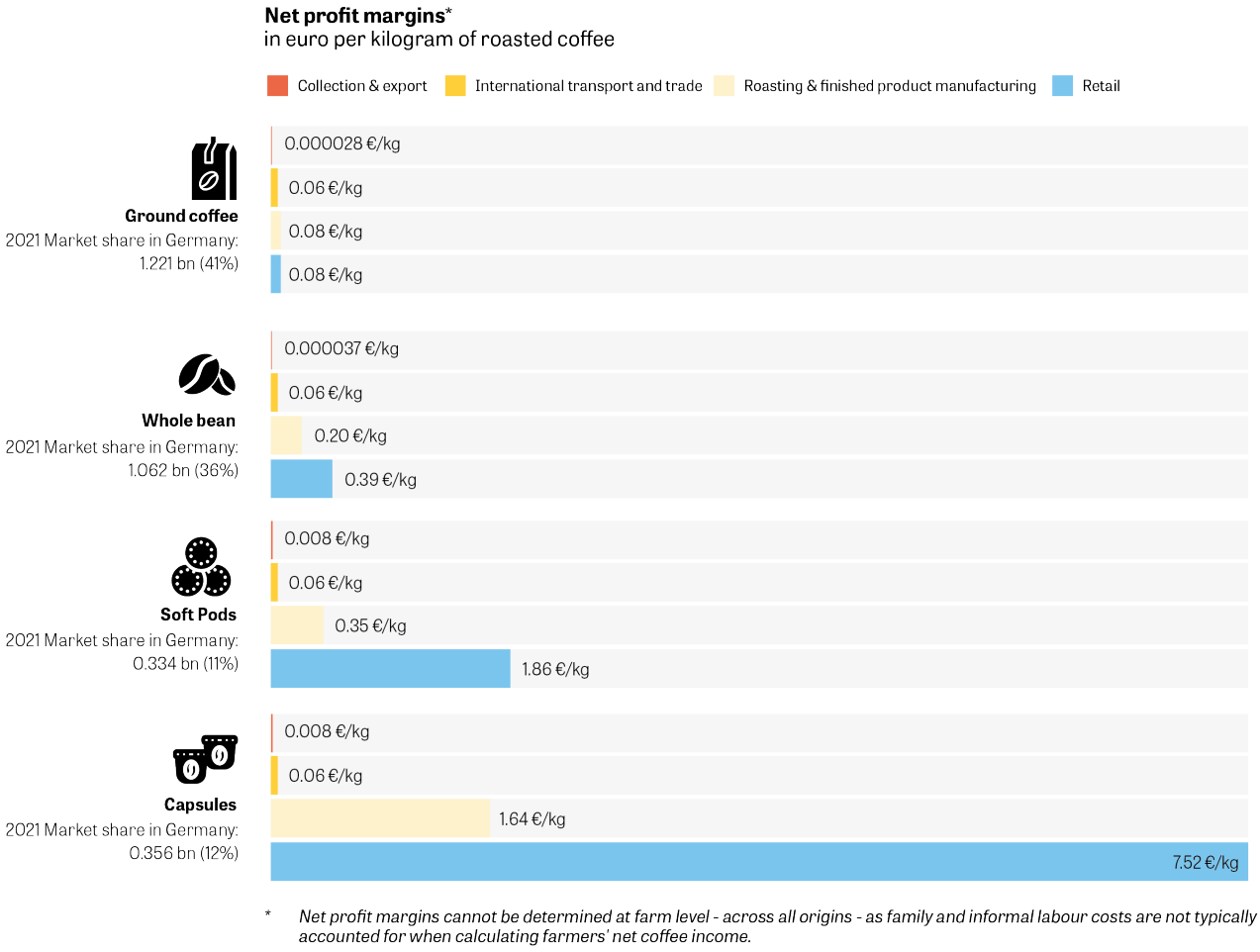


FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

In a nutshell, this report found that the coffee industry's economic model is not viable for all in the value chain. Although there is enough value for everyone to make a profit, this profit is not always reaching farmers.

To support this conclusion, key findings of the report include:

- The average price of coffee products sold in German retail stores is 9.71 euros/kg. For this aggregated coffee product, once costs and taxes are deducted, cumulated net profit margins amount to 1.09 euros/kg, 11% of total retail value
- Retail, Roasting and Coffee cultivation stages and the German Coffee Tax each amount to between 21% and 23% of the total value of the coffee products.
- The profit margin of a coffee product depends on its format. Therefore, the product assortment of actors at both roasting and retail stages plays an important role in overall profitability. Through portfolio management, actors can compensate for low or negative profit margins on some products with positive margins on other products.
- Intangible value creation through marketing and advertising, notably those relating to a brand's image, differentiation strategy, etc. are also key leverages of value creation and profitability specifically for roasters. This created value is often invested into R&D, product innovation and other operational costs.
- Stakeholders in international transport and trade generate on average low but consistent net profit margins. Profitability is managed through a portfolio assortment of coffee origins, between high and low/even risky, and high volumes.
- Generally, coffee farmers connected to certified supply chains generate a higher net income than those connected to non-certified supply chains. Different factors, such as a large difference of cost of production at coffee cultivation stage and product formats, make it difficult to draw uniform conclusions on value creation in certified supply chains.
- There are inequalities in the coffee supply chain, with an important number of coffee farmers having limited insights, opportunities and control over the final form and destination of the coffee they produce/export. This puts most farmers in a disadvantaged bargaining position when it comes to getting value for their coffee. The disconnect between end-product and farm production leaves farmers with limited, if any, points of leverage to capture a share of the end-product.



* *Net profit margins cannot be determined at farm level - across all origins - as family and informal labour costs are not typically accounted for when calculating farmers' net coffee income.*

THESE FINDINGS LEAD TO THE FOLLOWING KEY CONCLUSIONS:

- **Farmer prices are disconnected from consumer prices.** Value concentrates away from farmers further down the value chain between importer and retailer, and there is a lack of mechanisms to distribute value.
- **Labour is the largest share of farm costs for smallholders, but it is often unpaid and unaccounted for – meaning farmers' net incomes can seem higher than they are.** The long term impact of underpaying smallholder and family farmers ultimately affects the whole industry, and it will take an economic perspective to systemically and sustainably address this issue.
- **The coffee industry is so diverse and complex that there is no quick fix.** Trading conditions need to account for this complexity, and stakeholders in coffee supply chains need to implement mechanisms to distribute value and promote economic viability of farming

STUDY LIMITATIONS

While the modelling was backed by a thorough research process, it is important to acknowledge some limitations of this study:

- The research considers the coffee chain in isolation and does not capture the different diversification strategies that various actors may use, for example roasters selling different products and/or in different countries, or retailers selling a wide range of products and in different countries. These strategies may have a bearing on estimates, particularly of profitability.
- The research did not include out-of-home consumption, or instant coffee for in-home consumption. As such it was a snapshot of a certain year and certain product types; and because 2021 was the focus year for data, results may have been impacted by the lingering effects of the Covid pandemic and high coffee prices.
- Regarding certification schemes and private companies' verification schemes: only the Rainforest Alliance and Fairtrade certifications were included, for technical reasons. There is limited data on the impact of these certifications on production costs. Additionally, due to lack of data, it was not possible to include private companies' verification schemes in the model.

RECOMMENDATIONS:

The following key interventions are recommended as a follow up to the studies key results:

- Obtain sector commitment on sourcing practices that enable value redistribution
- Design and pilot mechanisms for value transfer from downstream to upstream, to provide learnings and opportunities for large-scale implementation

GCP, IDH and Solidaridad will be reaching out to producers, traders, roasters and retailers to discuss sector commitments on value distribution and take this work forward.

An online tool is available to navigate the in-depth results of the study. It also enables users to incorporate their own data and simulate the impact on value and cost distribution.

TABLE OF CONTENTS

1. INTRODUCTION

Over 2.25 billion cups of coffee are consumed every day, mainly in Europe, the United States and Brazil. The worldwide coffee market generates substantial revenues: in recent decades, the breakthrough of the coffee capsule unlocked new value creation in a mature market. Capsules delivered an innovation in quality and convenience to consumers with higher willingness to pay and boosted the sales of the sector's historical leaders.

In the meantime, since the end of the last International Coffee Agreement (1989), the coffee sector has been characterized by more volatile prices, lower overall income for coffee producers, and a concentration of power in the hands of buyers and major international brands. More recently, rising costs of labour and fertilizers have hit the most vulnerable coffee producers hard.

Coffee production has also been impacted by rising temperatures and altered rainfall patterns linked to climate change: uncertain yields, damage caused by pests and diseases, and difficulties in maintaining quality. Studies estimate that without strong action to combat climate change, the global area suitable for coffee production could be reduced by 50% by 2050. By 2080, wild coffee, an important genetic resource for farmers, could become extinct , profoundly challenging the coffee market and its diversity as it exists today.

All these trends call into question the economic and environmental sustainability of the coffee sector. Public debate has contributed to the emergence of new regulations, notably in the EU: on corporate sustainability reporting (CSR Directive), on imported deforestation (EU Deforestation Regulation; EUDR), and on corporate due diligence (Corporate Sustainability Due Diligence Directive; CSDD), which are being implemented respectively in 2023, 2025, and 2026.

In this evolving context, there is a need for greater transparency on the value created and costs incurred at each stage of coffee chains. This would create a better informed, facts-based, and shared understanding of the coffee sector's challenges. It would also facilitate a collective discussion on how to effectively address business constraints in view of the new social and environmental imperatives the sector faces, including the interdependencies and potential conflicts between the two imperatives and the impact on farmer prosperity.

To support this effort, IDH, Solidaridad, and GCP commissioned BASIC to build a model to estimate the distribution of value, costs, taxes, and net profit margins along coffee value chains, from coffee farmers to end-consumers.

This type of model provides objectified quantitative estimates founded on publicly available data, as well as an understanding of business dynamics at each step of the chain and a thorough counter-verification process. It also involves rounds of bilateral interviews and meetings open to all stakeholders of the chain, to create collective dynamics across the sector.

This study aims to provide added value and insights for actors in the coffee sector (producers, traders, roasters, brands, retailers) and public authorities to help arrive at shared objectives and collective commitments towards further aligning business strategies with environmental and social goals.

[1] The Climate Institute, "A Brewing Storm: The climate change risks to coffee", 2016.
[2] Ibid.
[3] BASIC previously developed an equivalent model on the cocoa and chocolate value chains. See: FAO and BASIC, "Comparative study on the distribution of value in European chocolate chains", 2020; FAO and BASIC, "German cocoa and chocolate value chains. Analysis of the distribution of value, costs, taxes, and net profit margins along the German cocoa and chocolate value chains", 2022.
[4] The net profit margin is the remaining figure after all identified costs and taxes have been deducted from value.

2. SCOPE AND METHODOLOGY

2.1. SCOPE

This study focuses on Germany because of its importance as a coffee consuming, roasting, and trading country. It is the biggest coffee consuming market in Europe and the third biggest worldwide; it is home to the second largest roasting industry in Europe, and is a green coffee hub, accounting for 35% of EU imports and 35% of re-exports from the EU in 2021.

The report looks at four coffee-producing countries: Brazil, Colombia, Ethiopia, and Vietnam. These are in the top eight countries exporting coffee to the EU and Germany. They show a diversity of coffee producers' profiles, from smallholder producers (sometimes organized in cooperatives) to large and mechanized coffee estates.

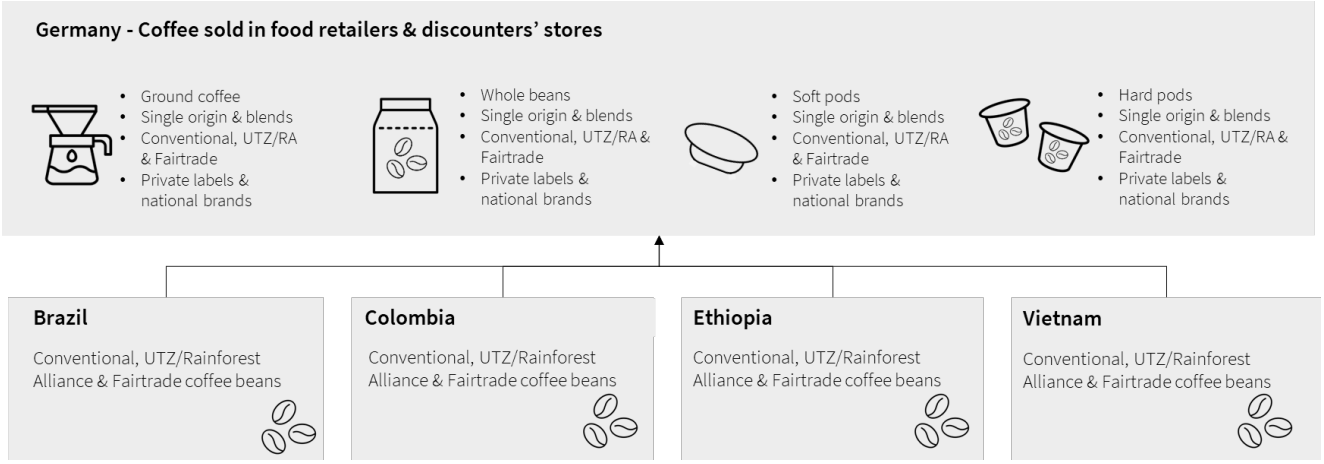


Figure 1. Scope of German coffee value chain study. BASIC 2024

The scope[6] of this study is to estimate the distribution of value and costs, taxes, and net profit margins of coffee sold in Germany (retailers and discounters).

It covers:

- ground coffee, whole beans, soft pods, and capsules (aluminium and plastic combined)[7]
- conventional, RA and Fairtrade[8]
- blends or single origins
- blends or 100% Arabica

From coffee produced in Brazil, Colombia, Ethiopia, or Vietnam:

- Arabica or Robusta
- conventional, RA, and Fairtrade
- under different production systems

[5] Based on UN Comtrade database, available here: https://comtradeplus.un.org/
[6] The scope of the study is to be extended by Q1 2024 to include instant coffee, out-of-home consumption, and an analysis of the evolution of key prices between 2017 and 2022.
[7] For the purpose of the study, which is to focus on the coffee value chains, single serves that contain, as first and second ingredients, milk and/or sugar have been excluded. This is because their retail prices are mostly driven by the sugar and/or milk prices rather than coffee price. Combined, soft and hard pods (plastic and aluminium for the latter) which contain more milk and/or sugar than coffee, represent an estimated 3% of the 2021 German coffee market.
[8] The main fair trade scheme in the coffee market – and more widely used in food products – is the Fairtrade International label and certification system. Moreover, the current study includes only two certification standards: RA and Fairtrade. Due to a lack of data (see section 3, 'Limitations'), it does not include the 4C certification, or companies' voluntary schemes.

2.2. RESEARCH PROCESS AND SOURCES OF INFORMATION

The report's methodology is built on four key elements:

- extensive and relevant publicly available data at key points in the value chain including producer countries, imports/exports of producer countries and within the EU, coffee roasting and finished product manufacturing, consumer sales in Germany, companies' financial accounts,
- thorough desk research to build a good understanding of the business dynamics and structural features of the German coffee market and German coffee value chains (at business to consumer, as well as business to business levels),
- extensive rounds of interviews and consultation with actors in the German coffee chain and countries of origin to provide relevant results,
- convening events to inform coffee actors transparently on the research process, share the analysis and gather feedback for improvement.

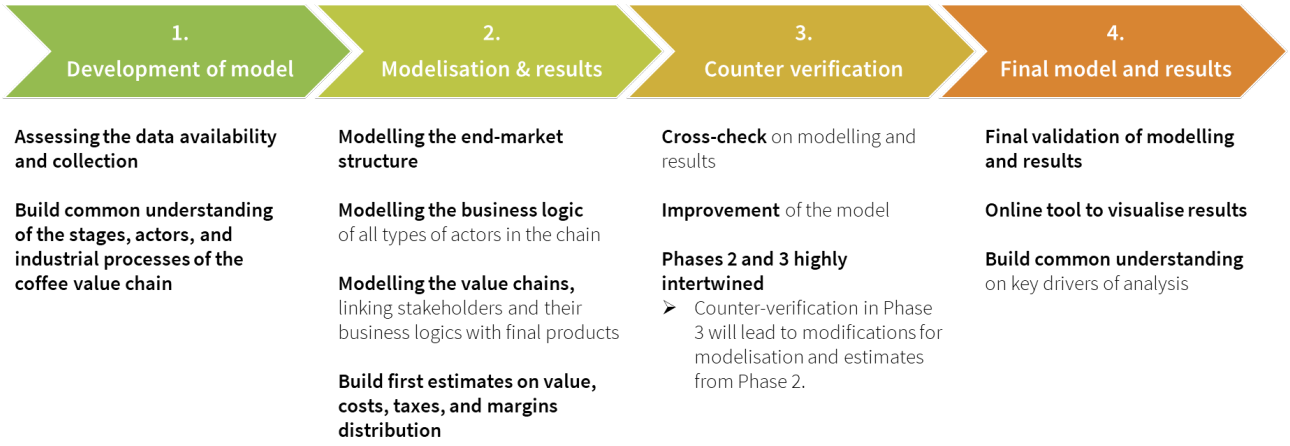


Figure 2. Overview of research process to build value and costs distribution estimates for the coffee value chains. Source: BASIC 2024

The model developed is fully based on publicly available databases (both free of charge and fee-charging).

Stages	Prices	Costs
Retail	• Circana (ex-IRI, supermarkets' sales per barcode)	• Companies' published accounts (Orbis) • BAK Basel & Habona Invest GmbH • French Observatory on Prices and Margins
Roasting and finished product manufacturing	• Estimated from consumers' prices and/or costs of manufacturing • EU Prodcom (industry statistics)	• Companies' published accounts (Orbis) • UN Comtrade (customs) • Kantar
International transport, European logistics, and trading	• EU Prodcom (industry statistics) • UN Comtrade (customs)	• Companies' published accounts (Orbis) • ICO
Collection and export	• UN Comtrade (customs) • ICO • Statistics and ministries of producing countries	Companies' published accounts (Orbis)
Coffee cultivation	• USDA, World Bank • Statistics and ministries of producing countries	• USDA, World Bank • CIRAD • VCA4D • GIZ

Figure 3. Overview of main sources of publicly available information per stage of the coffee value chain. Source: BASIC 2024

As shown in the table above, the main databases and sources of data used for this study are:

— **At retail level**, the modelling for German retailers is based on German specific data: Circana, formerly IRI (Information Resources, Inc.), was used to collect and process detailed consumer purchases of coffee products in all the stores of German retailers and discounters for the year 2021 (at barcode level). The Orbis database was used to collect the annual accounts of German retailers to estimate their global costs and margins. To allocate these costs to the coffee section of retailers, data from the French Observatory on Prices and Margins of Food Products was used as a starting point for the modelling. This draft model was then amended with more precise data on costs per aisle of German retail stores, in particular (but not only) building on a Swiss study which has made a detailed comparison of the costs and functioning of German, French and Swiss retail chains.[9]

— **For roasting and finished product manufacturing,** the United Nations statistics database of international trade (UN Comtrade) was used. This is the main international reference for import-export statistics on volume and value exchanged with coffee-producing countries and within the EU. Several other databases and sources of information were also used to inform the model on the volume and value manufactured in Germany and at EU level, notably the sector accounts published in the ProdCom database (managed by Eurostat) for data on coffee roasting and finished product manufacturing. Finally, as for Retail, the Orbis database was used to collect and process the annual accounts of European and German coffee roasters and importers.

— **Regarding production, collection, and export,** data published by the ICO (International Coffee Organization) yearly and quarterly was first used and then complemented by an extensive set of country-specific information sources. Data was further complemented and cross-checked with the quantitative information provided through recent research and reports conducted by organizations including the Food and Agriculture Organization (FAO), the United States Department of Agriculture (USDA), the Ministries of Agriculture and Statistics departments of producing countries (when relevant), and the French Agricultural Research Centre for International Development (CIRAD).

[9] BAK Basel Economics AG, Die Kosten des Schweizer Detailhandels im internationalen Vergleich – Eine Studie im Auftrag der Swiss Retail Federation, 2017.

2.3. KEY ASSUMPTIONS

The modelling is also built on certain assumptions, to enable estimates to be made:

1. **Blends of coffee:** Assessed through interviews with coffee experts and stakeholders, the first assumption is of an average mix of 40% Robusta and 60% Arabica beans.

2. **Mix of origins:** The mix of coffee origins is representative of the percentage of each producing country in the European and German imports of green coffee.

3. **Allocation of fixed costs**: A third assumption, validated through roasters' interviews, is on the allocation of fixed costs at roasting stages (to products with higher value).

Most importantly, the model of estimates based on this data and all key assumptions have been discussed, challenged, and improved through:

- four meetings held with coffee stakeholders from all parts of the supply chain at various key moments in the research timeline, to gain feedback on methodology and draft results,
- three rounds of interviews, conducted with experts and all categories of supply chain actors, with limited participation from the retailers.

2.4. FOCUS ON COFFEE CULTIVATION

For the stage of Coffee cultivation, data and modelization only permitted estimates to be made on costs and net farm coffee income[10] for all coffee farm archetypes[11] – except the Brazilian coffee plantation over 50 ha[12] for which we built a breakdown of costs, taxes, and net profit margins.

The figures in this document aggregate all coffee farm archetypes from Brazil (5 archetypes), Colombia (4 archetypes), Ethiopia (1 archetype), and Vietnam (1 archetype). The breakdown at Coffee cultivation stage encompassed all coffee farm archetypes (weighted average) and put forward the estimates of taxes and net profit margins that were only possible for Brazilian plantations over 50 ha.

These particular features of the Coffee cultivation stage must be kept in mind when reading and comparing the estimates of value, costs, taxes, and net profit margin distribution.

[10] Total farm coffee income per kilogram is based on the coffee farmgate price obtained from a dedicated database. Net farm coffee income is calculated as total coffee income minus costs of coffee production. 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).
[11] Farm archetypes are typically characterized by how much land is owned by farmers, the type of labour and the level of input and technology used on the farm.
[12] For further details on archetypes of coffee farms in Brazil, please see the country report on Brazil available in the annex in paragraph 13.1.

2.5. THE MODEL AND THE RESULTS

The methodology and research process results in a model which enables an estimate of the distribution of value, costs, and net profit margins along the coffee chain.

All the relevant categories of final products on the German coffee market have been modelled to represent business dynamics, separated as:

- Private labels vs. international/national brands,
- Formats: ground coffee, whole beans, soft pods, capsules (plastic and aluminium combined),
- Origins: blends, or single origin,
- Type of coffee: blends, or 100% Arabica,
- Conventional, RA, and Fairtrade.

All the necessary characteristics for each product were also modelled to enable each final product to be linked to its coffee beans content through associated blends (i.e. percentages of Arabica/Robusta, and origins which are parameterized) and standard conversion and dilution factors.

The products analysed have a wide variety of business models and supply chain structures, leading to potential variations in the value distribution estimates. However, the prices and cost levels and trends calculated in this study provide first orders of magnitude and a sound basis for discussion among actors and stakeholders of the coffee sector.

2.6. ONLINE TOOL AND SIMULATION CAPACITY

This report highlights key takeaways and selected estimates. A comprehensive online tool is available to navigate all the in-depth results.

Full results and assumptions are available in an online tool accessible at the following link: https://value-chain-observatory.basic.coop/

All the results in this report are expressed in terms of distribution of value, costs, taxes, and net profit margins along coffee value chains.

On costs specifically, the value and costs distribution figures display only the aggregation of costs. The online tool (link above, value chain vision tab) presents details on costs in pie charts for each stage of a specific chain: the user can therefore see the detailed components of expenses that have been integrated in the modelling of costs.

On top of the baseline results built for 2021, a simulation tab is available in the online tool for the user to include their data for key prices and costs. By doing so, the user can simulate the impacts of their data on the value and costs' distribution, in full privacy. Data points on the costs of private companies' verification codes are notably open: the user can therefore insert their own costs to model the impacts of their own private verification code on the value and costs distribution of one coffee product.

3. LIMITATIONS

Although modelling was achieved thanks to a thorough research process, it is important to acknowledge the limitations of this study.

— **Scope and focus year.** The scope does not include the instant coffee format for in-home consumption, or the out-of-home consumption market in Germany. Also, the study has 2021 as a focus year. The modelling needs to rely on multiple sources of data from the same year to build coherent estimates, and the most recent commonly shared year was 2021 at the time of the assignment in late 2022. It should be noted that 2021 was still impacted by the Covid-19 pandemic. A short analysis of the evolution of key prices and costs along the coffee value chain between 2017 and 2022 will be created as an extension of the study. This five-year perspective will enable a better understanding of the 2021 estimates, and allow even more accurate conclusions to be drawn.

— **Countries selected.** The modelling is affected by the specific features of the countries included. Germany was the selected country of consumption; Brazil, Colombia, Ethiopia, and Vietnam were the selected countries of production. Germany is one of the few European countries to have an excise duty on coffee: on average, 23% of the total share of value accrues to the German coffee tax (GCT), and coffee stakeholders have adapted their business model and profitability strategy to allow for this. It is difficult, however, to extrapolate this model to see how the share of value equivalent to the GCT is allocated for coffee products in other national markets.

— **Certification and verification schemes.** Only two certification schemes, RA and Fairtrade, are currently in the model. These are the two main consumer-facing certification schemes that are included in the barcodes aggregated by Circana. Other important certification schemes, including the major German coffee certification 4C, could not be integrated in the modelling because they are not consumer-facing and Circana does not aggregate their data. Similarly, as most of the data on private companies' verification codes is not publicly available, it was not possible to include them in the modelling. This is mitigated by the ability of the online tool (see section 2.6) that enables customization for the verification used.
Another limitation is the lack of data on costs of Fairtrade and Rainforest Alliance certification. It was not possible to estimate all the costs for the implementation of Fairtrade and RA certification schemes, especially at the Coffee cultivation and Collection and export stages. For instance, Fairtrade and Rainforest Alliance standards require that inputs used on farms at the Coffee cultivation stage are tracked to ensure good agricultural practices – this results in administrative and compliance costs that are very difficult to estimate due to a lack of information. Other costs to cooperatives for achieving the Fairtrade standard are also difficult to generalize: for instance, governance costs of cooperatives depend on their size and even the geographic dispersion of their members. More globally, coffee producers and producers' organizations often hold multiple certification schemes and/or private companies' verification schemes which have similar requirements, to maximize the time and efforts invested. For these, it is highly difficult to allocate one specific cost to one particular certification or verification scheme.

— **Results are estimates**. Estimates have been thoroughly informed and modelled, cross-checked between sources of information including coffee stakeholders' interviews – but they ultimately remain estimates and should be understood as such.

— **Categorization of products under certified / non-certified.** Due to the limited data on non-consumer-facing certification standards and private verification codes developed by companies (see above), coffee products that are labelled in the results as "non-RA, non-Fairtrade" encompass coffee products that could be 4C-certified or produced by a supply chain under a private verification code.

— **Portfolio management.** Estimates isolate the coffee supply chain, and do not capture the different diversification strategies that actors may have at each stage of the chain (for instance, roasters selling different products and/or in different countries; producers selling into different markets, retailers selling a wide range of products and in different countries). Estimates, especially of profitability, should be put into perspective with the level of diversification of the actor or stage.

4. GLOBAL AND GERMAN COFFEE VALUE CHAINS

4.1. GLOBAL CONTEXT OF COFFEE VALUE CHAINS

In 2021/2022, 167.2 million of 60 kg bags of coffee[13] were produced worldwide and forecasts predict that the 2023/2024 harvest will produce around 179 million bags.[14] All coffee production is located within the intertropical zone.

Arabica and Robusta beans, which represent, respectively, about 60% and 40% of coffee produced[15], are cultivated on an estimated 12.5 million farms worldwide, with around 70% having less than 5 hectares of land. Nonetheless, there are major differences between the coffee-growing countries and the categories of producers in terms of the size of the farms, level of mechanization, and yield.

As shown in Figure 4, in 2020/2021, Brazil alone accounted for more than a third of global coffee production (Arabica and Robusta combined). Brazil, Vietnam and Colombia, the top three coffee-producing countries, account for almost two thirds of global production.[16]

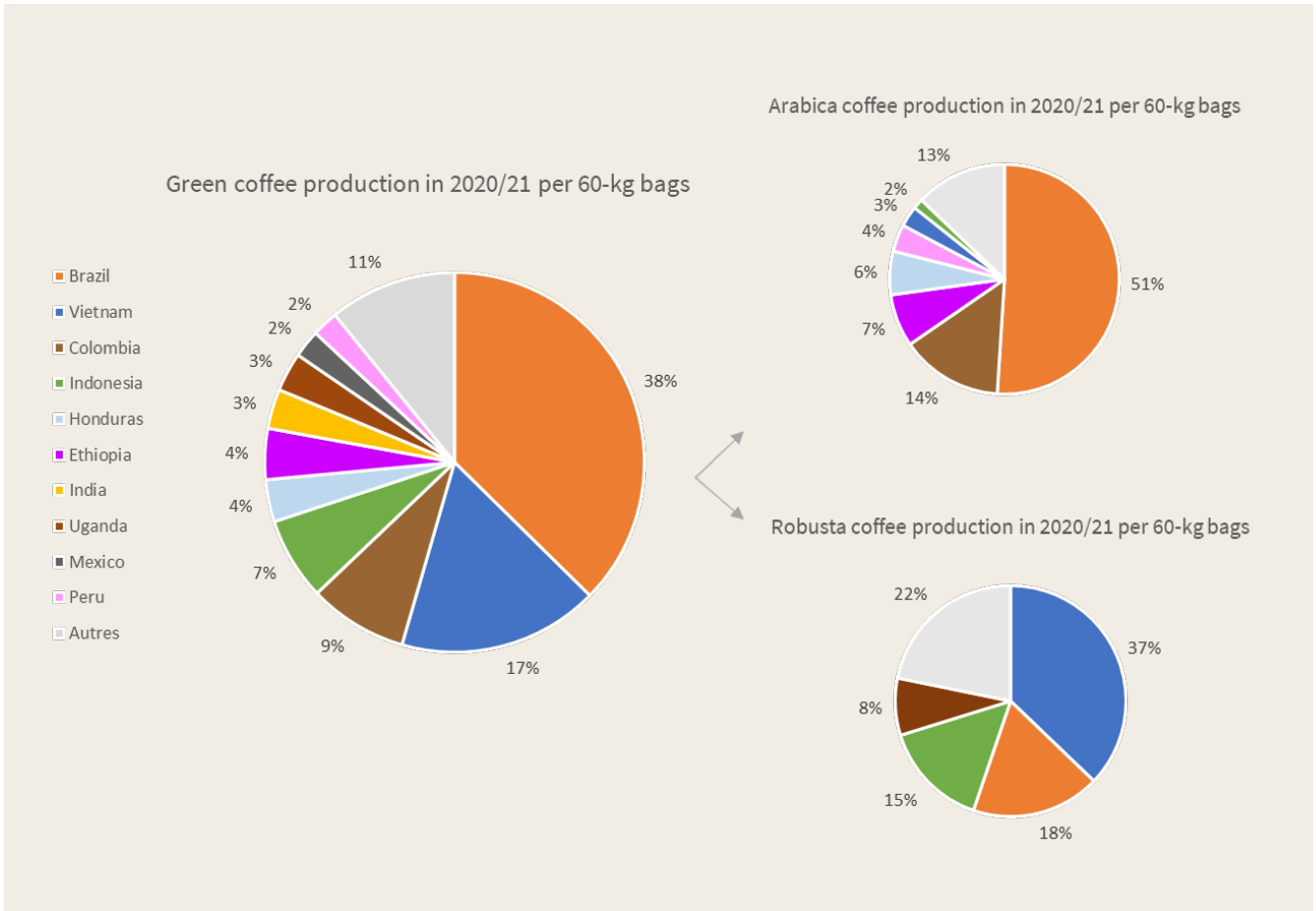


Figure 4. Distribution of total coffee production in 2020/21 for the 10 main producing countries, and main countries by coffee variety. Source: BASIC 2024 based on ICO 2021

[13] Estimates from ICO Annual Review 2021/2022, available at: https://www.ico.org/documents/cy2022-23/annual-review-2021-2022-e.pdf
[14] USDA, Coffee Market analysis, 2023
[15] ICO, World Coffee Production statistics for 2017–2020, 2022
[16] USDA, op. cit.

Over the last 30 years, the most significant change in world coffee production has been the growth of Robusta production (see Figure 5).

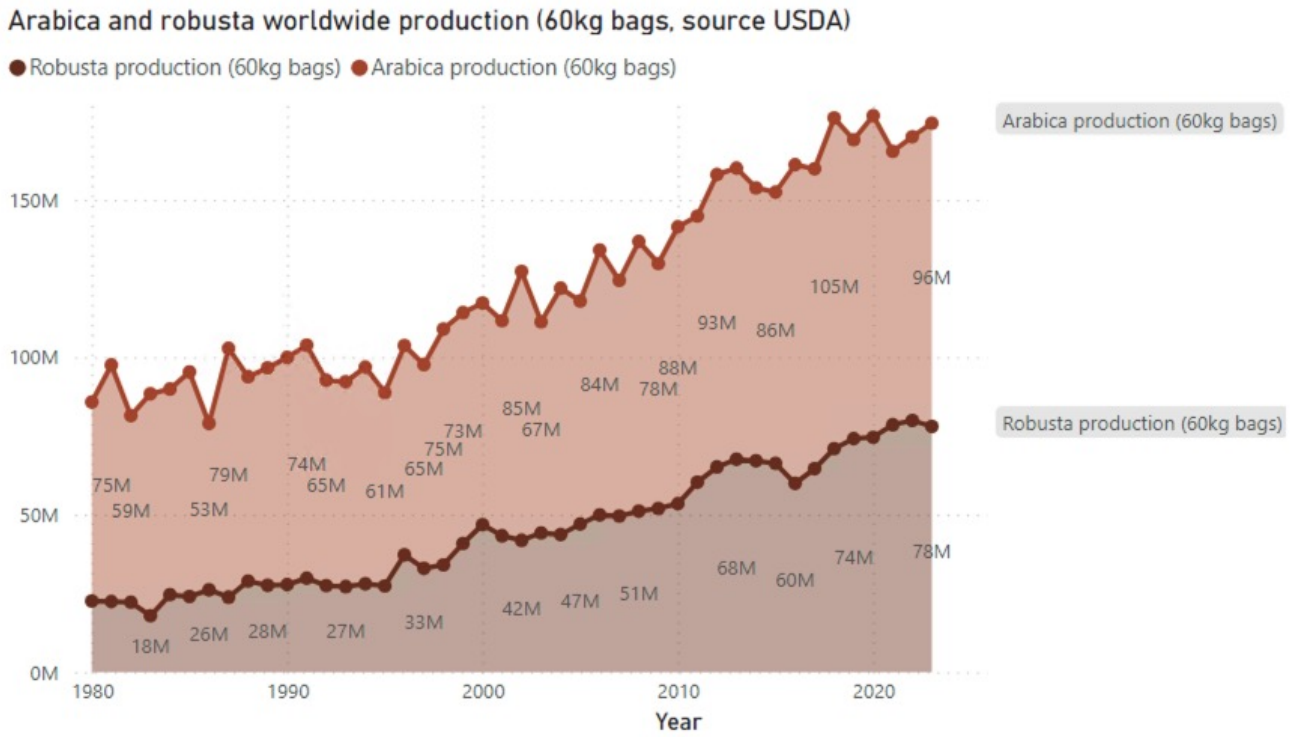


Figure 5. Evolution of worldwide production of Arabica and Robusta coffee (in millions of 60 kg bags). Source: BASIC 2024 based on USDA data

This increase can be explained by two main factors:

- Vietnam produced barely 0.5% of global volume in 1987 but, by 2020/2021, had become the world's second largest producer, accounting for 17% of global volume[17],
- Brazil has maintained a dominant position in the market, notably thanks to the development of Robusta production since the end of the 1970s.[18]

Robusta production has been on the increase due to intertwined market demands, notably:

- Coffee mass consumption has been rising in emerging and producing countries which generally tend to consume more Robusta than Arabica,
- Continuous pressure on the end price for consumers, even in mature coffee consumption markets (notably the European Union and North America), has triggered the need to reduce the cost of coffee inputs in blends to ensure stable profitability. Therefore, coffee blends sold to consumers in major markets, including Germany, increasingly have a higher percentage of Robusta beans.

Within this context, there has also been an increase in the amount of coffee produced under a certification scheme. The main social and/or environmental standards are organic, fair trade (the main one being the system run by Fairtrade International), sustainable labels developed by the Rainforest Alliance and UTZ Certified (now merged as the Rainforest Alliance), and the Common Code for the Coffee Community Certification (4C Certification).[19] These independent certification schemes were developed with the objective of promoting the production and consumption of products produced to higher social and/or environmental standards than the market norm.[20]

In addition to these independent certifications, companies have also developed their own private verification codes. Although each of these codes[20] is defined by the company concerned and therefore they are all different, they also address social and environmental issues of coffee production.

All these certification standards and private verifications codes are present in the German coffee market although, due to availability of data, only Fairtrade and RA are included in the modelling (see section 3, 'Limitations').

[17] ICO World coffee production 2021
[18] USDA, 2018
[19] The Common Code for the Coffee Community Certification (4C Certification) is a standard applicable only to coffee and was established in 2004 based on a public-private partnership between the German Ministry of Economic Cooperation and Development (BMZ) and the German coffee association (DKV). This standard addressing social, economic, and environmental issues is not well known by consumers as it is not usually displayed on packs. In 2019, ITC Standard Maps estimated that about 930,000 hectares harvested were certified 4C.
[20] B. Daviron and I. Vagneron, "From Commoditisation to De-commoditisation ... and Back Again: Discussing the Role of Sustainability Standards for Agricultural Products", *Development Policy Review*, vol. 29, no. 1, 2011.
[21] A list of private verification codes set by companies is available here: https://www.globalcoffeeplatform.org/our-work/gcp-equivalence-mechanism/

4.2. THE GERMAN COFFEE SECTOR

Germany is an important country for the coffee value chain. It is the largest consumer of coffee in Europe, and the world's third largest consumer after the USA and Brazil. Germany also has a major coffee roasting industry, supplying its domestic market and export markets. It is also the largest importer of green coffee in Europe.

4.2.1. OVERVIEW OF THE GERMAN FOOD RETAIL SECTOR

4.2.1.1. The German grocery retail sector is highly consolidated and notably shaped by discounters' strategy. Germany is the biggest market for food and beverages in the European Union with over 83 million consumers. Its grocery retail sector was valued at 237 billion euros in 2021 and is highly consolidated: in 2021[22], the four leading retail groups made up 70% of the country's total food sales[23] (see Figure 6 below).[24] This consolidation creates tough negotiating conditions for their suppliers.[25]

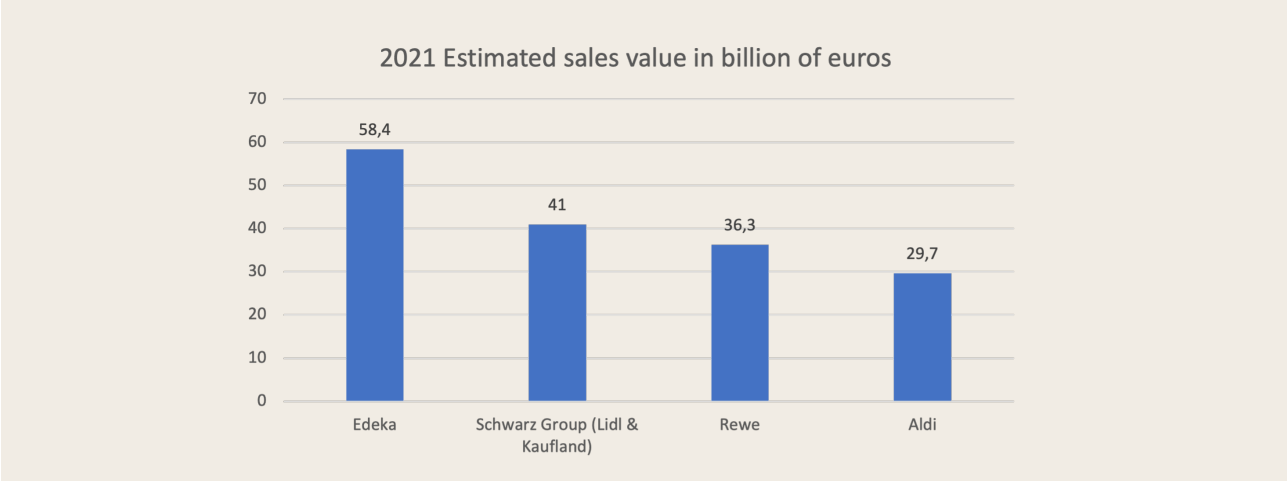


Figure 6. Sales of major food retailers and discounters in Germany (billion euros). Source: BASIC 2024, based on Europe Market Research 2022

EDEKA and REWE are the traditional giants of the German retail grocery market and, although they are still major players (see Figure 6), they are being challenged by the discounters Aldi Group (Süd and Nord) and Schwarz Group (which owns Lidl and Kaufland).

The discounters' market share has grown from 12% in the 1980s to an estimated 35% in 2022.[26]

Part of the discounters' success lies in their strategy of lean management and cost efficiency achieved through a relatively small assortment[27] of mostly private label products[28] This has enabled them to reduce the time and energy spent on unloading trucks and refilling shelves.[29]

This unique cost structure and marketing strategy meant German discounters could challenge the traditional food retailers by offering consumers similar products at low(er) prices. In response, the traditional retailers[30] have developed their own private labels: whole new ranges of low-priced to high quality premium products.[31] Retailers' and discounters' private labels now account for significant market shares across products.[32]

This appeals to German consumers who are said to be much more price-conscious than other European consumers. For instance, Germans spent, on average, less than 11% of their income on food and beverages in 2017 compared to 20% in France.[33] Competition on prices is high among German food retailers and this puts the food and agricultural value chains under pressure.

[22] Europe Market Research, "The Grocery Retail Market in Germany", October 2022.
[23] There is, on average, one discounter for every 5,231 people in Germany, within a 10-15 minute-drive of every German home (Euromonitor International, Fresh Food in Germany, 2012).
[24] USDA, "Expanding Grocery e-Retail Market in Germany", 2019. While EDEKA and REWE are positioned on the two distribution formats – supermarkets/hypermarkets and discounter stores – Lidl and Aldi are focused on discounter outlets only.
[25] Dyfed Müller Loesche, « Dominante Supermärkte », Handelsblatt, No. 197 (2018): 032.
[26] Europe Market Research, "The Grocery Retail Market in Germany", October 2022
[27] Interviewees estimate that a Lidl or Aldi store sells, on average, 11,000 different products while a REWE store sells more than 100,000.
[28] According to interviewees, brands were introduced in discount stores from 2017 only.
[29] Most products are delivered in boxes which can be put as such on the shelves whereas traditional retailers display product by product (Interviewees with chocolate brands and discount retailers (field mission and observations in Germany in Sept 2022))
[30] In 2019, EDEKA's private labels' sales represented an estimated 25% of its revenues (« Handelsmarken werden mittlerweile strategisch im LEH eingesetzt, sie sollen gezielt auf die Retail Brand der Händler einzahlen », *Rundschau für den Lebensmittelhandel*, No. 06 (2019): 16.)
[31] « Handelsmarken werden mittlerweile strategisch im LEH eingesetzt, sie sollen gezielt auf die Retail Brand der Händler einzahlen », *Rundschau für den Lebensmittelhandel*, No. 06 (2019): 16.
[32] Ibid.
[33] USDA, "German Food Retail", 2018

4.2.1.2. Retailers compete fiercely over consumers who are increasingly fickle

However, the competition between traditional grocery retailers and discounters has begun to change. Discounters' growth started to stall[34], with their market share dropping from 38% in 2019 to 35% in 2022.[35]

The move by traditional grocery retailers to develop their own private labels has blurred differences between competitors and significantly lowered consumers' brand or product loyalty.[36] Consumers' shopping habits tend therefore to be more fickle . This is particularly damaging for discounters whose long-term strategy is to offer a smaller range of products (see above) and to retain clients on the sole appeal of their own private labels.[37]

In response to the introduction of private labels by traditional grocery retailers, discounters now pursue an upgrade strategy.[38] They are modernizing their existing stores[39] and opening smaller ones in town-centres with more organic, local, and sustainable products, thereby directly competing with traditional retailers.[40]

The discounters' upgrade strategy[41] also includes offering national brands at a discount price, enabling the discounters to benefit from the appeal of the brands' image while also attracting new consumers.[42] In 2016, branded products accounted for only 3% of total sales for one of the major discounters but, in the same year, led to an estimated 10% growth in its revenue.[43] Other discounters quickly started to integrate branded products. Traditional retailers responded by launching aggressive promotional strategies on the products now also being sold by discounters.[44] As a result, for brands, lower selling prices seem to be compensated by the higher volumes of sales[45] ; however, although the growth of discounters appears to have stabilized, it is not increasing in the long term[46] , notably because part of the brands' sales are now made at the expense of the discounters' own private label sales.[47]

What remains clear is that competition in the German grocery retail sector is fierce and tends to put downward pressure on prices – including those of coffee products.

4.2.2. Analysis of German coffee consumption

In the price-sensitive environment of German consumption, coffee is competitively priced and some products are even loss leaders

Coffee is a product often positioned in promotional schemes to attract consumers (either to their stores for retailers, or to their brands for roasters). Because competition is so fierce in Germany, coffee products are competitively priced, and some are even loss leaders.47 Typically, coffee products can be found in up to three different parts of a German supermarket: in the coffee section, in the discount section, and offered at a discount near the cashiers. It is estimated that between 40% and 60% of coffee products are bought under promotional schemes in German supermarkets.48

Sharp competition therefore exists between retailers and discounters over the selling price of coffee, especially on ground coffee and whole beans which, together, represent an estimated 75% market share of 2021 sales. Amid inflation in early 2023, one major German discounter announced a permanent reduction of up to 20% on some top food products49 , including coffee.50 At the same time, major other food outlets announced further permanent reductions in the price of ground coffee and whole beans.

Price-setting in Germany, including for coffee, appears to be mostly controlled by food retailers and discounters.51

The rise of the whole beans format

German coffee consuming habits have been changing. Between 2017 and 2022, ground coffee and single serve sales declined by 22%, while the sales of whole beans grew by 39%[52] (see Figure 7).

[34] Wolfgang Adlwarth, « Discountpolitik drosselt Private Labels », *Lebensmittel Zeitung*, 13 May 2016.
[35] Florian Kolf, « Die Discounter schlagen zurück », *Handelsblatt*, no 207 (2021): 018; Europe Market Research, "The Grocery Retail Market in Germany", October 2022.
[36] Wolfgang Adlwarth, op. cit.
[37] Ibid.
[38] Nils Jacobsen, « Lidl: Der Handelsriese positioniert seine Marke neu », *Absatzwirtschaft*, No. 03 (2017): 108.
[39] Ibid.
[40] Dennis Schwarz, « Die neuen Strategien der Discounter », Handelsblatt, No. 026 (2021): 027
[41] Wolfgang Adlwarth, « Discountpolitik drosselt Private Labels », *Lebensmittel Zeitung*, 13 May 2016.
[42] Lisa Maria Neumeyer, « „Ikonen rücken in den Mittelpunkt" », *Lebensmittel Zeitung*, 3 July 2015.
[43] Wolfgang Adlwarth, 2016, op. cit.
[44] Ibid.
[45] « Aldi peppt sein Sortiment weiter auf », Rundschau für den Lebensmittelhandel, 1 February 2017.
[46] Matthias Queck, « Aldi irritiert », *Lebensmittel Zeitung*, 25 October 2019.
[47] Iris Tiezte, « Werteverfall », *Lebensmittel Zeitung*, 29 January 2016.
[48] Along with milk and butter (interviews with retail market experts and coffee industry stakeholders).
[49] BASIC Interviews with retail market experts and coffee industry stakeholders.
[50] Lebensmittel Praxis, "Discounter senken massiv Preise für Käse", April 2023.
[51] Lebensmittel Praxis, "Rabattschlacht im Discount", February 2023.
[52] Lenders, Dirk, Christoph Murmann and Delphine Sachsenröder, « Empfohlene Preise steigen – und gewinnen an Bedeutung », *Lebensmittel Zeitung*, No. 48 (2021): 14.
[53] For the purpose of this study, which is to focus solely on the coffee value chains, some single serves have been excluded based on their ingredients. Single serves that contain, as first and second ingredients, milk and/or sugar have been excluded from the scope as their retail selling prices are mostly driven by the sugar and/or milk prices rather than coffee price.

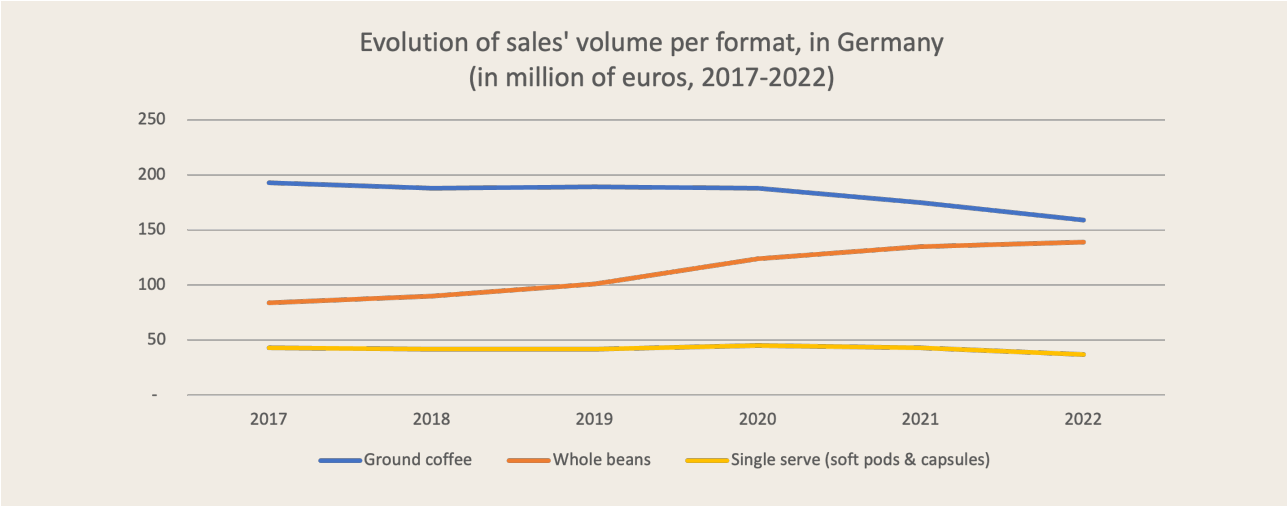


Figure 7. Evolution of coffee purchases in Germany depending on formats (volume of sales, 2017-2022, excluding instant coffee). Source: BASIC 2024, based on Circana 2023

Industry stakeholders, including the German Coffee Association, predict that in 2024 the sale of whole beans will outpace ground coffee sales and become the largest coffee format consumed at home.[54]

In 2021, German consumers spent an estimated 2.975 billion euros on coffee[55] consumed at home (see Figure 8).

Ground coffee and whole beans led sales in 2021, amounting to 1.221 billion euros and 1.062 billion euros, respectively. Soft pods represented 0.334 billion euros in sales in 2021, and capsules (plastic and aluminium) 0.356 billion euros.

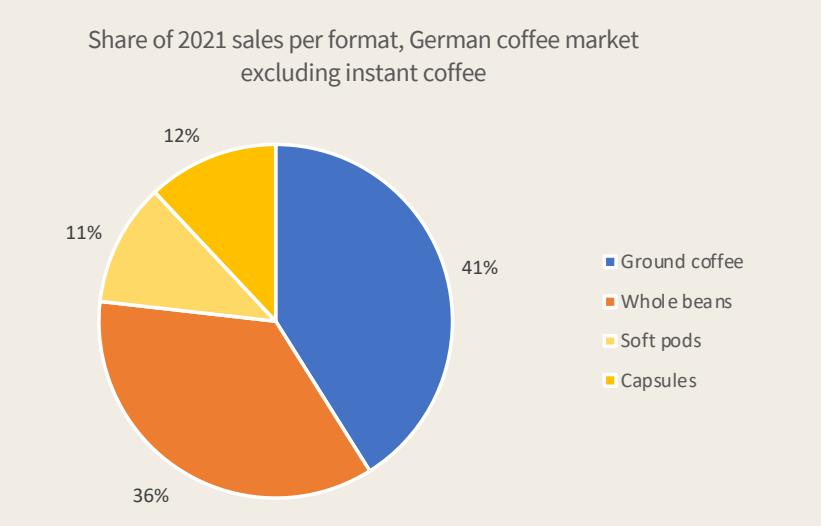


Figure 8. Shares of 2021 sales per format, German coffee market excluding instant coffee. BASIC 2024 based on Circana 2023

Despite the rise of private labels, 2021 coffee sales were still dominated by national brands' products

As can be seen in Figure 9, private labels accounted for about 22% of the sales of coffee products in Germany for the year 2021, while national brands accounted for 78%.[56]

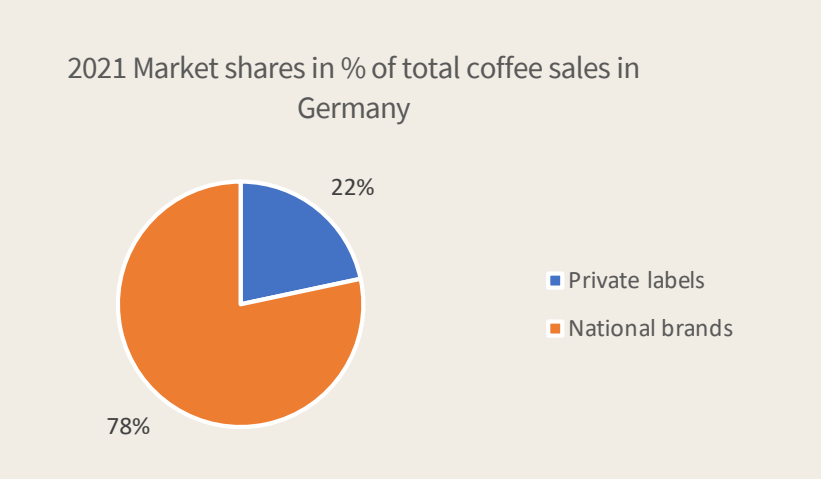


Figure 9. Private labels and national brands' 2021 market shares in % of total coffee sales (excluding instant coffee) in Germany. BASIC 2024, based on Circana 2023

[54] International Comunicaffé, "German coffee market 2022: sales of roasted coffee hit records high", 9 June 2023
[55] This study focuses on in-home consumption of four formats of coffee products: ground coffee, whole beans, soft pods, and hard pods (plastic and aluminium). The study includes the consumer facing schemes of only two certifications: RA and Fairtrade (not Organic). Within this scope, 2021 sales in Germany amounted to 2.975 billion euros (Circana data).
[56] BASIC 2023 based on Circana data 2023

Although private label coffee products are increasing their market shares, national brands still accounted for most coffee sales in 2021, as seen in Figure 10.

In accordance with the discounters' strategy, the share of private labels in coffee products is higher in discounters' stores than in traditional grocery retailers: private labels amount to an estimated 35% of discounters' coffee sales, while this is less than 10% in traditional grocery retailers' stores.

Figure 11 offers a more detailed breakdown of the national brands' sales for coffee:

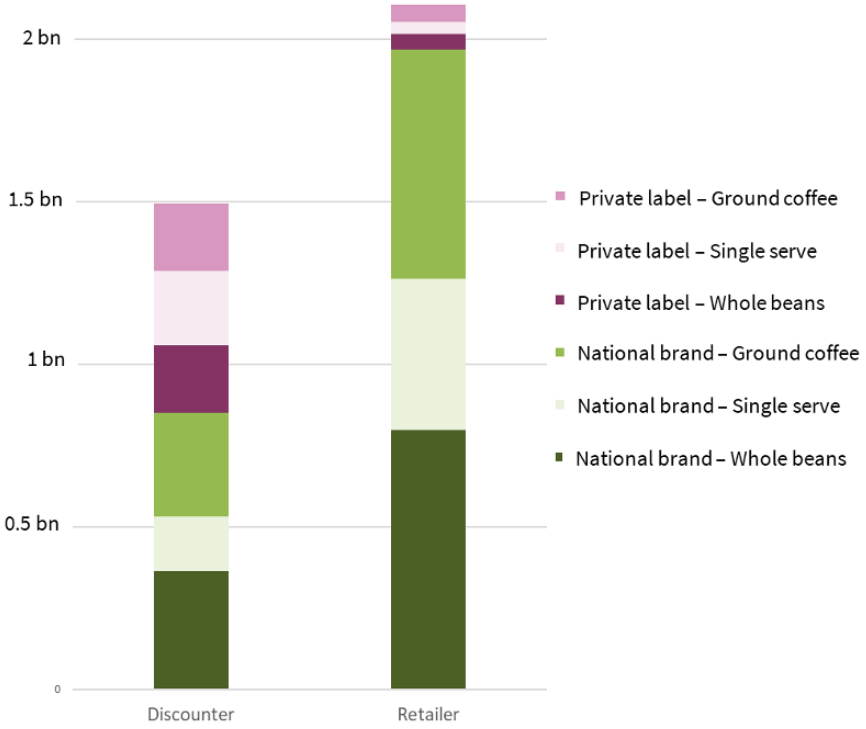


Figure 10. 2021 Share of private labels and national brands per distribution channel – German discounters and retailers' stores (in millions of euros). BASIC 2024, based on Circana 2023

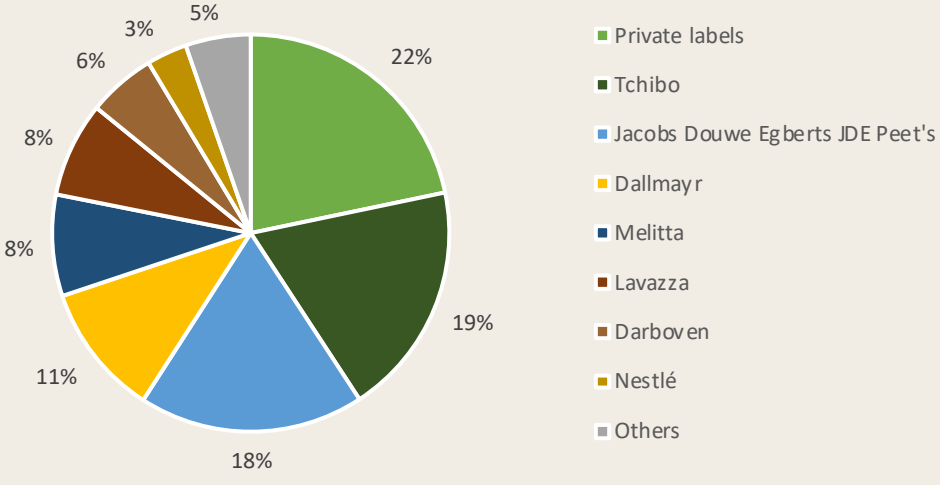


Figure 11. 2021 Market shares in % of total coffee sales (excluding instant coffee) in Germany. BASIC 2024, based on Circana 2023

For all formats combined, the four leading national brands Tchibo, JDE Peet's, Dallmayr, and Melitta amount to 56% of 2021 coffee sales. Among the eight major companies listed in Figure 11, four are German traditional coffee brands. This supports the analysis that, although price-sensitive, German consumers are attached to traditional German coffee brands.[57]

When looking at the market shares of the different coffee formats, differences start to appear:

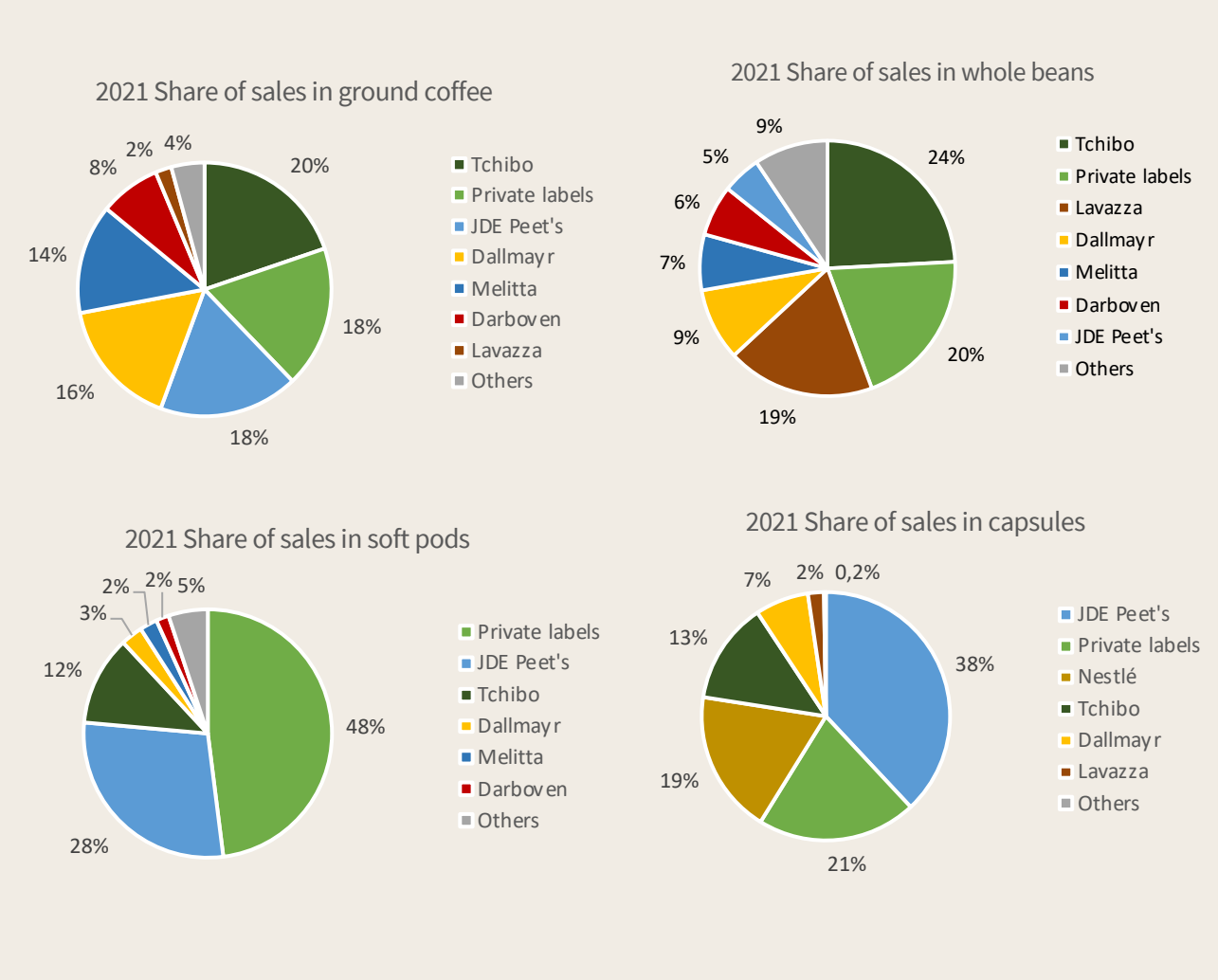


Figure 12. 2021 Shares of sales in four formats, per company. Source: BASIC 2024 based on Circana 2023

Company market shares in 2021 differ depending on format. The presence and market share of each company depends on their portfolio, and the products they offer (or not) to the German consumer.

Behind each market share, there is often one single brand that accounts for most of the sales: a traditional blend of ground coffee beloved by German consumers, a single serve format suitable for the company's machine, or a format that is a long-standing best-seller for one company.

Ultimately, these figures show that each company has its business model and own portfolio assortment of coffee products. Most of them are present in all four formats, but not at the same levels.

[56][57]Interviews with German coffee industry stakeholders.

The presence of sustainable coffee in German sales

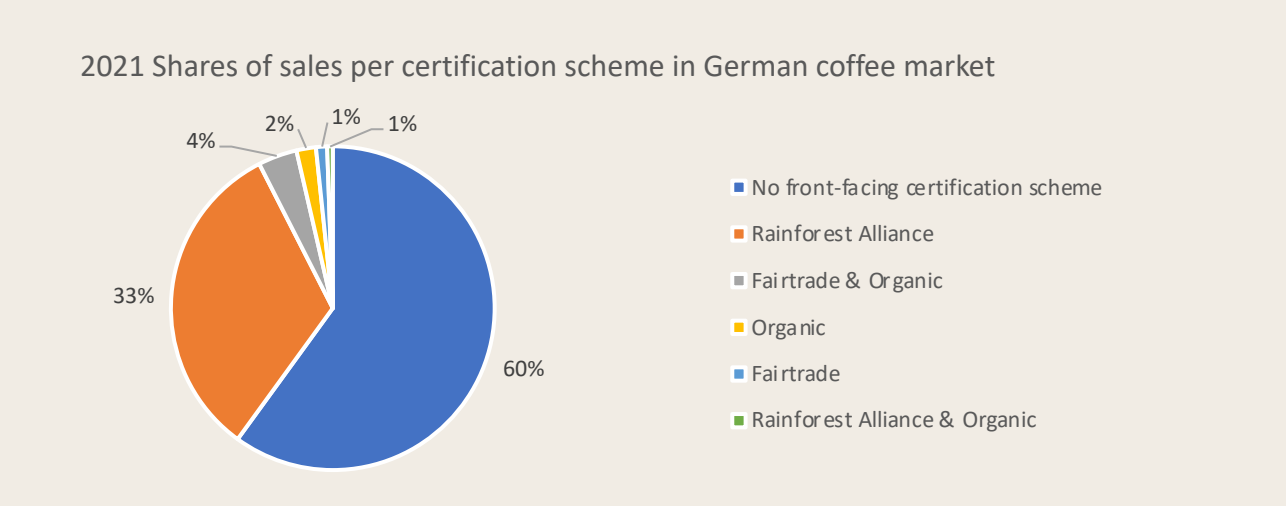


Figure 13. 2021 shares of sales per certification scheme on the German coffee market. Source: BASIC 2024 based on Circana 2023

Consumer-facing certification schemes covered 40% of the coffee products sold in Germany in 2021.[58] The leading certification was RA[59], accounting for more than 30% of coffee product sales (brands and private labels, all formats combined), followed by the double certification under Fairtrade and Organic at 4%. The organic certification is also a niche market, accounting for about 2% of the German coffee market in 2021 (see Figure 13).

To put the market shares of sustainable coffee in perspective, it should be noted that in the model most national brands' products are not certified with RA or Fairtrade. Circana only aggregates information displayed in the barcode and, unfortunately, non-consumer-facing certifications are not in the barcodes. An unknown percentage of these national brands' products may be produced under 4C-certification, or a company's private verification code.

The German coffee tax

The GCT is an excise duty levied on coffee and products containing coffee[60], and fixed at a flat rate of 2.19 euros/kg on roasted coffee and 4.78 euros/kg on instant coffee.[61] The total GCT levied in 2021 amounted to one billion euros.[62]

The tax applies once coffee is roasted, and is therefore levied on roasters' factories on German soil, or on importers of roasted coffee from neighbouring countries (for instance retailers if their private labels are manufactured outside Germany and then shipped to them). It does not apply to green coffee only transiting through Germany or to coffee products exported to other markets.

Over the years, the purpose of this tax has been a subject of debate, with some appealing to the German Federal Government[63] to remove it. Recent debate focused on a possible tax exemption on Fairtrade certified coffee.[64] In 2020, the European Commission also sent a Reasoned Opinion to Germany on the restrictions on imports of coffee caused by the GCT.[65]

4.2.3. The German coffee industry

The influence of German food retailers and discounters on agricultural and food value chains has increased in recent decades, as most of the leading groups have begun to vertically integrate the manufacturing of some of their key private label products: both EDEKA and REWE now own several factories processing meat and manufacturing bread and baked goods.[66]

Some major German retailers own their own roasting and manufacturing facilities for their coffee private labels. For instance, Schwarz-Produktion has recently begun to supply an increasing number of private labels for the Schwarz Group (Kaufland and Lidl). In 2022, Schwarz-Produktion started to roast and manufacture coffee

[58] Circana only allows the aggregation of data that are disclosed on coffee products' barcodes sold in supermarkets. For that reason, the figure on sales' shares per certification scheme in Germany 2021 only accounts for independent certifications displayed on pack and included in barcodes of coffee products sold in supermarkets.
[59] Following the UTZ and Rainforest Alliance merger, the UTZ certification programme and label was gradually phased out in 2020. This study, for the purpose of clarity, simplifies the data processing and does not differentiate between the two.
[60] See details on the mechanisms of the German coffee tax in section 2 of this report.
[61] Further details here: https://www.gesetze-im-internet.de/kaffeestv_2010/
[62] DeStatis, "Cash tax revenue by type of tax before tax redistribution", available at: https://www.destatis.de/EN/Themes/Government/Taxes/Tax-Revenue/Tables/cash-tax-revenue-million-euros.html
[63] For instance, the petition against the coffee tax that was ruled out by the Bundestag 2013: Lebensmittel Praxis, "Weg mit der Kaffeesteuer", September 2011.
[64] Fairtrade Deutschland, « Debatte zur Kaffeesteuer Updates zu den neusten Entwicklungen », June 2021
[65] European Commission, "Free movement of goods: Commission calls on Germany to remove restrictions on import of coffee", July 2020

products for the discounters' private labels, with the aim of producing over 50,000 tonnes of ground coffee and whole beans yearly.[67] Schwarz-Produktion is forecast to become one of the major food manufacturers in Germany.[68]

Nonetheless, Germany still depends on major roasters supplying the national brands' market – and, as previously shown, national brands still account for most of the 2021 coffee sales in Germany. It is the second largest roasting industry in Europe after Italy[69]: production was estimated at 571,000 tonnes in 2020.[70]

Among the major roasters in Germany there are traditional German companies such as Tchibo, Dallmayr, Darboven and Melitta. Some international companies also own factories in Germany, but some, like Lavazza which does not own a factory in Germany, also supply the German market from their factories located in other European countries.

Germany is also a major green coffee trade hub in Europe: in 2021, Germany accounted for nearly 35% of green coffee imports to the European Union, and was the second largest re-exporter of green coffee (also an estimated 35%) from the European Union.[71] Most imports and re-exports are made through Hamburg, near the offices of major coffee traders (including ECOM and Neumann Kaffee Gruppe).

KEY TAKEAWAYS

German consumers are price-sensitive, and increasingly fickle in their purchasing habits. Retailers' competition for sales is fierce and creates downward pressure on prices.

Coffee products are often competitively priced in Germany (some are even loss leaders): they are subject to stiff competition on pricing, and purposely positioned in (nearly) constant promotional schemes to attract consumers (retailers want to attract consumers to their stores; roasters want to attract them to their brands).

Although the development of coffee private labels created competition that drove down prices, national brands accounted for most sales in 2021 in Germany.

GCT is an excise duty specific to the German coffee market and generated 1 billion euros in revenue for the German Federal State in 2021.

[66] Ibid.
[67] Lebensmittel Praxis, "Lidl-Rösterei startet in Rheine", April 2022
[68] Mario Hielscher Brück et MarioHielscher Brück Henryk, « In Lidls Gigafactory », WirtschaftsWoche, no 043 (2020): 014.
[69] Data available on ProdCom on roasting industry
[70] Ibid.
[71] Comtrade database on coffee imports and re-exports available here: https://comtrade.un.org/

5. DISTRIBUTION OF VALUE, COSTS, TAXES, AND NET PROFIT MARGINS ALONG COFFEE VALUE CHAINS

5.1. INTRODUCTION: BACKGROUND TO ESTIMATES

To better understand the estimates presented in the following sections, Figure 14 below summarizes the main cost components which have been modelled for each stage of the chain.

As illustrated in Figure 14, **the share of value should not be mistaken for net profits or benefits.** Each actor along the chain uses its share of value to cover its internal costs, and potentially make a net benefit once all costs have been paid:

- **Retail**. The retailers' share of value is the money left when they have paid the suppliers. Retailers use this money to pay their employees (those dedicated to the coffee section and those mutualized at the level of shops as well as headquarters), manage their stores (costs of real estate, electricity), organize the procurement and logistics through their distribution centres, invest in advertisement campaigns, pay their taxes and financial expenses. The remaining balance, if any, is net profit. The quantified estimates are based on the detailed analysis conducted each year by the French Observatory on Prices and Margins of Food Products[72] whose data is representative of the diversity of retailers' modes of business (network of independent stores, vertically integrated companies – publicly listed or family-owned). It is then adapted to the German retail sector based on relevant studies, notably "Die Kosten des Schweizer Detailhands im internationalen Vergleich" from BAK Basel in 2017.

- **Roasting and finished product manufacturing.** The share of value accruing to final product manufacturing (undertaken by national and international brands, and also by manufacturers on behalf of retailers' private labels) is the amount of money they get after deducting the payments to their own suppliers. Roasters use this money to pay their employees (the brands' sales force to promote products on retailers' shelves as well as mutualized personnel working in factories and in headquarters on R&D, marketing, finances, etc.), invest in annual advertisement campaigns (especially for brands' best-seller products), cover their costs of manufacturing (energy, packaging, machinery) and logistics (to the distribution centres of retailers), pay taxes and financial expenses, plus a potential net profit. The annual discounts given back to retailers are accounted for as "other additional costs" of marketing.

- **International transport, European logistics, and trading.** The share of value accruing to International transport, European logistics, and trading is the amount of money they get after deducting the payments to their own suppliers. Companies use this money to cover the costs of their logistics (such as warehousing, transport, freight, insurance), wages, taxes and financial expenses, plus a potential net profit.

- **Collection and export.** The share of value accruing to coffee trading in producing countries is the amount of money companies get after deducting the payments to their own suppliers. Companies use this to cover the costs of logistics and warehousing as well as packaging, plus the costs of covering foreign-exchange risks, wages, government taxes directly related to coffee trading, as well as corporate income tax, and other financial expenses, plus a potential net profit.

- **Coffee cultivation.** The coffee farmers' share of value in our estimates is the farm income. The net income is estimated by deducting the production costs, including coffee workers' wages (when seasonal or permanent hired labour is used on the farm) and costs of farm inputs (such as agrochemicals, water, and energy). For this stage, data and modelization only permitted estimates to be made on costs and net farm coffee income[73] for all coffee farm archetypes – except the Brazilian coffee plantation over 50 ha[74] for which there is an estimated breakdown of costs, taxes, and net profit margin. The net profit margin shown on estimates is therefore only the one of Brazilian coffee plantation over 50 ha.

[72] https://observatoire-prixmarges.franceagrimer.fr

[73] Total farm coffee income per kilogram is based on the coffee farmgate price obtained from a dedicated database. Net farm coffee income is calculated as total coffee income minus costs of coffee production. 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).

[74] For further details on archetypes of coffee farms in Brazil, please see the country report on Brazil available in the annex in paragraph 13.1.

STAGE OF VALUE CHAIN	COSTS, TAXES, AND NET PROFIT MARGINS
Retail	Coffee department staff costs Other costs linked to the department Other in-store staff Real estate Financial expenses Other mutualized costs: marketing, administrative Transport (private label) Corporate income tax Other taxes Net profit margin
Roasting & Finished product manufacturing	Personel for manufacturing Industrial costs including energy cost Packaging materials Warehousing and storage Transport Amortization of machinery Administrative costs R&D Sales force Marketing including advertising Corporate income tax Net profit margin
International transport, European logistics and trading	International freight Warehousing and storage Trading and administrative costs, other financial expenses Corporate income tax Net profit margin
Collection and Exportation	Processing Logistics including road freight Warehousing and storage Trading and administrative costs, other financial expenses Coffee taxes Corporate income tax Net profit margin
Agricultural production	Tree planting Fertilizers Pesticides Irrigation Weeding Labour (wages and social contribution of seasonal or permanent workers) Machine rental Processing Depreciation Contributions to producer organisation (equity fee) Other Net income

Figure 14. Overall framework used to estimate the value distribution along coffee chains. Source: BASIC

5.2. RESULTS FOR THE GERMAN COFFEE MARKET

5.2.1. Global view of results

The model estimates:

- The detailed distribution of value, costs, tax, and net profit margins from Collection and export in Brazil, Colombia, Ethiopia, and Vietnam, to consumers in Germany,
- The detailed distribution of value, costs, tax, and net income for Coffee production in Brazil, Colombia, Ethiopia, and Vietnam (except for the Brazilian coffee plantation over 50 ha for which there is an estimated net profit margin),
- A range of coffee products: ground coffee, whole beans, soft pods, and capsules (aluminium and plastic combined),
- In the conventional market as well as the certified market (analysing two certification schemes: RA and Fairtrade).

A total of 41 coffee products were modelled. Together, these products accounted for 3 billion euros[75] of consumer sales in 2021.

These coffee products vary in terms of:

- blends: single origin or not, 100% Arabica or blend of Arabica/Robusta,
- format: ground coffee, whole beans, soft pods, capsules (plastic and aluminium),
- type of brand: national brand or private label,
- type of distribution channel: retailers' shops or discounters' shops,
- type of certification: no label, RA, Fairtrade.

Out of the 41 coffee products modelled, the top 10 represent a market share of over 80% of the 2021 coffee market.

Figure 16 shows the results of the estimates – weighted average of the distribution of value (bar on the left) and costs, taxes, and net profit margins (bar on the right) – for the aggregation of all 41 coffee products described earlier.

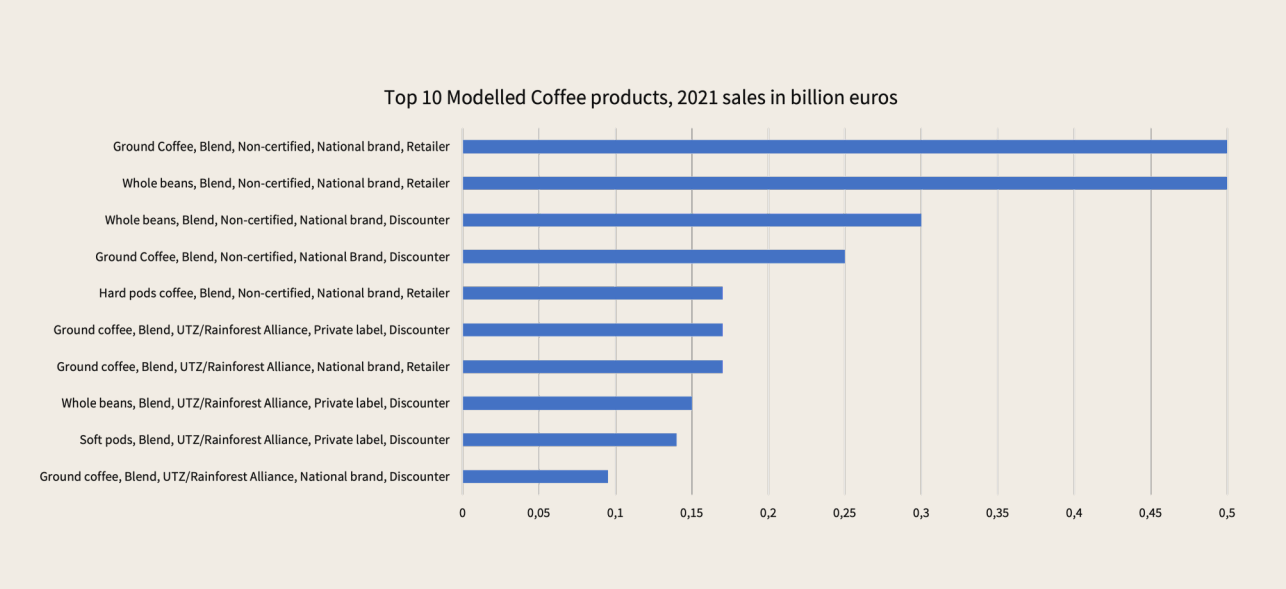


Figure 15. Top 10 modelled coffee products, 2021 sales in billion (excluding instant coffee, excluding organic certification). BASIC 2024 based on Circana 2023

[75] Including VAT and German coffee tax

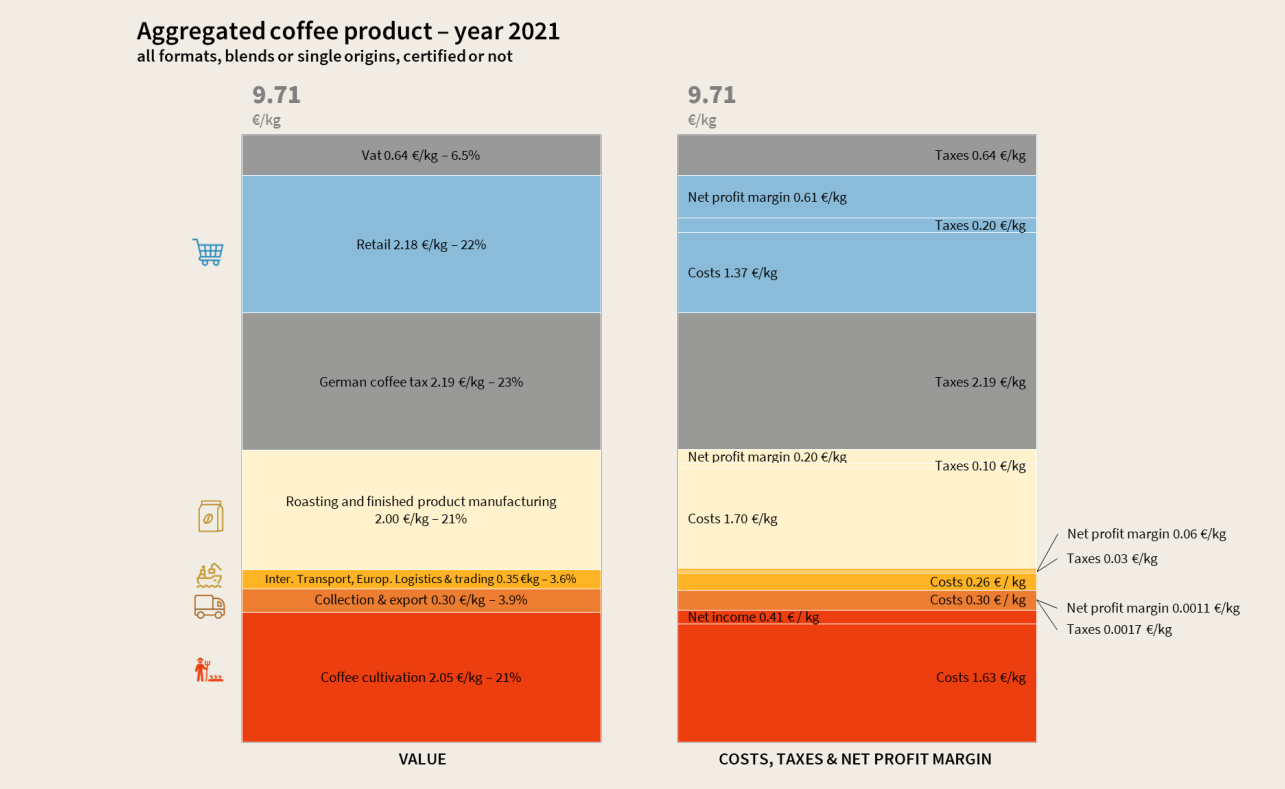


Figure 16. Distribution of value, costs, taxes, and net profit margins for the aggregation of all 41 coffee products modelled on the German market. Source: BASIC, 2024

The bar on the left-hand side shows the distribution of value between the different stages of the chain from:

- Coffee cultivation (at bottom in red), up to farmgate,
- Collection and export (orange), the supply chain in the producing country, from farmgate up to free on board (FOB),
- International transport, European logistics, and trading (yellow), from FOB to the gate of the roasting factory,
- Finished product manufacturing and branding (beige), from the gate of the factory to the gate of retailers' purchasing centre,
- Retail (blue), grocery retailers and discounters' distribution channels, from their purchasing centre up to the cashier and the hand of the final consumers.

The bar on the right-hand side shows the breakdown between costs, taxes, and net profit margins for each component/share of value indicated on the left. The black numbers on top indicate the weighted average consumer prices, while the ones at the bottom give the market share of 2021 sales.

The first main observations that can be made from the diagram are:

- The average price of coffee products sold in German retail stores is 9.71 euros/kg.
- The total value is evenly distributed between Retail stage, Roasting stage, the GCT, and Coffee cultivation. Each stage accounts for between 21% and 23% of the total value. The remaining value accrues to the International transport stage and Collection and export stage (amounting collectively to 6.8% of total value), and VAT (6.5%).
- Once operational costs and taxes are deducted, accumulated net profit margins along the chain amount to 11% of the price to consumers of the aggregated coffee product in Germany 2021 (1.09 euros/kg). The two stages of retail and roasting account for the two highest net profit margins: 0.20 euros/kg for roasting (equivalent to 4.3% of roasters' total sales) and 0.61 euros/kg for retail (equivalent to 6.7% of retailers' total sales).
- In contrast, the coffee farmers generate 2.05 euros/kg of value and an estimated 0.41 euros/kg of net income.[76]
- These first observations relate to the aggregated coffee product displayed above in Figure 16. When looking at individual modelled product, the value and costs distribution change, and therefore the profitability at each stage changes too.

Starting from these global estimates, the following pages provide an initial analysis of the drivers that influence the distribution of value and costs along the German coffee chains, for each of the different products modelled. It allows us to go further than aggregated views and averages to get a more detailed picture of the value and costs distribution attached to each product sold on the German market.

[76] At the Coffee cultivation stage, data and modelization only permitted estimates on costs and net farm coffee income to be built for all coffee farm archetypes – except the Brazilian coffee plantation over 50 ha for which there is an estimated breakdown of costs, taxes, and net profit margin.

KEY TAKEAWAYS

- Average price of 41 modelled coffee products sold in Germany was 9.71 euros/kg in 2021.
- Retail, Roasting and Coffee cultivation stages and the GCT each amount to between 21% and 23% of the total value.
- Once costs and taxes are deducted, cumulated net profit margins amount to 1.09 euros/kg, 11% of total retail value.
- Highest net profit margins are generated by the Retail stage (0.61 euros/kg) and Roasting stage (0.20 euros/kg). The lowest is generated by Collection and export (0.0017 euros/kg).

5.2.2. Influence of formats and types of brands

Comparison between the two leading formats in 2021 sales: ground coffee and whole beans

Following our analysis of the German sector, two important factors to investigate are the type of brand and the format. The following figures show the impacts that these two factors have on the distribution of value and costs of coffee products.

For national brands, the value and cost, taxes, and net profit margin distribution of ground coffee and whole bean formats can be seen in Figure 17:

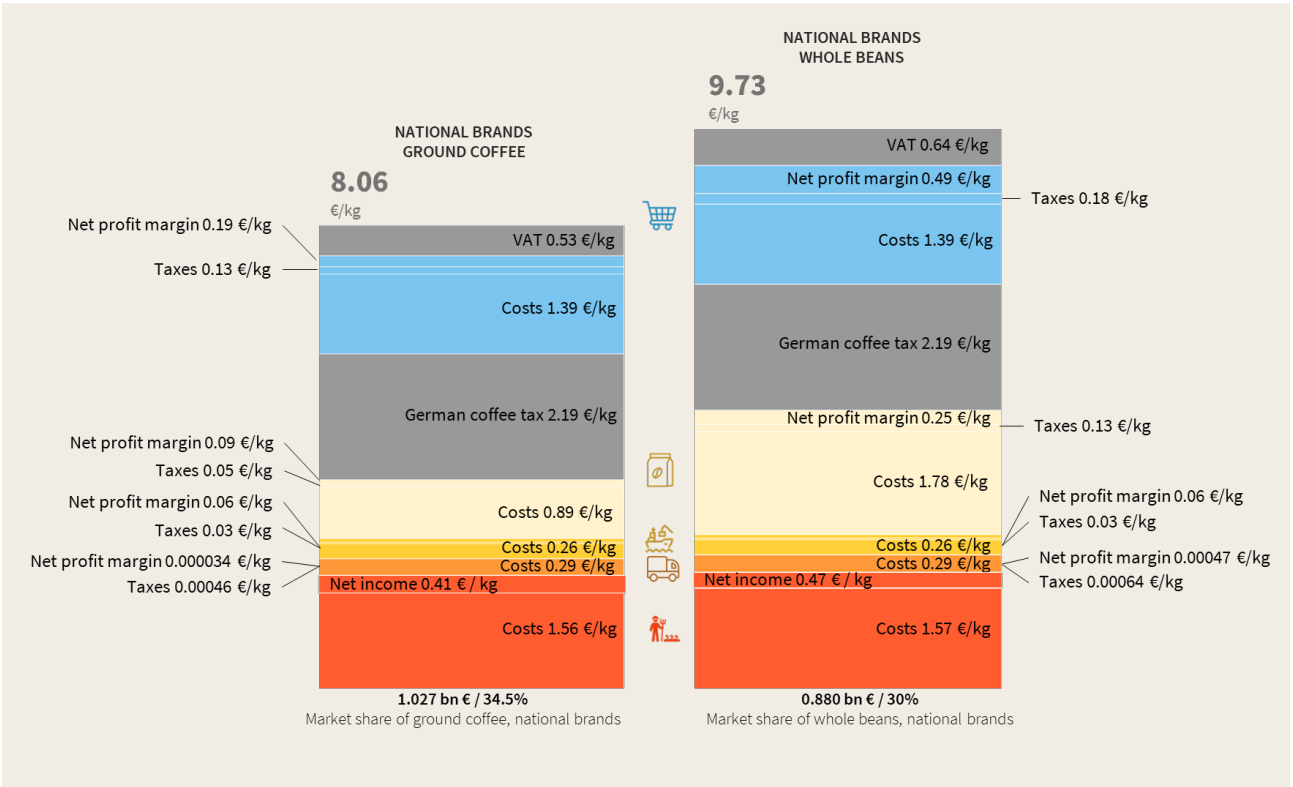


Figure 17. Distribution of value, costs, taxes, and net profit margins for national brands in ground coffee and whole bean formats, including RA and FT certified products, sold in Germany in 2021. Source: BASIC 2024

When figures for national brands' ground coffee and whole beans are compared to those for the aggregated coffee product sold in Germany in 2021, the following observations can be made:

- The final consumer price on national brands for ground coffee is lower than the price of the aggregated coffee product shown in Section 5.2.1; but the final consumer price on national brands whole beans is higher. Both national brands' products were sold at 8.06 euros/kg and 9.73 euros/kg while the aggregated coffee product was valued at 9.71 euros/kg in 2021.
- The higher the final price to consumer, especially on national brands' whole beans, the more value is created for distribution along the chain:
  - The share of value[77] at Retail stage decreases slightly for ground coffee and whole beans when compared to the aggregate, amounting to 21% on both products for national brands.
  - The share of value at the Roasting stage decreases to 12% of total value for national brands' ground coffee when compared to the aggregate. It goes up for national brands' whole beans, to 23%.
  - The combined share of value at International transport and Collection and export stage is 9.9% for ground coffee and 6.7% for whole beans. The share of value at Coffee cultivation stage is 24% on national brands' ground coffee and 21% on national brands' whole beans (21%).
  - The share of value accruing to the GCT amounts to 27% for national brands' ground coffee and 22% for whole beans but is stable in terms of euros/kg.

- Once operational costs and taxes are deducted, estimates show the net profit margin at the Retail stage amounts to 0.19 euros/kg on ground coffee and 0.49 euros/kg on whole beans. At Roasting stage, the net profit margin amounts to 0.09 euros/kg on ground coffee and 0.25 euros.kg on whole beans.
- The value accruing to Coffee cultivation is 1.97 euros/kg on national brands' ground coffee and 2.03 euros/kg on national brands' whole beans. The net income for small and medium sized coffee farmers, Brazilian farms over 50 ha not included, is estimated at 0.41 euros/kg on national brands' ground coffee and 0.47 euros/kg on national brands' whole beans. This net income includes remuneration for (family) labour. Net profit margin for coffee cultivation by entrepreneurial Brazilian coffee plantations over 50 ha is 0.19 euros/kg on both products.

Estimates for ground coffee and whole beans sold under private labels can be seen in Figure 18:

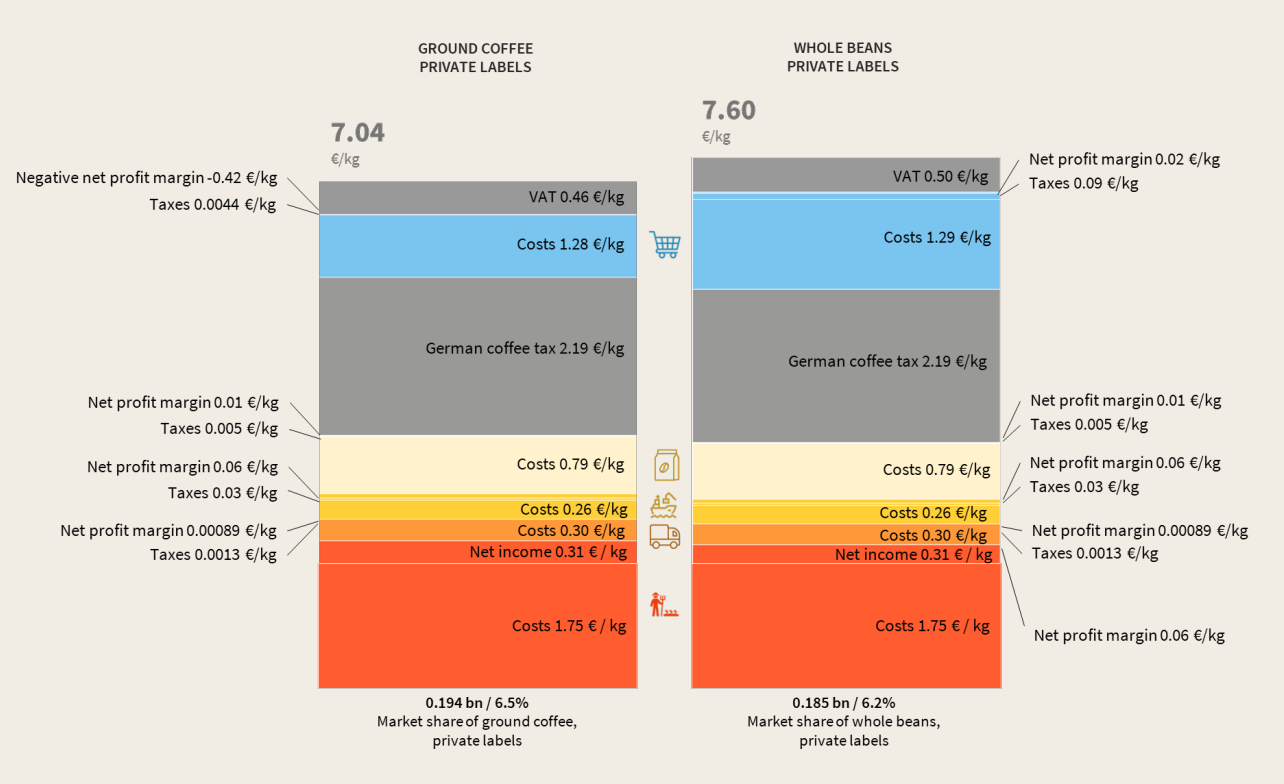


Figure 18. Distribution of value, costs, taxes, and net profit margins for private labels in ground coffee and whole beans formats, including RA and FT certified products, sold in Germany in 2021. Source: BASIC 2024

[77] Sum of costs, taxes, and net profit margins to calculate share of value.

When figures for private labels' ground coffee and whole beans are compared with the aggregated coffee product sold in Germany in 2021, the following observations can be made:

- The final consumer price on private labels for ground coffee and whole beans is lower than the price of the aggregated coffee product. The private labels' ground coffee and whole beans are sold at 7.04 euros/kg and 7.60 euros/kg respectively while the aggregated coffee product was sold at 9.71 euros/kg in 2021.
- There is therefore less total value created on both products along the chain, and this reflects on the share of value[78] accruing to each stage. Comparing the estimates on private labels' ground coffee and whole beans to the aggregated coffee product, we note that:
    - The share of value on ground coffee at the Retail and Roasting stages goes down, from 22% and 12% to 12% and 11%, respectively. On whole beans, compared to the aggregate, the share of value is also lower at Retail stage (18%) and Roasting stage (11%).
    - The combined share of value at the International transport and Collection and export stage increases, from 6.5% to 9.2% on ground coffee, and 8.6% on whole beans. The share of value at Coffee cultivation stage also increases, from 23% to 29% on ground coffee and 27% on whole beans.
    - Finally, the share of value accruing to the GCT increases from 23% to 31% on ground coffee and 29% on whole beans, although it also remains the same in absolute terms.

- Once the operational costs and taxes are deducted, estimates on net profit margins are different between the private labels' ground coffee and private labels' whole beans:
    - On private labels' ground coffee, the total net profit margin amounts to -0.02 euros/kg, notably because of the negative net profit margin at Retail stage estimated at -0.42 euros/kg (-6.3% of their total sales).
    - On private labels' whole beans, the total net profit margin amounts to 0.42 euros/kg, an estimated 5.5.% of the total value.

With this first set of comparisons, estimates highlight that the aggregated coffee product flattens significant differences between coffee products in terms of value and cost distribution.

Estimates show that national brands' products are more profitable for the Retail and Roasting stages. While the Retail stage generates a negative net profit margin on private labels' ground coffee (-0.42 euros/kg), it also records a higher positive net profit margin on national brands' whole beans (+0.49 euros/kg). This reflects the assortment strategy of retailers and discounters, where higher net profit margins on products for potentially more wealthy consumers can compensate for lower net profit margins on products purposely sold at a low price to attract consumers to the store.

The Roasting stage always generates a positive, although small, net profit margin. Roasters have less variations than the retailers in terms of net profit margins, but they do have higher fluctuations in their operational costs. Estimates at roasting stage between private labels and national brands clearly highlight that there are two different business models at play in roasting for private labels and for national brands. Business models of companies specializing[79] in supplying retailers' private labels operate with a low net profit margin on high volumes. They usually do not have to factor in the costs of marketing, advertising, and R&D that national brand companies do (or at least, not to the same degree). They have already invested in their production infrastructure and try to maximize its use and efficiency to sustain their profitability. In contrast, national brands belong to companies which continuously invest in a production infrastructure to create a unique product which can differentiate itself on the market. They strive to promote it to maintain this difference against competitors, which involves continuous R&D, heavy advertising, and regular negotiations with retailers, which require the development and maintenance of a significant salesforce team.

Finally, operational costs at roasting stage are different for national brands' ground coffee and whole beans because of the assumption on allocating the fixed costs to the products with higher value (see section 2.3, 'Assumptions'). Variable costs (notably energy and labour), cross-checked with industry stakeholders, are the same for ground coffee and whole beans. But, due to low prices/low creation of value on some formats (here on ground coffee sold under national brands), all the fixed costs cannot be covered by the selling price to their client. Therefore, the model allocates fixed costs (i.e., salesforce, marketing, advertising, R&D, headquarters payroll, real estate, and financial costs) to the products with higher value.

[78] Sum of costs, taxes, and net profit margins to calculate share of value.
[79] Note that some national brand companies can also supply retailers and discounters' private labels, and would apply the business model described above on this specific part of their business.

The International transport and Collection and export stages ensure profitability by generating small net profit margins on big volumes. Actors from the International transport and Collection and export stages also have the capacity to balance their portfolio between profitable and non-profitable (even risky) origins to ensure overall profitability,

Conversely, the Coffee cultivation stage generates an estimated net income of 0.41.euros/kg on ground coffee and 0.47 euros/kg on whole beans for national brands. The small variations between both formats are explained by the differences in the mix of origins. On private labels, the Coffee cultivation stage generates an estimated net income of 0.31 euros/kg on both ground coffee and whole beans.

KEY TAKEAWAYS

- Estimates show that national brands' ground coffee and whole beans are sold at a higher price to consumers than their equivalents sold under private labels, at +14.5% and +28%, respectively.
- Although the higher price means more value is created, estimates show the increase is not proportionately shared along the value chain. Net profit margins can vary greatly at the retail and roasting stages, the highest ones being generated on national brands' ground coffee and whole beans, which represent 33% and 30% of the sales in the 2021 German coffee market respectively.
- Conversely, the share of value and net profit margins remains stable for the upstream stages.
- Estimates indicate a disconnection between variations in profitability at Retail and Roasting stages, and stagnation at the Coffee cultivation stage.

Comparison between the two ends of the final consumer price spectrum: ground coffee and capsules

To deepen the analysis of the impacts of brands and format on the value and costs distribution, it is interesting to compare ground coffee to capsules, for both private labels and national brands (see Figures 19 and 20).

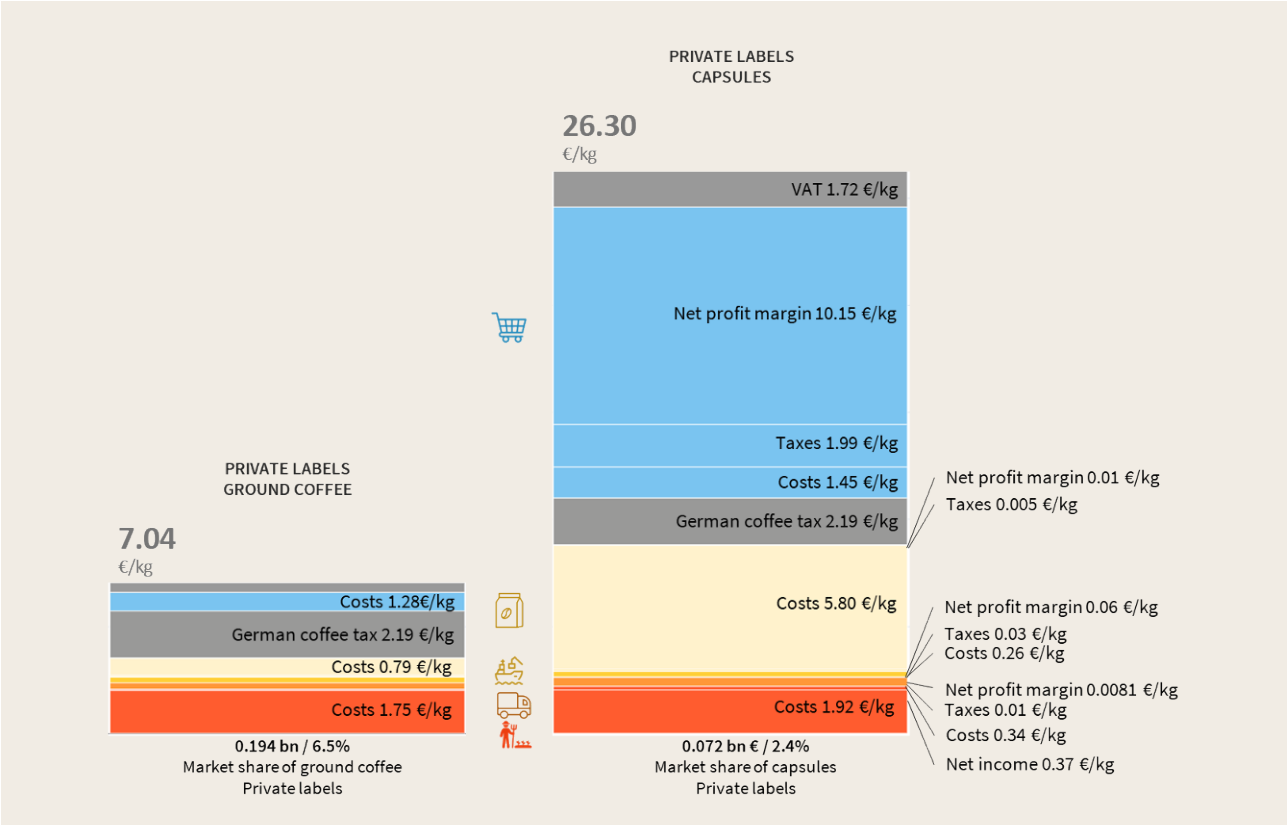


Figure 19. Comparison of distribution of value, costs, taxes, and net profit margins for private labels, ground coffee and capsules, no label, sold in Germany in 2021. Source: BASIC 2024

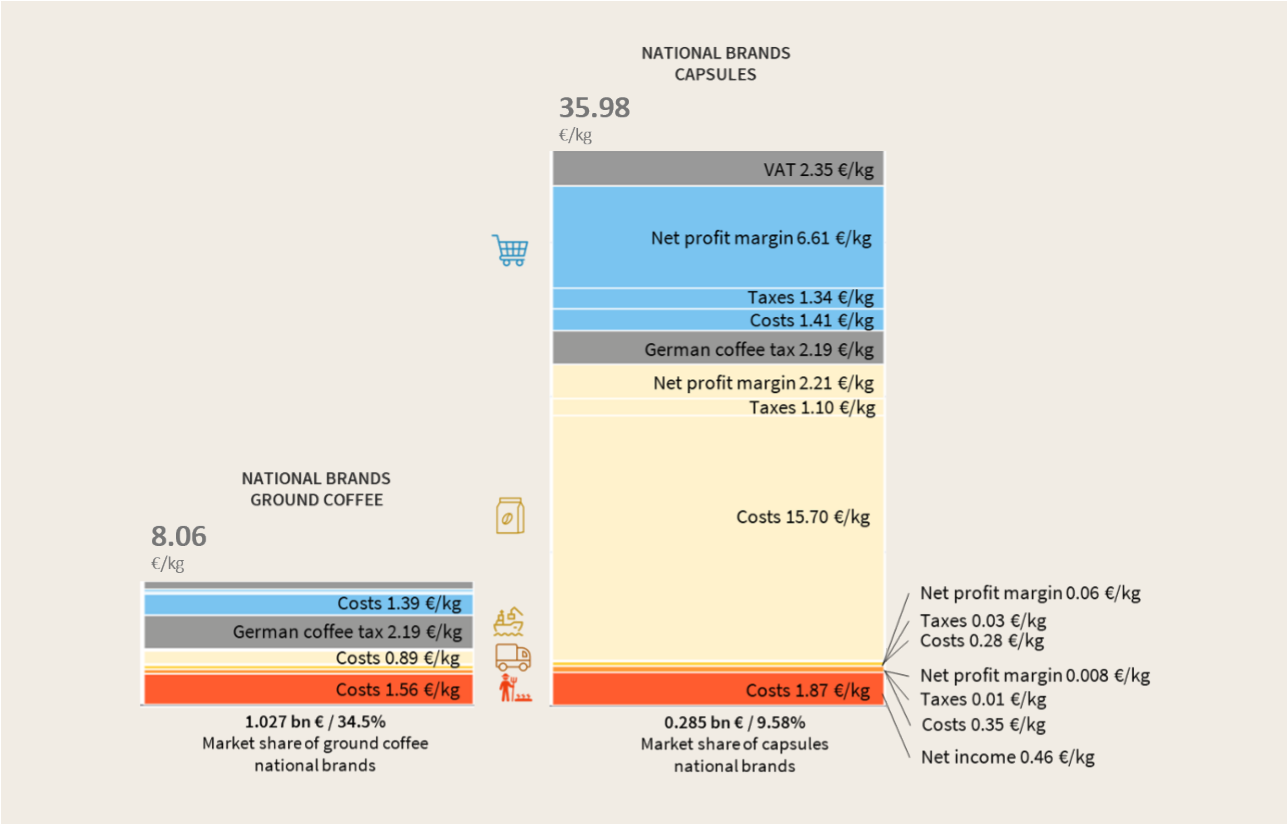


Figure 20. Comparison of distribution of value, costs, taxes, and net profit margins for national brands, ground coffee and capsules, including RA and Fairtrade certified products, sold in Germany in 2021. Source: BASIC 2024

Ground coffee and capsules represent the two extremes of the spectrum for both private labels and national brands:

- The final consumer price on capsules sold under private labels and national brands is significantly higher than that of ground coffee: in 2021, this has been estimated at 26.30 euros/kg for capsules sold under private labels and at 35.98 euros/kg for capsules sold under national brands.
- Consistent with the results already seen, the extra value created does not evenly affect the value and costs' distribution:
    - On both private labels and national brands' capsules, the share of value at the Retail stage and Roasting stage increases, both in percentage terms and by euros/kg. At the Retail stage, the share of value between ground coffee and capsules sold under private labels increases by +12.71 euros/kg (x14), and on national brands' equivalents by +7.66 euros/kg (x5.5). At the Roasting stage, the share of value on private labels increases by +5 euros/kg (x7) and on national brands by +17.99 euros/kg (x19).
    - Once again, the combined share of value at the stages of International transport and Collection and export remains stable in euros/kg and decreases in percentage terms for the final price to consumers.
    - The share of value at the Coffee cultivation stage increases slightly in euros/kg, amounting, in private labels, to 2.29 euros/kg and in national brands' capsules to 2.33 euros/kg. This is explained by the different origins for ground coffee and capsules: while the former comes from Brazil and Vietnam, the latter is a mix of the four origins.
- Once the operational costs and taxes are deducted, estimates show strong fluctuations in the net profit margins:
    - On private labels' capsules, the total net profit margin amounts to 10.54 euros/kg (41% of total value). The net profit margin at the Retail stage increases sharply from a negative -0.42 euros/kg on private labels' ground coffee to a positive +10.15 euros/kg on private labels' capsules. At roasting stage, their net profit margin remains the same at 0.01 euros/kg.
    - On national brands' capsules, the cumulated net profit margins amount to 9.11 euros/kg, an estimated 25% of total value. The net profit margin at the Retail stage decreases when compared to private labels' capsules and amounts to 6.61 euros/kg, while it increases at the Roasting stage and amounts to 2.21 euros/kg. The remaining stages generate a small net profit margin. The value at Coffee cultivation stage amounts to 2.33 euros/kg.
    - For both retailers and roasters, estimates show a capacity to generate a high net profit margin on national brands' capsules (and for retailers, on private labels' capsules too). Although these net profit margins are significantly higher, they are made on the small market share that capsules represent (see Figure 8).

With this second set of comparisons, estimates show that differences between products can be even higher than that between ground coffee and whole beans.

Variations are greater at the Roasting and finished product manufacturing stage: roasters' net profit margin goes from 0.01 euros/kg on private labels to 2.21 euros/kg on national brands.

For private labels, low net profit margins are explained by the business models of retailers investing in the coffee supply chain, and roasters supplying retailers' private labels. Some retailers have vertically integrated their coffee private labels' supply chains up to roasting. Their factories roast and manufacture their coffee products at cost, and profitability is generated at Retail stage. Other roasters, supplying retailers' private labels, often run a business with low profitability. On the specific capsule market for private labels, suppliers are also at cost, squeezed between high costs for packaging and low selling prices due to fierce competition over retailers' tenders.

As previously explained, the business models of the national brands differ, and cover operational costs that private labels mostly do not have. They need to create and maintain their brands in the consumption landscape, triggering costs ranging from advertising on different channels to a dedicated salesforce. They also need to innovate to sustain consumers' loyalty to their brands, leading to R&D costs. In recent years, innovation in the coffee sector was propelled by the desire to repeat the Nespresso breakthrough: some companies developed their new format for their own machines, with different levels of success.

Across the formats, estimates show that actors at the stages of International transport and Collection and export generate a consistent net profit margins with slight variations. For instance, the net profit margin at the Collection and export stage increases by +0.34 euros/tonne between ground coffee and whole beans, and by +0.008 euros/kg between ground coffee and capsules.

As evidenced already with the first set of comparisons between ground coffee and whole beans, upstream stages remain stable across formats and types of brands. At the Coffee cultivation stage, notwithstanding the variation in origins, estimates show the share of value accruing to this stage as 1.97 euros/kg on national brands' ground coffee at minimum, and 2.33 euros/kg on national brands' capsules at maximum.

Estimates on capsules support the analysis that the capacity to create and capture value and profitability on coffee products mostly lies in the Retail stage and Roasting and finished product manufacturing. This asymmetry seems to show a disconnection of the downstream stages from the upstream stages. The capacity to create and capture value seems to relate more to downstream factors (marketing positioning, advertising, and/or brand reputation) than the coffee per se.

KEY TAKEAWAYS

- Estimates show that the final price to consumers has more than tripled on capsules compared to ground coffee: in Germany in 2021, capsules under private labels were sold, on average, at 26.30 euros/kg and their national brands' equivalent at 35.98 euros/kg.
- Consistent with the analysis comparing ground coffee to whole beans, estimates show that the increase in value creation mostly accrues to the Retail and Roasting stages.
- Higher net profit margins at the Retail and Roasting stages should be put in perspective with the size of the market represented by the capsules: both private labels and national brands' capsules amounted to a 1% market share of the 2021 German sales.
- Net profit margins are low but stable across products at the International transport and Collection and export stages. Actors involved in these two stages ensure profitability thanks to volumes.
- Conversely, the share of value and net profit margins remain stable for the upstream stages.
- Estimates on capsules underline that there is an asymmetry between the high share of value accruing to the Retail and Roasting stages compared to the low share of value accruing to the Coffee cultivation stage.

The share of value accruing to the GCT remains the same in absolute terms as it is a flat rate but varies from 31% of the total value of private labels' ground coffee to 6% of the total value of national brands' capsules.

5.2.3. INFLUENCE OF CERTIFICATIONS: RAINFOREST ALLIANCE AND FAIRTRADE

Certification standards represent the third driver impacting the value and cost distribution. Due to data constraints (see section 3, 'Limitations'), estimates were possible only for RA and Fairtrade.

This section focuses on the potential differences between coffee products which are not certified, those certified under RA and Fairtrade, and those which are governed by other certifications in the German market. To simplify the analysis, it was decided not to differentiate between national brands and private labels for certified coffee products or formats, but all detailed value and costs distributions are available in the online tool: https://value-chain-observatory.basic.coop/

Costs and prices of Rainforest Alliance and Fairtrade certification standards

To reflect the costs related to RA and Fairtrade, the cost structure of the model has been updated as shown in Figure 21:

STAGE OF THE VALUE CHAIN	COST	INCREASED / NEW COST	APPLICABLE	COMMENT
Retail	Coffee department staff costs Other costs linked to the department Other in-store staff Real estate Financial charges Other mutualized costs : marketing, admin Transport (private label) Corporate income tax Other taxes Net profit margin			
	Certification royalty (private label)	New cost	Rainforest Alliance, Fairtrade	
Roasting & Finished product manufacturing	Personel for manufacturing Energy Packaging materials Warehousing Transport Depreciation Administrative costs R&D Sales force Marketing Corporate income tax Net margin			
	Increased cost of small production batches	Increased exisiting cost of logistics	Fairtrade	
	Traceability cost	Increased exisiting cost of logistics	Rainforest Alliance, Fairtrade	
	Certification cost	New cost	Rainforest Alliance, Fairtrade	
	Certification license fee	New cost	Rainforest Alliance, Fairtrade	
International transport and logistics	Freight Storage Trading and admin Corporate income tax Net margin			
	Traceability cost	Increased exisiting cost of logistics	Rainforest Alliance, Fairtrade	
	Certification cost	New cost	Rainforest Alliance, Fairtrade	
Collection and Export	Processing Transport Storage Trading and admin Coffee taxes Corporate income tax Net margin			
	Administrative costs and Internal control system	New cost	Fairtrade	Not estimated due to data limitations
	Cooperative governance costs	New cost	Fairtrade	Not estimated due to data limitations
	Premium collective investments	New cost	Fairtrade	
	Traceability cost	Increased exisiting cost of logistics	Rainforest Alliance, Fairtrade	
	Certification cost	New cost	Rainforest Alliance, Fairtrade	
Agricultural production	Tree planting Fertilizers Pesticides Irrigation Weeding Picking labour Machine rental Processing Depreciation Contributions to producer organisation (equity fee) Other Net income			
	Administrative and compliance costs to good agricultural practices	New cost	Rainforest Alliance, Fairtrade	Not estimated due to complexity of estimating and data limitations

Figure 21. Overview of the costs structure for the model, with additional/increased costs related to the RA and Fairtrade certified supply chains. BASIC 2024

Both certification standards trigger new costs and/or increase existing costs. It was not possible to estimate all the costs listed in Figure 21 (see section 3, 'Limitations').

Prices are also different in RA and Fairtrade certified supply chains (see Figure 22).

Ground coffee		With no consumer-facing certification	With RA certification		With FT certification	*Comment*
Retail price per kilo		**€7.97**				
VAT	Taxes	€0.52				
Retail	Net profit margin Taxes Costs	€0.16 €0.12 €1.40	n.d.		n.d.	
German Coffee Tax	Taxes	€2.19				
Roasting & Finished product manufacturing	Net profit margin Taxes Costs	€0.09 €0.04 €0.85	+0.03€	*RA license fee*	+0.22€	*Fairtrade license fee + certification cost*
International transport & logistics	Net profit margin Taxes Costs	€0.06 €0.03 €0.26	+0.0009€	*Certification cost*	+0.00085€	*Certification cost*
Collection & Export	Net profit margin Taxes Costs	€0.0000027 €0.0000041 €0.29	+0.09€	*Certification and traceability cost*	+0.45€	*FT premium invested in development of the cooperative, plus certification fee*
Agricultural production	Net coffee farm income Costs	€0.42 €1.55	+0.04€	*30% of FOB premium*	FT Minimum price non operationnal in 2021	

Figure 22. Overview of the prices included in the model to RA and Fairtrade certified supply chains. BASIC 2024

Rainforest Alliance certified coffee products

Premiums (split into the sustainability differential and the sustainability investment)[80] are different for Arabica and Robusta beans. These premiums are not fixed as in cocoa, and they fluctuate by country depending on supply and demand.

RA certification is quite widespread: in Germany, around 20% of 2021 retail coffee sales were certified under RA. Figure 23 displays the value and cost distribution of the RA whole bean products compared to their equivalent without the RA standard.

Before comparing estimates of the non-RA certified whole bean and the RA certified whole bean, it should be noted that:

- RA certified coffee often comes from coffee plantations which have, on average, a production system with notably high(er) yields. Notwithstanding the RA certification, these farms tend to be more profitable than the average coffee farm.
- Conclusions on estimates should also be drawn carefully as insufficient data was available to estimate all the impacts of RA standard on production costs (see section 3, 'Limitations').

Bearing these factors in mind, the comparison between the RA and non-RA certified whole beans leads to the following observations:

- The final consumer price on RA certified whole bean products is lower than the price of the aggregated whole bean coffee product: -1.39 euros/kg. This is mainly explained by the high proportion of cheaper private label products in RA coffee sales.
- Once operational costs and taxes are deducted, estimates on value at Coffee cultivation stage show an increase from 1.97 euros/kg on non-RA certified whole beans to 2.08 euros/kg on RA certified whole beans.[81] The net profit margins at the Roasting and Retail stages are lower for RA certified whole beans than non-certified beans: Roasting minus 0.15 euros/kg, and Retail minus 0.35 euros/kg.

The main difference between non-RA and RA certified supply chains relates to the value accruing at Coffee cultivation stage: estimates indicate that there is an increase in value accruing at this stage. The estimates on other formats – ground coffee, soft pods, and capsules – lead to the same observations and analysis.

[80] Rainforest Alliance, "Sustainability differential and sustainability investments. Coffee sector guidance", 2021.

[81] The Coffee cultivation stage of non-RA certified whole beans aggregates 12 different producer archetypes in the 4 countries in the study scope while the Coffee cultivation stage for the RA certified whole beans aggregates only two: the Brazilian coffee farm over 50 ha and the single archetype from Vietnam. Although both archetypes have rising costs of production for RA certified coffee, they still have lower costs of production per kg than other producers' archetypes of non-certified coffee – especially the Brazilian coffee farm over 50 ha. Both archetypes also generate higher profits from Coffee cultivation, reaching 0.36 euros/kg on RA-certified coffee production.

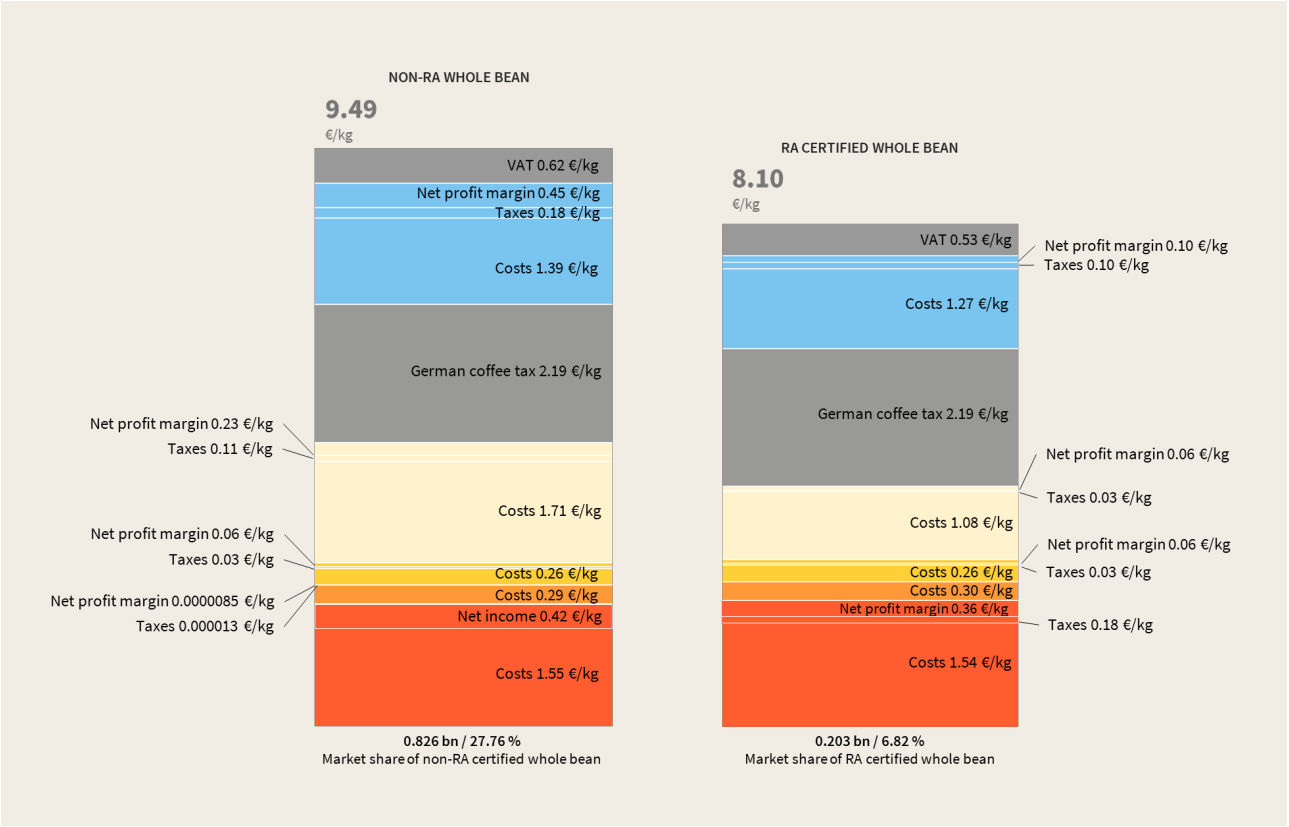


Figure 23. Comparison of distribution of value, costs, taxes, and net profit margins between non-RA certified whole bean coffee and RA certified whole bean, sold in Germany in 2021. Source: BASIC 2024

KEY TAKEAWAYS

- Because of the higher proportion of low-price private label products in RA sales, the price to consumers, on average, is lower than the non-certified equivalent. For instance, the price to consumers for RA certified whole beans is -1.39 euros/kg lower than the non-RA certified whole beans' price.

- Estimates show that the Coffee cultivation stage generates a bigger share of value. However, it should be noted that it was not possible to factor in all the differences in production costs under RA due to a lack of data. Therefore, the increase in value accruing to the Coffee cultivation stage should be analysed carefully.

Fairtrade certified coffee products

Fairtrade is based on commitments of business actors to enable smallholder farmers and workers to make a dignified living out of their work and invest collectively in the long term. To do so, the certification notably fixes a minimum price guarantee on Fairtrade coffee, and a Fairtrade premium[82] distributed to the producers' organizations for them to democratically decide how to spend it to reach their goals: by providing services and trade for farmers, improving health and education services in their communities, providing loans, etc.

Fairtrade certified coffee products represented 1.18% of the 2021 sales in Germany.[83] Figure 24 shows the value and costs distribution of the Fairtrade products compared to their equivalent without the Fairtrade:

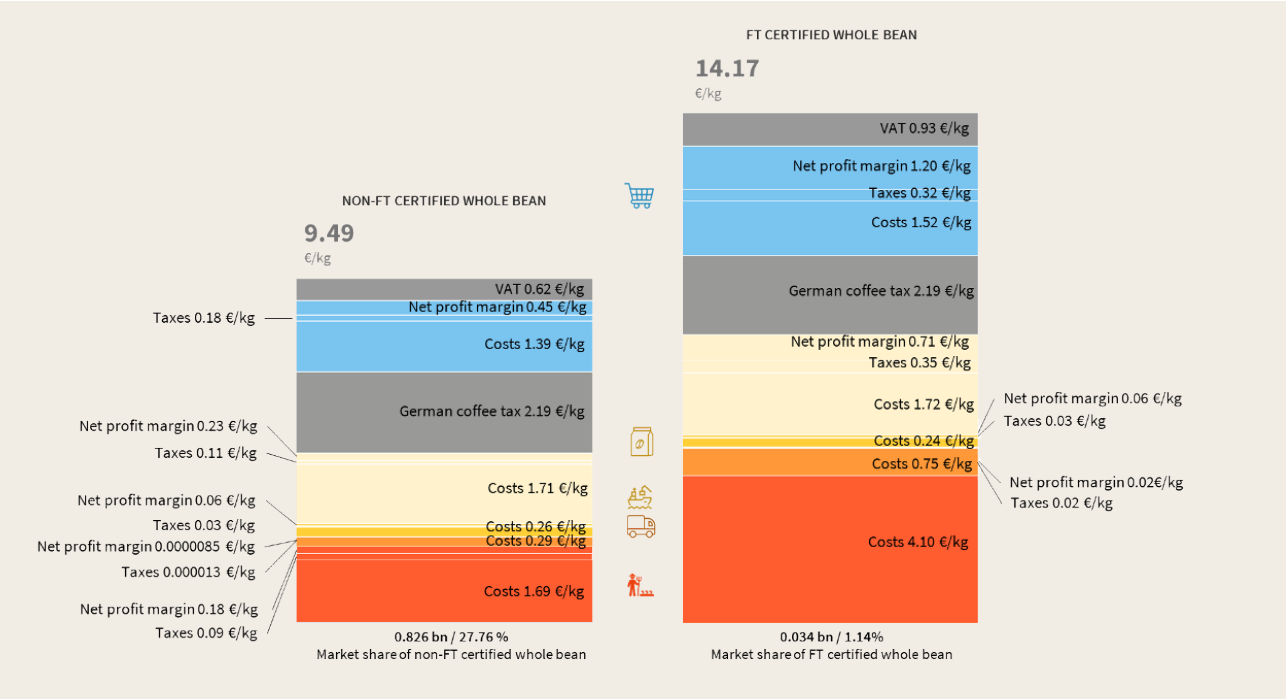


Figure 24. Comparison of distribution of value, costs, taxes, and net profit margins between non-FT certified and FT certified whole beans, sold in Germany in 2021. Source: BASIC 2024

Before looking at estimates on Fairtrade certified products, it should be noted that:

- Fairtrade certified coffee often comes from the most vulnerable coffee farms: those with the smaller plots, lower yields and/or the most remotely located.
- Conclusions on estimates should also be drawn carefully as insufficient data was available to estimate all the impacts of Fairtrade standard on production costs as well as for the producer organization (see section 3, 'Limitations').

The comparison between the two Fairtrade and non-Fairtrade certified whole beans leads to the following observations:

- The final consumer price on Fairtrade certified whole bean is higher than the price of the aggregated whole bean and increases by +4.68 euros/kg. In fact, Fairtrade coffee is mostly sold under national brands which tend to have a higher retail price.
- Once operational costs and taxes are deducted, estimates on net profit margins show an overall increase for all stages between Collection and export up to Retail. Net profit margin triples at Retail stage and at Roasting and finished product manufacturing. At the Coffee cultivation stage, value accruing increases from 1.97 euros/kg on non-FT certified whole beans to 4.10 euros/kg on FT certified whole beans.[84]

Fairtrade seems to create more value for the entire value chain which is redistributed among the Retail, Roasting and Coffee cultivation stages. The estimates on other formats – ground coffee, soft pods, and capsules – lead to the same observations and analysis.

[82] The Fairtrade premium is an extra sum of money producers' organizations earn on top of the Fairtrade sales (Fairtrade International, "Fairtrade premium spending on the sustainable development goals").
[83] It should be noted that sales of Fairtrade certified and Fairtrade and organic certified coffee products amounted to 4% of market share in 2021 Germany (excluding instant coffee).
[82] The Coffee cultivation stage of non-FT certified whole beans aggregate 12 different producer archetypes in the 4 countries in the study scope while the Coffee cultivation stage for the FT certified whole beans aggregates only two: the family farm from 10 to 20 ha in Brazil and the family from 2 to 5 ha in Colombia. Estimates show that both archetypes generated higher net farm coffee income on FT certified supply chains, hence the increasing share of value accruing to the Coffee cultivation stage on FT certified products.

KEY TAKEAWAYS

- Despite higher costs related to the Fairtrade certification scheme, the overall value created on Fairtrade certified coffee products is higher and profitability increases along the chain from Collection and export stage to Retail.

- At the Coffee cultivation stage, the value accruing to Fairtrade certified coffee family farms in Brazil and Colombia in 2021 was 38% higher (+2.13 euros/kg) than in the case of non-FT certified. However, it should be noted that it was not possible to factor in all the differences in production costs under the Fairtrade certification scheme due to a lack of data. Therefore, the increase in value should be analysed carefully.

6. TRANSVERSAL ANALYSIS

Methodological remarks and guidance on how to read the value and costs distribution figures

We study the distribution of value, costs, taxes, and net profit margins along the coffee value chain. Data and modelization made it possible to build estimates on the breakdown of costs, taxes, and net profit margins for the stages of Retail, Roasting & finished product manufacturing, International transport, European logistics & trading, and Collection & export in producing countries.[86]

For the stage of Coffee cultivation, data and modelization only permitted estimates to be made on costs and net farm coffee income[87] for all coffee farm archetypes discussed in this report – except the Brazilian coffee plantation over 50 ha[88] for which we built a costs, taxes, and net profit margin breakdown.

The figures in this report aggregate all coffee farm archetypes from Brazil (5 archetypes), Colombia (4 archetypes), Ethiopia (1 archetype), and Vietnam (1 archetype). The breakdown at Coffee cultivation stage encompassed all coffee farm archetypes (weighted average) and puts forward the taxes and net profit margins estimates that were only possible for Brazilian plantation over 50 ha.

These specificities of the Coffee cultivation stage must be kept in mind when reading and comparing the estimates of value, costs, taxes, and net profit margins' distribution.

Studying the value and costs distribution informs us on the economic structure of each stage of the coffee value chain, the constraints faced by stakeholders involved in coffee production and manufacturing, and also the potential points of leverage to tackle social, economic, and environmental issues deriving from the inequal distribution of value. Based on the data gathered and our modelling of the chain from coffee cultivation in four producing countries (Brazil, Colombia, Ethiopia, and Vietnam) to consumption in Germany for a range of coffee products[89], this analysis summarizes key takeaways[90] and makes recommendations on alternative distribution of value and decent livelihoods for coffee producers.

[86] For further details on the costs taken into account for each stage, please refer to figure 14 in paragraph 5.1.
[87] Total farm coffee income per kilogram is based on the coffee farmgate price obtained from a dedicated database. Net farm coffee income is calculated as total coffee income minus costs of coffee production. 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).
[88] For further details on archetypes of coffee farms in Brazil, please see the country report on Brazil available in the annex in paragraph 13.1.
[89] Excluding instant coffee (to be added in mid 2024)
[90] Key takeaways based on the current scope of the study. Instant coffee, out-of-home consumption and 5-years analysis (2017-2022) will be added in mid 2024, which may lead to potential amendments of the current analysis.

6.1. CUMULATED NET PROFIT MARGINS AMOUNT TO 11% OF TURNOVER FOR COFFEE CONSUMED IN-HOME

The average price in German retail stores of all the coffee products that we modelled is 9.71 euros/kg.

The total value of the modelled coffee products sold in German retail stores is quite evenly distributed between Retail, Roasting, the German coffee tax[91] (GCT) and Coffee cultivation, each accounting for 21-23% of the total. The remaining part is linked to logistics and trading (6.8% of the total value) and VAT (6.5% of total value).

Coffee is often included in promotional schemes to attract consumers (either to their stores for retailers, or to their brands for roasters). Subject to sharp competition, coffee products are competitively priced, and some are even loss leaders in Germany. The GCT therefore adds an extra constraint on the costs structure of the Retail and Roasting stages. It reinforces the downward pressure on prices to ensure profitability and shapes the business model of all coffee actors. An emblematic example is the fact that roasters have been increasing their share of Robusta in their blends in recent years, to drive down costs as Arabica prices increased.

Once the operational costs and taxes are deducted, the sum of net profit margins generated at each stage along the chain amount to 11% of the price to consumers of the aggregated coffee product in Germany 2021 (1.09 euros/kg). The two final stages of the chain (retail, and roasting) account for the two highest net profit margins: 0.20 euros/kg for roasting (equivalent to 4.3% of roasters' total sales) and 0.61 euros/kg for retail (equivalent to 6.7% of retailers' total sales).

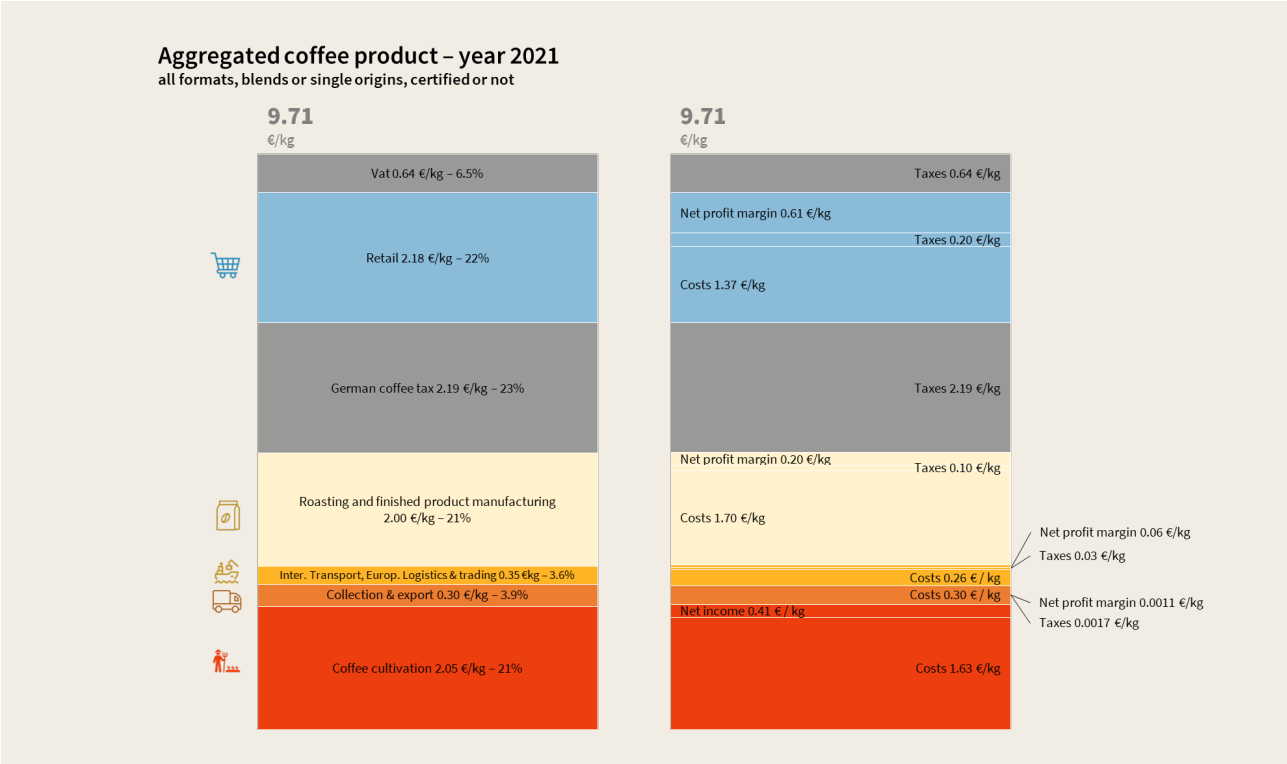


Figure 25. Distribution of value, costs, taxes, and net profit margins for the aggregation of all 41 coffee products modelled on the German market. Source: BASIC, 2024

[91] The German coffee tax (GCT) is a duty levied on coffee and products containing coffee – at the point of roasting, manufacturing, or importing (See details on the mechanisms of the German coffee tax in section 2 of this report), and fixed at a flat-rate of 2.19 euros/kg on roasted coffee and 4.78 euros/kg on instant coffee. The total revenue of the GCT in 2021 amounted to 1 billion euros (DeStatis, "Cash tax revenue by type of tax before tax redistribution", available at https://www.destatis.de/EN/Themes/Government/Taxes/Tax-Revenue/Tables/cash-tax-revenue-million-euros.html).

6.2. PRODUCT FORMAT DRIVES PROFIT MARGIN

Going beyond the analysis of aggregated data, the results demonstrate that the main driver impacting value and costs distribution along the coffee value chain is the product formats.

First, when focusing on net profit margins generated at each stage except at coffee cultivation, estimates for 2021 for Germany are as follows:

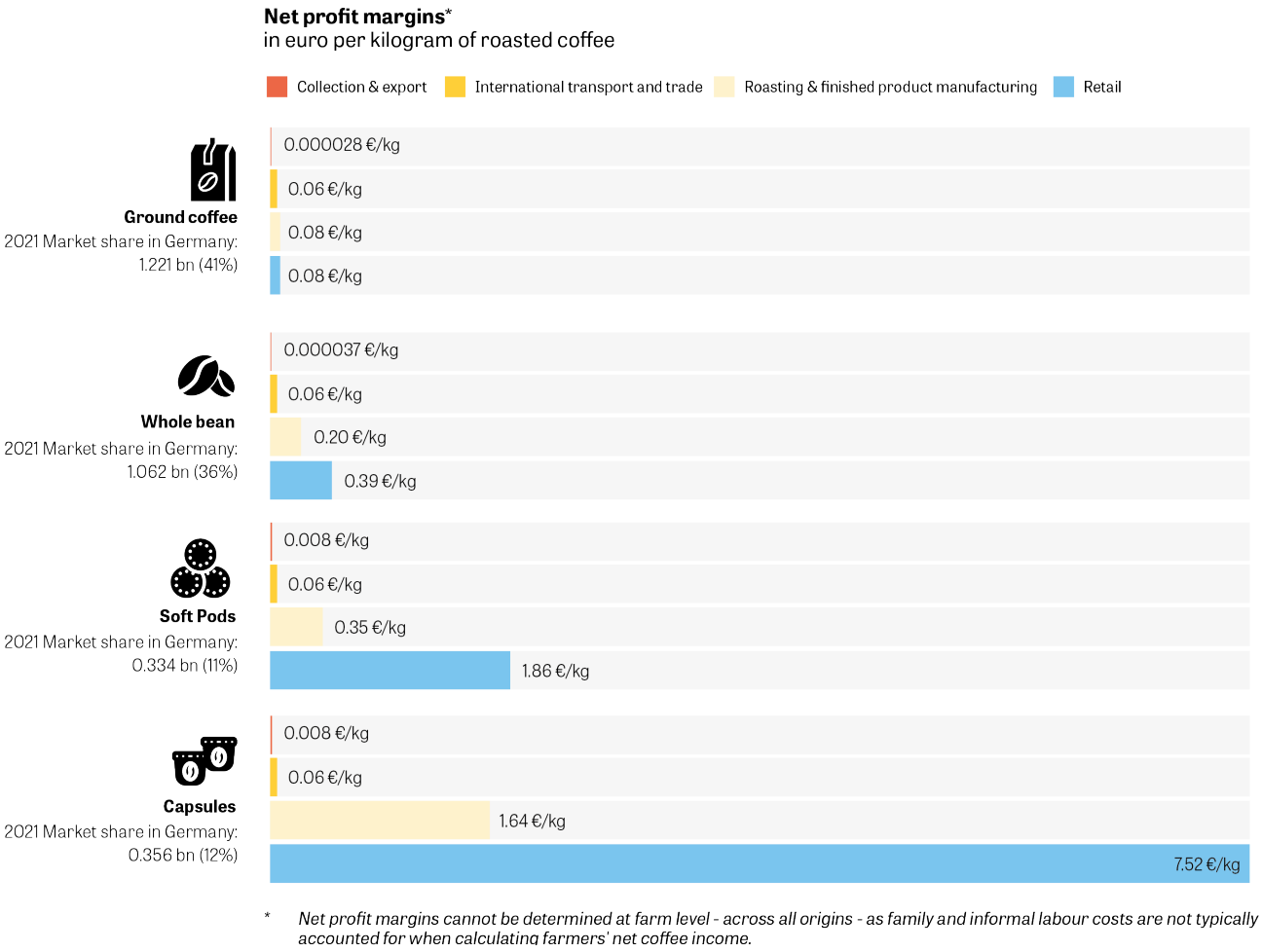


Figure 26. Net profit margin at Retail stage, Roasting & finished product manufacturing, International transport, European logistics, & trade, and Collection & export stages per format. Source: BASIC 2024

As seen in the figure above, our model shows that for all products, net profit margins vary highly at Roasting & finished product manufacturing and Retail stages while they are stable at International transport and trade. For instance, the net profit margin at Roasting & finished product manufacturing stage ranges from 0.08 euros/kg on ground coffee to 1.64 euros/kg on capsules while it varies at Retail stage from 0.08 to 7.52 euros/kg.

These differences are explained by the fact that consumers' willingness to pay increases when moving from ground coffee and whole bean to soft pods, and most prominently to capsules. Indeed, pods and capsules deliver benefits to the consumer: they notably offer precision consumption (with an optimal usage of coffee per cup) and a convenient method of preparation that also preserves the quality of the coffee. Both innovations are valued by the consumers, hence a higher willingness to pay. In the meantime, the costs associated with these different product formats grow at a lower rate than the willingness to pay, thereby increasing profitability.

In contrast with these strong variations at Retail and Roasting stages, price paid at Coffee cultivation stage does not change according to product type (format).[92]

[92] At Coffee cultivation stage, most production archetypes only differentiate between production costs and net farm coffee income – except for Brazilian coffee plantations over 50 ha. Given this heterogeneity, the transversal analysis only comments on value variations at Coffee cultivation stage. For further analysis on net farm coffee income, please see the country reports available at: XXX

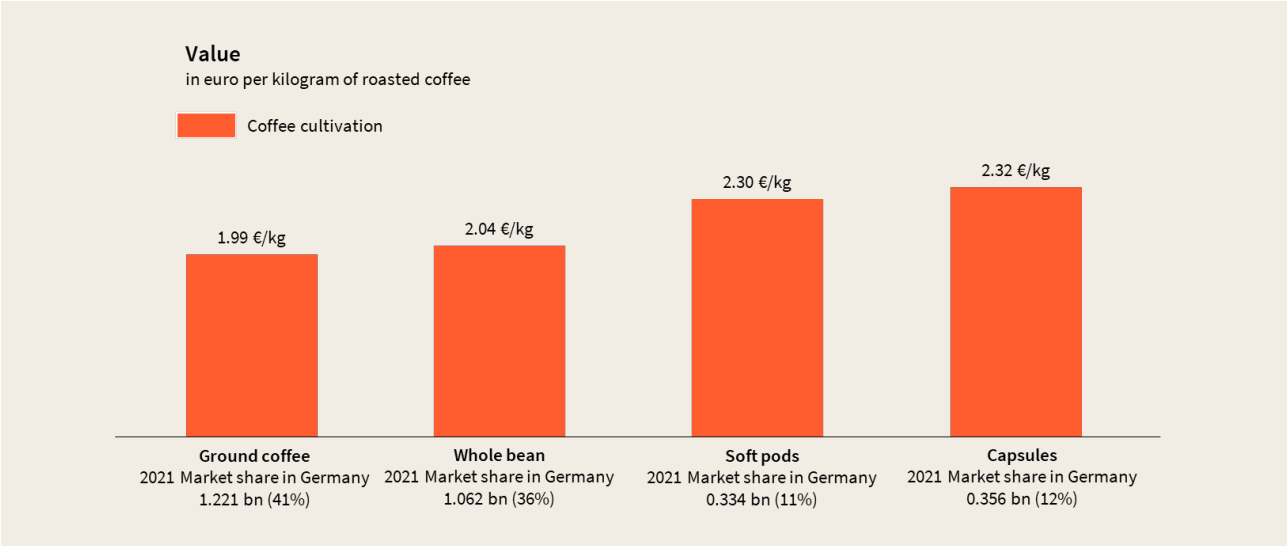


Figure 27. Value accruing to Coffee cultivation stage per format. Source: BASIC 2024

A different overall value transfer to cultivation stage is mainly due to the differences in blends related to each format:

- Ground coffee and whole bean formats mostly consist of blends of 60% Arabica and 40% Robusta. According to interviews with coffee stakeholders, Brazil[93] is the most likely origin for Arabica and there is a clear trend towards a higher percentage of Vietnamese Robusta[94] in blends in recent years. Both origins are used in ground coffee and whole bean formats because of their lower prices. Indeed, competition is fierce among these two leading formats in German sales, and there is constant downward pressure on costs.
- In the case of soft pods and capsules, coffee blends are composed of the four producing origins.[95] Although companies also compete over these two formats, the higher consumer willingness to pay as a result of innovation[96] allows higher retail prices, and therefore different sourcing. Among the four origins used in pods and capsules, Colombia and Ethiopian Coffee cultivation stage captures a higher price and therefore a higher share of value than Brazil and Vietnam. This leads to a slight increase in the value accruing to the Coffee cultivation stage.

The contrast between the small variations at Coffee cultivation stage with the high differences in net profit margins at Retail and Roasting stages demonstrate a disconnect between the two ends of the chain.

More generally, the disconnect showed on estimates for soft pods and capsules echoes what can be seen in other value chains in which the agricultural product:

- is considered as a commodity (at least for the larger parts of the market),
- goes through a long industrial process (cocoa for instance),
- is used to manufacture processed products (dairy products for example).

[93] Among the four countries analysed for this study.
[94] Trend described by different interviewees, and consistent with data on coffee imports into the EU and Germany gathered through the UN Comtrade database.
[95] 2021 modelling of German coffee value chain developed from BASIC uses these percentages for blends for soft pods and capsules (except for single origin): 59% Arabica from Brazil, Vietnam 35%, Colombia 8%, and Ethiopia 5%.
[96] See below in section 6.3.

6.3. INTANGIBLE FACTORS ARE ALSO KEY LEVERAGES OF VALUE CREATION AND PROFITABILITY

A secondary, though important, driver which influences the value and costs distribution relates to the intangible value creation and the business models of downstream actors.

This is best illustrated by the differences of value distribution and profitability between national brands' products, which made up 79% of coffee sales in German retail stores in 2021, and private label products which accounted for 21% of the market the same year.

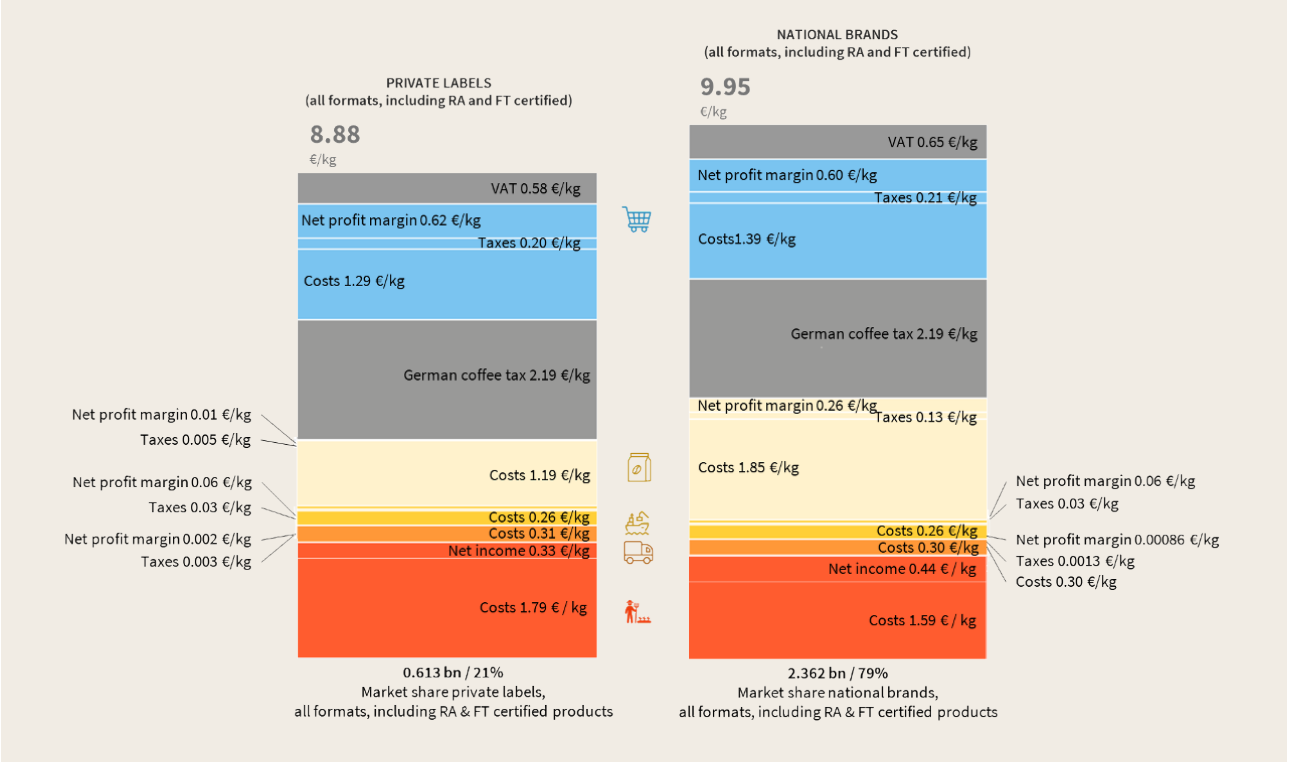


Figure 28. Compared value and costs distribution between private labels (left) and national brands (right) sold in Germany 2021. Source: BASIC 2024

Comparing the two, our model shows that national brands' coffee products are sold at a price 12% higher to the German consumers (equivalent to 1.07 euros more per kilo than their equivalents under private labels). Although costs are also higher, national brands generate a higher profitability at the Roasting stage, for which net profit margin jumps from 0.01 euros/kg on private labels to 0.26 euros/kg on national brands. At Retail stage, net profit margin is slightly lower, at 0.62 euros/kg (private labels) to 0.60 euros/kg (national brands).

This can be explained by the business models of the national brands, which is based on intangible value creation through marketing and advertising. Marketing and advertising enable them to sell their products at a higher price that covers additional operational costs (especially promotion costs) while generating higher net profits. To do this, companies need to create and maintain their brands in a competitive consumer landscape, therefore incurring additional costs ranging from advertising on different channels to a dedicated salesforce that private labels mostly do not have. Companies also need to innovate constantly to sustain the appeal of their brands to consumers. This constant innovation generates R&D costs. In recent years, this has been best illustrated by the desire of multiple brands to repeat the Nespresso breakthrough, with companies developing new specific formats fit for their own machines, with different levels of success. In return, the intangible factors – relating to a brand's image, differentiation strategy, etc. – leverage enough value creation to generate a higher profitability, firstly for the Roasting & finished product manufacturing stage, but also for the Retail stage.

Regarding private label coffee products, the lower net profit margins they generate at Roasting stage can also be explained by the specificity of their business models. Indeed, for these products, retailers control the prices and costs of their suppliers through tenders or have vertically integrated the supply chains up to Roasting. Vertically

integrating the roasting stage has recently become more common among German retailers. Consequently, this growing trend puts further pressure on suppliers to drive down costs (cheaper origins and/or coffee quality) and reduce their net profit margins to remain competitive. In the end, the factories roast and manufacture coffee products almost at cost, while profitability is generated at the Retail stage.

As a result, roasters supplying retailers' private labels often run a business with low profitability. This is even the case on the capsules market where suppliers are squeezed between high packaging material costs and low selling prices due to fierce competition for retailers' tenders.

Our model shows that at the beginning of the chain the value accruing to Collection & export and Coffee cultivation in producing countries varies between private labels and national brands. This variation can mostly be explained by the fact that the mix of origins is not the same between the two types of brands. In our modelization, private labels are connected to a weighted average of mostly two archetypes: Vietnamese Robusta and Brazilian Arabica cultivated on plantations above 50 ha[97], the latter being farms that generate a net profit margin.[98] By contrast, national brands are connected to all coffee farms' archetypes in the four countries of origin. This dilutes the importance of the Brazilian coffee farm over 50 ha in the weighted average (the only archetype with an estimate on net profit margin).

6.4. PRODUCT ASSORTMENT KEY TO PROFITABILITY AT RETAIL AND ROASTING STAGES

The management of the product portfolio also plays an important role in the overall profitability of actors at the Roasting as well as the Retail stages, as it enables them to compensate for negative or zero net profit margins on certain products with positive margins on others.

At the Retail stage, despite some coffee products being sold at cost or even at loss, most of the coffee products sold to the German consumers in stores have a positive net profit margin above 0.10 euros/kg.[99] Overall, 12% of coffee sales generate zero or negative profit margins while 88% of sales produce positive net profit margins. This confirms that some coffee products are loss leaders (mostly some products in the ground or whole beans formats, and under private labels), but the majority is profitable (mostly under national brands).[100] Retailers therefore rely on national brands' coffee products to create value and generate their profitability. Hence negotiation is fierce between retailers and roasters: the latter want the highest selling price to cover their manufacturing costs and maximize profitability, while the former want the lowest supply price to also maximize profitability to compensate for the loss leaders.

At Roasting stage, the model shows there is no product with a negative net profit margin. Nonetheless, more products (mostly ground coffee) which represent 23.5% of 2021 sales have close to zero profit margin – resulting from the fierce competition among retailers described above. Conversely, the top 3[101] sales of coffee products with positive net profit margin exceeding 0.10 euros/kg are all also national brands; whereas the sales generating close to zero profit margins are all ground coffee products, mostly sold in discounters' stores and/or under the RA certification. This is consistent with the fact that in 2021 ground coffee was the format with fiercer competition, and that national brands are often sold on promotion in discounters' stores.

These results should also be put in perspective with other food products and/or other national consumer markets in the retailers' and roasters' portfolio, where the net profit margins are potentially higher. German retailers do not rely only on sales of coffee for their profitability, nor do international coffee brands depend only on the German market for their profitability.

This situation at the end and in the middle of the chain contrasts significantly with the one at origin:

- Actors at the Retail and Roasting stages have the capacity to balance low with high net margins through their portfolio strategies to preserve and optimize their profitability,
- Actors at the International transport, European logistics & trading and Collection & export stages ensure profitability by generating a small net profit margin on important volumes. Trade companies specifically must correctly assess the risks attached to each product. Risk variables taken into account for coffee trading are, for example, political situation and stability in the country of origin, country differentials and future contracts on the world stock exchange, and contract fulfilment (including on-time delivery and quality standard requirements). In the end, these trade companies balance their portfolio considering these risks, compensating risky positions with safer ones, and finally generating profits over time.
- In producing countries, the actors – especially coffee farmers – are on average bound by prices defined by quality standards based first on technical requirements, and second on aromatic flavours (see section 6.5 on producing countries).

[97] Interviewees highlighted that within the countries of origin in scope for the study, only Brazil and Vietnam were likely to be origins for the coffee used in private labels' products. Within the Brazilian archetypes, they mostly pointed at "larger" coffee plantations, hence the connection to the Brazilian coffee farm over 50 ha.
[98] See Methodological remarks at the beginning of section 6.
[99] For further details, see Overview of market shares and net profit margin per product in paragraph 5.2.
[100] The top 3 sales of coffee products with positive net profit margin exceeding 0.10 euros/kg are all national brands' products. By contrast, the 2 coffee products sold at loss are private labels
[101] Respectively at: 0.10 euros/kg for the non-certified ground coffee under national brand in retailers' stores, 0.27 euros/kg on the non-certified whole bean under national brand in retailers' stores, and 0.21 euros/kg on non-certified whole bean under national brand in discounters' stores.

6.5. INEQUALITIES IN PRODUCING COUNTRIES, WITH MOST COFFEE FARMERS IN A DISADVANTAGED SITUATION WITH FEW OPPORTUNITIES

At origin, actors of the Collection and export stage and coffee farmers have little or no control over the final form and destination of the coffee they produce/export – whether in terms of countries, markets, and even less regarding the types of finished goods sold to consumers. Outside the niche market of specialty coffee, there are few if any points of leverage in the hands of coffee farmers to be rewarded for the specificities of their coffee and the quality of their work. The coffee price on the world market and the differentials applied per country and per quality on the market result from factors that coffee growers and even exporting countries have little control over – such as a bad harvest in a key producing region of the world or a contraction in consumer demand.

Beyond the differences between producer countries' contexts, there is still an important part of coffee growers across the 4 producer countries analysed who farm small plots with sometimes low yields, are seldom collectively organized and live in remote areas, depending on a handful of buyers to sell their coffee. This is the case of 90% of coffee farmers in Vietnam and Ethiopia (who cultivate less than 2 ha of coffee), 96% of coffee farmers in Colombia (who cultivate less than 5 ha of coffee) and 37% of coffee farmers in Brazil (who also cultivate less than 5 ha of coffee). Their characteristics (small farms, low yields, low collective organization and lack of choice) put them in a disadvantaged bargaining position when it comes to getting value for their coffee. Although the most vulnerable farms are more diversified, coffee represents their key source of income, a cash crop which cannot necessarily be easily replaced by another product.

Moreover, it appears that the coffee value chains generate a very uneven income situation because of their structuring and functioning. This is most clearly demonstrated by the case of Brazil in which larger farms that cultivate more than 5 ha of coffee managed to make a (good) living from coffee cultivation alone in 2021, while the smaller ones described earlier could not secure a decent livelihood. This situation derives from a combination of the uneven costs of coffee production among archetypes with the much more homogeneous farmgate price of conventional coffee.

One may think that this is evidence of the market regulating the efficiency of coffee production, as the least productive farmers will be 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 which are this group of farmers and connecting them with the value chains and the end products analysed in the study, 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 investigate what they can do to resolve this situation, taking into account the distribution of value, costs, taxes, and net profit margins all along the chain.

6.6. COFFEE FARMERS CONNECTED TO CERTIFIED SUPPLY CHAINS GENERATE A HIGHER NET INCOME THAN THOSE CONNECTED TO NON-CERTIFIED SUPPLY CHAINS

The third driver impacting the value and costs distribution is the presence of a certification scheme. Due to data constraints, the following section explores the distribution of value, costs, taxes, and net profit margins of only two certification schemes: Rainforest Alliance which is widespread with 34.6% of retail coffee sales in Germany, and Fairtrade which only represents 1.2% of retail coffee sales.

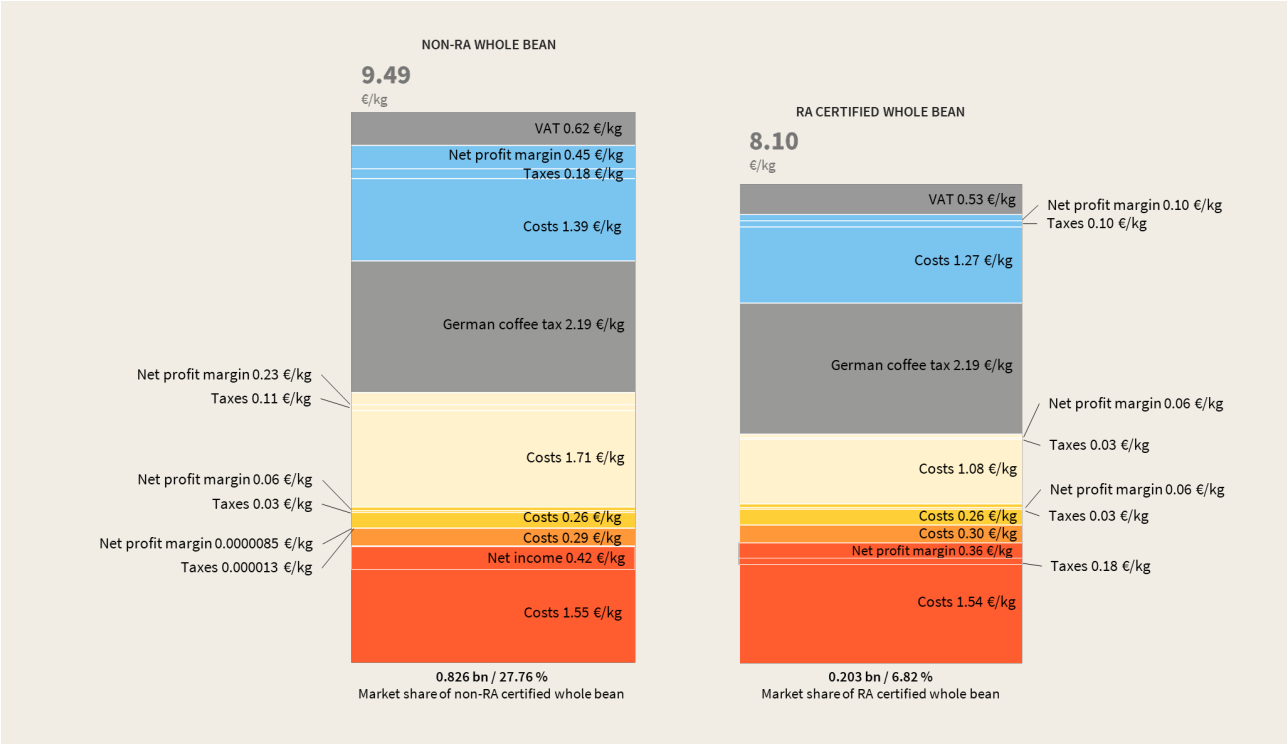


Figure 29. Comparison of distribution of value, costs, taxes, and net profit margins between non-RA certified whole bean coffee and RA certified whole bean, sold in Germany in 2021. Source: BASIC 2024

In 2021, the RA certified whole beans were sold on average at 8.10 euro/kg, 1.39 euro/kg less than non-certified whole beans. The lower final price to the consumers is mainly explained by the higher proportion of cheaper private label products in RA certified whole beans' sales than in the non-certified sales. This trend is confirmed throughout the formats as evidenced in the table below:

	Non-RA certified products (in euros/kg, 2021 Germany)	RA certified products (in euros/kg, 2021 Germany)
Ground coffee	7.97 euros/kg	7.39 euros/kg
Whole beans	9.49 euros/kg	8.10 euros/kg
Soft pods	13.21 euros/kg	12.53 euros/kg
Capsules	35.76 euros/kg	30.41 euros/kg

Figure 30. Comparison between non-RA certified and RA certified coffee products. Prices to German consumers in 2021, in euros/kg. Source: BASIC 2024, based on Circana 2023

Furthermore, estimates on costs of production at Coffee cultivation stage must be carefully read to avoid misinterpretations. Indeed, estimates show that costs of production for RA certified coffee used for whole bean formats sold in 2021 Germany are lower than the costs of production for the non-RA certified whole bean equivalents. But the Coffee cultivation stage of non-RA certified whole beans aggregate 12 different producer archetypes[103] from the 4 countries in the study scope while the Coffee cultivation stage for the RA certified whole beans aggregates only two: the Brazilian coffee farm over 50 ha and the single archetype from Vietnam.[104] Although both archetypes have rising costs of production for RA certified coffee[105], they still have lower costs of production per kg than other producers' archetypes of non-certified coffee – especially the Brazilian coffee farm over 50 ha. Both archetypes also generate higher profits from Coffee cultivation, reaching 0.36 euro/kg on RA certified coffee production.

[103] For further details on the 12 archetypes, see the country reports in the annexes in chapter 13.
[104] Information gathered through interviews highlighted that RA certified coffee was mostly supplied by coffee plantations over 50 ha in Brazil. Only one producing archetype was documented for Vietnam, the only Robusta producing country in scope for the study. For more details on producing archetypes per country, please see the country reports available in the annexes in chapter 13.
[105] Ranging between +0.01 and 0.05 euro/kg; see further details in the "Value chain vision" tab, in the online tool available at: https://value-chain-observatory.basic.coop/

In contrast, the price to consumers of Fairtrade certified[106] coffee products is higher than non-certified products: for whole beans, FT certified products are +4.68 euro/kg more expensive, a trend confirmed throughout the formats when compared to their non-FT certified equivalents as evidenced in the table below:

	Non-FT certified products (in euros/kg, 2021 Germany)	FT certified products (in euros/kg, 2021 Germany)
Ground coffee	7.97 euros/kg	17.36 euros/kg
Whole beans	9.49 euros/kg	14.17 euros/kg
Soft pods	13.21 euros/kg	No FT-certified only soft pods sold
Capsules	35.76 euroskg	46.51 euros/kg

Figure 31. Comparison between non-FT certified and FT-certified coffee products. Prices to German consumers in 2021, in euros/kg. Source: BASIC 2024, based on Circana 2023

First, the higher final price to the consumers of FT certified products can be explained by the fact that Fairtrade coffee is mostly sold under national brands which generally tend to be sold at a higher price to the consumers. Second, the scheme is used as a point of leverage to value the work of farmers and the specificities of coffee origins, two variables that also explain higher prices to the consumers.

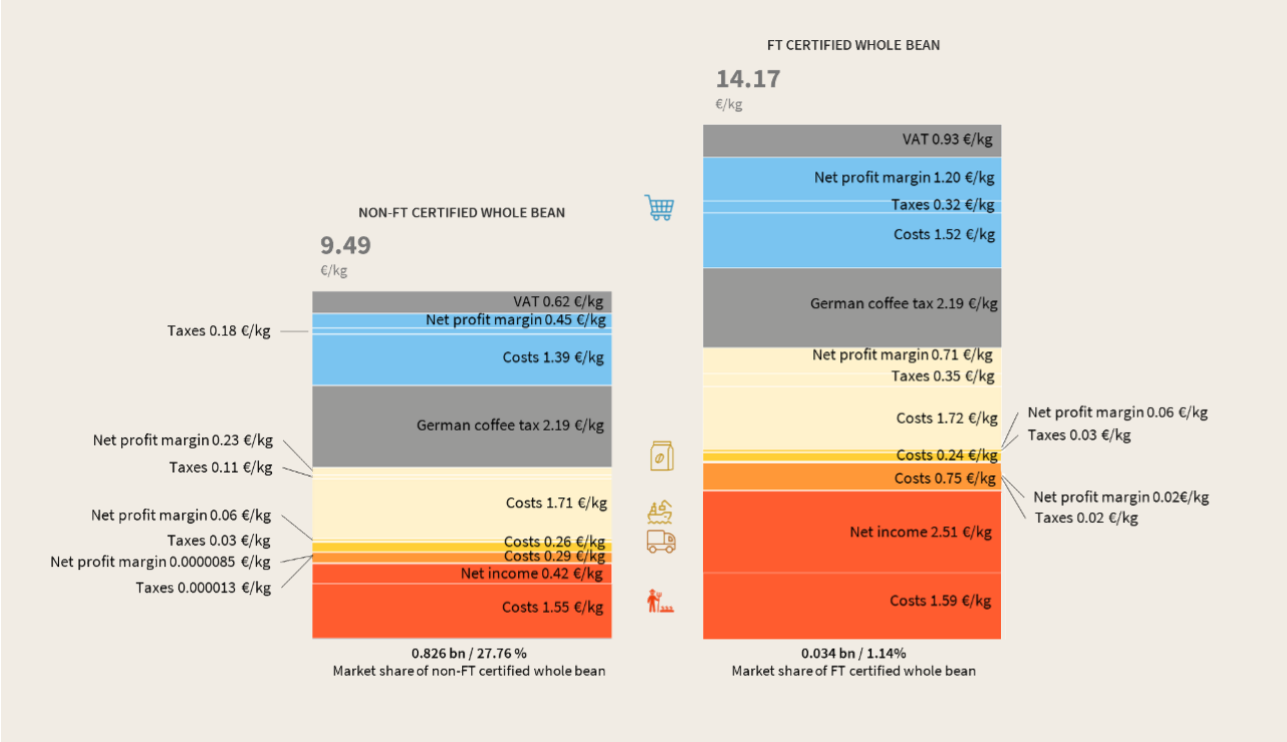


Figure 32. Value and costs distribution of non-certified and Fairtrade certified whole beans (in euro/kg, Germany 2021). Source: BASIC 2024

[106] In this study, only Fairtrade certified coffee products are taken into account; double certified Fairtrade and organic coffee products are out of scope.

Despite higher costs related to the Fairtrade certification scheme, overall value created on FT certified coffee products is higher, and profitability increases along the chain, from Collection and export up to Retail in Germany. Indeed, net profit margin is multiplied by 2.7 at Retail stage and by 3.1 at Roasting & finished product manufacturing.

Furthermore, estimates show that value[107] accruing to the Coffee cultivation stage is 4.10 euro/kg in FT certified supply chains for whole beans versus 1.97 euro/kg on their non-FT certified equivalents. Indeed, the Coffee cultivation stage of non-FT certified whole beans aggregate 12 different producer archetypes from the 4 countries in the study scope while the Coffee cultivation stage for the FT certified whole beans aggregates only two: the family farm from 10 to 20 ha in Brazil and the family from 2 to 5 ha in Colombia. Estimates show that both archetypes generated higher net farm coffee income on FT certified supply chains, hence the increasing share of value accruing to the Coffee cultivation stage on FT certified products.

KEY TAKEAWAYS

- Estimates show high variations in profitability at Retail and Roasting stages depending on formats. Their portfolio assortment allows them to balance negative/low profitability with high, ensuring overall profitability for the company.
- International transport and trade stage generates on average low but consistent net profit margins. Profitability is managed through portfolio assortment of coffee origins, between high and low/ even risky, and high volumes.
- Collection and export stage generates a small net profit margin across all products, but it varies a lot depending on the product: from 0.000028 €/kg on ground coffee up 0.008€/kg on soft pods and capsules.
- Coffee cultivation stage varies less in net farm coff ee income when compared with Retail and Roasting stages. When there are variations, they are mostly explained by farmers' archetypes and origins.
- Coffee farm archetypes and estimates in producing countries show an unequal situation where some growers cultivate small plots with sometimes low yields and have few or no business opportunities to value their coffee, while those who cultivate larger areas have the resources to be more profitable and make a living. Recognizing this situation can enable the actors from downstream in the chain to identify the connection with end products sold on the market and investigate the possible ways to resolve this situation in the context of the related distribution of value, costs, taxes, and net profit margins.

[107] Note that non-FT certified whole beans include coffee beans coming from Brazilian coffee farm over 50 ha for which there is an estimated net profit margin. By contrast, FT certified whole beans include coffee beans coming from smallholder coffee farms in Brazil and Colombia, for which there is no estimated net profit margin. Therefore, only value (and not net profit margin) is compared between non-FT and FT certified whole beans.

7. REFLECTIONS OF GCP, IDH AND SOLIDARIDAD

Global Coffee Platform (GCP), IDH and Solidaridad commissioned this study to create a fact-based overview of value distribution in the coffee supply chain as a means to inspire further action towards farmer prosperity. One of the underlying questions to be answered was "is there enough value in the supply chain to provide everybody involved with a decent livelihood?"

We tried to answer this question by focusing on the German coffee market (the largest coffee consuming market in Europe) and four origin countries: Brazil, Vietnam, Colombia and Ethiopia. The study has now been finalized, and there are a number of reflections that must be highlighted:

1. There is enough value in the coffee sector for all actors to make a profit; however, value addition in the supply chain does not make its way to farmers. The study highlights that there is an overall profit to be made on all aggregate coffee products for the German market. However, there are important distinctions between types of products and types of brands, translating to different margin levels across actors for those products and brands. What is very clear for each of those, however, is that this added value concentrates in the downward part of the chain (from importer to retailer) and is limited at the farmer level. As yet, there is no mechanism that enables re-distribution of value at scale. To create a thriving sustainable coffee sector in which farmer prosperity is key, there is a need to acknowledge that current valuation of upstream activities of (sustainable) coffee production doesn't allow for decent livelihoods. That leads us to the following point.

2. The undervaluation of family labour. In trying to build the cost, tax and margin models at farm level, it became abundantly clear that there is currently not an appropriate and disseminated method to account for family labour. Labour (paid and unpaid) is the largest share of a farm cost structure. However, this is not a problem of accounting, this is an actual problem of how coffee production in smallholder contexts is valued. Without a proper valuation of family labour, it is near impossible to reward it fairly through pricing. This needs to be addressed to transform the coffee sector and ensure future viability and appeal for the next generation in coffee, from farm to cup.

3. The need for risk and product portfolio management. The study makes it very clear that it is not just a matter of redistribution of the existing value across the supply chain. In the diversified product portfolio some product categories do not deliver a significant profit in a stand-alone fashion. The ability to make margins is enabled through the ability to diversify a portfolio across products and countries (of sales and of origin) or to use other tools for risk management through, for example, hedging strategies. However, these tools are also not equally accessible across the supply chain. Upstream, there is often less opportunity to diversify. Specialty coffee and diversification are two strategies often referenced when discussing income diversification at farm level. However, both have their limitations for scaling across farmers. Specialty only has limited market demand, making it impossible for all producers to sell specialty (even if they would be able to grow it), while diversification could potentially generate higher incomes, if it were not limited by land size and the investment it requires. Off-farm diversification is, in many regions, not an option either.

4. Although margins at Collection and export are low and intermediaries are very diverse, they have a crucial role to play for any value transfer mechanism to work. Intermediaries in the value chain are typically the link between upstream and downstream players in the supply chain. Through networks on the ground, they are able to build a bridge between buyer demands, regulatory (existing and upcoming) requirements and farmer realities. This also means they have a crucial role to play in any successful valuation of upstream activities and in designing a mechanism to transfer at scale.

5. A single conclusion on Coffee cultivation does not do justice to the diversity of farms and origins – even beyond the 4 countries studied. Because of the range of origins and farmers we see that it is difficult to draw one conclusion. On some origins there is more data than others and within origins the farmer segments can differ significantly. However, this means that to have an impact on farmer prosperity any next steps need to consider farmer segmentation and origin specificity. This includes the development of sourcing principles or value distribution mechanisms.

6. This study is not a stand-alone piece of work. The principle of shared responsibility for a sustainable coffee

sector has been well accepted and the topic of decent livelihoods and farmer prosperity is finding its way into legislation. There is an opportunity for the sector to work proactively on the topic, in a way that enables farmers to prosper and companies to work on long-term supply stability and viability of their business models in an ever more volatile world.

Note from the consortium: We are very aware that the German coffee tax has a strong impact on the value distribution in the German coffee market. However, we believe that the critical take-aways go beyond the German coffee sector. We are also clear that there is no evidence that a removal of the tax, without further transparency and mechanisms for better redistribution, would automatically lead to better farmer incomes.

Global Coffee Platform
IDH
Solidaridad

8. RECOMMENDATIONS

Recommendations and next steps

This report highlights the need to reconnect coffee cultivation with retail sales to ensure that efforts towards sustainability lead to actual positive impacts down the coffee value chain.

The sector has an opportunity to pro-actively address value creation and (re)distribution in a way that enables farmers to prosper and companies to work on long-term supply stability and viability of their business models in an ever more volatile world.

Sector-wide collaboration, based on the concept of shared responsibility, avoids unnecessary fragmentation or duplication of efforts. Through existing initiatives and platforms, the coffee sector already cooperates around sustainability investments and a response to compliance and legislation.

Now is the time to begin thinking about how the global coffee community can collaborate to improve value distribution along the chain.

Enhancing farmer prosperity through joint sourcing practices and mechanisms for value redistribution

GCP, IDH and Solidaridad (the consortium) will join forces throughout 2024 and 2025 to seek agreement with the coffee industry around two key next steps.

Firstly, the consortium aims at engaging the sector to develop sourcing principles that enable value redistribution in the supply chain and enhance farmer prosperity. The ultimate goal of this cooperation is to convene a sector commitment around industry preferred mechanisms to distribute value.

Sourcing principles for value redistribution can include a broad set of procurement and portfolio management practices. The consortium therefore invites the coffee community to jointly define what value redistribution would mean for the sector. A group of companies and other stakeholders will be invited to co-develop this ambition.

Secondly, a key finding of the study is that the added value in the coffee sector concentrates in the downward part of the chain and does not make its way to farmers. As yet, there are no established mechanisms that enable re-distribution of value at scale. Together with partners, IDH and Solidaridad will develop and pilot mechanisms for adding, creating, and transferring value in the supply chain. These mechanisms can be linked to existing initiatives, need to be scalable and account for the diversity of farmers in origin. Learnings from these pilots and mechanisms will be integrated in the collective work with the sector on sourcing practices.

What is next?

The three organisations will be seeking agreement from industry leaders to take part in joint discussions with a commitment to these ambitions. This work is envisaged to be accomplished by using, as much as possible, existing initiatives and platforms such as the GCP and by cooperating with institutions in producing countries.

GCP, IDH and Solidaridad invite interested partners to get in touch and co-create next steps to inspire innovative pathways towards farmers' prosperity through value distribution.

9. ABBREVIATIONS

CERDI	Centre for Studies and Research in International Development (France)
CIF	Cost Insurance and Freight (Incoterm)!
CIRAD	Agricultural Research Centre for International Development (France)
DeStatis	Federal Statistical Office (Germany)
FAO	UN Food and Agricultural Organization
FOB	Free on board (Incoterm)
ICO	International Coffee Organization
INSEE	National Institute of Statistics and Economics Studies in France
IRI	Information Resources, Inc.
KIT	Royal Tropical Institute (Netherlands)
MAGAP	Ministerio de Agricultura, Ganadería, Acuacultura y Pesca
IISD	International Institute for Sustainable Development
ILO	International Labour Organization
NGO	Non-Governmental Organization
GDP	Gross Domestic Production
RA	Rainforest Alliance
UN Comtrade	Statistics data base of international trade of the United Nations
UNCTAD	United Nations Conference for Trade and Development
USAID	United States Agency for International Development
VCA4D	Value Chain Analysis for Development

10. TABLE OF FIGURES

11. GLOSSARY

Commoditization

Commoditization is the process where a product is characterized by:
- Product homogeneity: the property must be presented homogeneously without specific lots and no identifiable unit,
- Standardization of the mode of production: the units must be interchangeable,
- Free market exchange,
- Supply to the market guaranteed by the absence of constraints from governments or private organizations,
- Unpredictability of supply and demand,
- Possibility of storage as a necessary condition for the existence of futures exchange.

Certification

Formal assessment (attested in writing by issuing a certificate) given by a third party that a product, service or system meets the fair trade requirements (see definition above).

(Global) value chains

(Global) value chains refer to:
- The set of economic activities ranging from the production of raw materials up to the end consumption of final product(s) and their end of life treatment,
- The set of economic actors vertically related that performs these activities.

National brand:
a brand that is owned by a company whose core business is manufacturing and branding (and not retailing).

Private label:
a brand that is owned by a company whose core business is retailing.

Modelled finished product (or modelled coffee product):
modelled product at the end of the value chain, whose price is thus the final retail price for consumers. In our model, there are 41 different modelled finished products.

Modelled finished product scope:
a group of several modelled finished products that have common features (blend, origin, ...) amongst the 41 finished modelled products.

12. BIBLIOGRAPHY – GENERAL

Adlwarth, Wolfgang, « Discountpolitik drosselt Private Labels », *Lebensmittel Zeitung*, 13 May 2016

« Aldi peppt sein Sortiment weiter auf », *Rundschau für den Lebensmittelhandel*, 1 February 2017

BAK Basel Economics AG, Die Kosten des Schweizer Detailhandels im internationalen Vergleich – Eine Studie im Auftrag der Swiss Retail Federation, 2017

BFM Business, "parts de marché: avec l'inflation, Lidl et Aldi gagnent encore du terrain", November 2022

Bialek, Catrin, « Lidl schlägt Aldi », *Handelsblatt*, No. 050 (2018): 026

Brück, Mario and Henryk Hielscher, « In Lidls Gigafactory », WirtschaftsWoche, No. 043 (2020): 014

The Climate Institute, A Brewing Storm: The climate change risks to coffee, 2016

- Daviron, B. and I. Vagneron, "From Commoditisation to De-commoditisation ... and Back Again: Discussing the Role of Sustainability Standards for Agricultural Products", Development Policy Review, vol. 29, no. 1, 2011

Dyfed Müller Loesche, « Dominante Supermärkte », *Handelsblatt*, No. 197 (2018): 032

Euromonitor International, Fresh Food in Germany, 2012

European Union, Official Journal of the European Union, "Regulation (EU) 2018/848 of the European Parliament and of the Council of 30 May 2018 on organic production and labelling of organic products and repealing Council Regulation (EC) No. 834/2007", available at https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R0848

Fairtrade International, "Fairtrade premium spending on the sustainable development goals"

Handelsblatt, "So viel haben wir noch nie zugelegt", 11 April 2018

Hivos, Shade Grown Coffee-Biodiversity & Small Scale Farmers Peru, 2015

ICO World Coffee Production 2021

ICO, World Coffee Production statistics for 2017–2020, 2022

International Comunicaffé, "German coffee market 2022: sales of roasted coffee hit records high", 9 June 2023

ITC Standards Map, 2021

Jacobsen, Nils, « Lidl: Der Handelsriese positioniert seine Marke neu », *Absatzwirtschaft*, No. 03 (2017): 108

Kolf, Florian, « Die Discounter schlagen zurück », *Handelsblatt*, No. 207 (2021): 018

Konrad, Jörg, « Food-Handel dreht den Geldhahn auf », *Lebensmittel Zeitung* 74, No. 4 (2022): 55–56

Lademann, Herr, « „Der Handel drängt die Industrie in die Defensive" », *Lebensmittel Zeitung*, 2022, 3.

Lebensmittel Praxis, "Discounter senken massiv Preise für Käse", April 2023

Lebensmittel Praxis, "Lidl-Rösterei startet in Rheine", April 2022

Lebensmittel Praxis, "Rabattschlacht im Discount", February 2023

Lebensmittel Zeitung, "Top 30 Lebensmittelhandel Deutschland 2019", 7 March 2019

Lenders, Dirk, Christoph Murmann and Delphine Sachsenröder, « Empfohlene Preise steigen – und gewinnen an Bedeutung », *Lebensmittel Zeitung*, No. 48 (2021): 14

LSA, "Parts de marché (P8) : E.Leclerc bat des records, Lidl souffre, Casino plonge", Août 2023

« Marke gegen Handelsmarke: Wird einer gewinnen? », *Rundschau für den Lebensmittelhandel*, No. 06 (2019): 16

Neumeyer, Lisa Maria, « „Ikonen rücken in den Mittelpunkt" », *Lebensmittel Zeitung*, 3 July 2015

Queck, Matthias, « Aldi irritiert », *Lebensmittel Zeitung*, 25 October 2019

Rainforest Alliance, "Sustainability differential and sustainability investments. Coffee sector guidance", 2021

REWE CEO in Handelsblatt, "Großer Aufwand für Unternehmen", 2018

Sachs, J., K. Y. Cordes, J. Rising and N. Maennling, Ensuring Economic Viability and Sustainability of Coffee Production, Columbia Center on Sustainable Investment, 2019

Schwarz, Dennis, « Die neuen Strategien der Discounter », *Handelsblatt*, No. 026 (2021): 027

Tiezte, Iris, « Werteverfall », *Lebensmittel Zeitung*, 29 January 2016

USDA, "Expanding Grocery e-Retail Market in Germany", 2019

USDA, "German Food Retail", 2018

USDA, "Coffee Market analysis", 2023

13. ANNEXES

13.1 COFFEE PRODUCER COUNTRY PROFILE: BRAZIL

1. RELEVANT CONTEXT REGARDING ECONOMIC VIABILITY

This section begins with an overview of farming in Ethiopia (1.1). In the subsequent sections 1.2 through 1.4 we detail critical aspects of the Ethiopian coffee trade that must be reviewed if one is to understand the economic functioning of the value chain.

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 coffee[8]), 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.

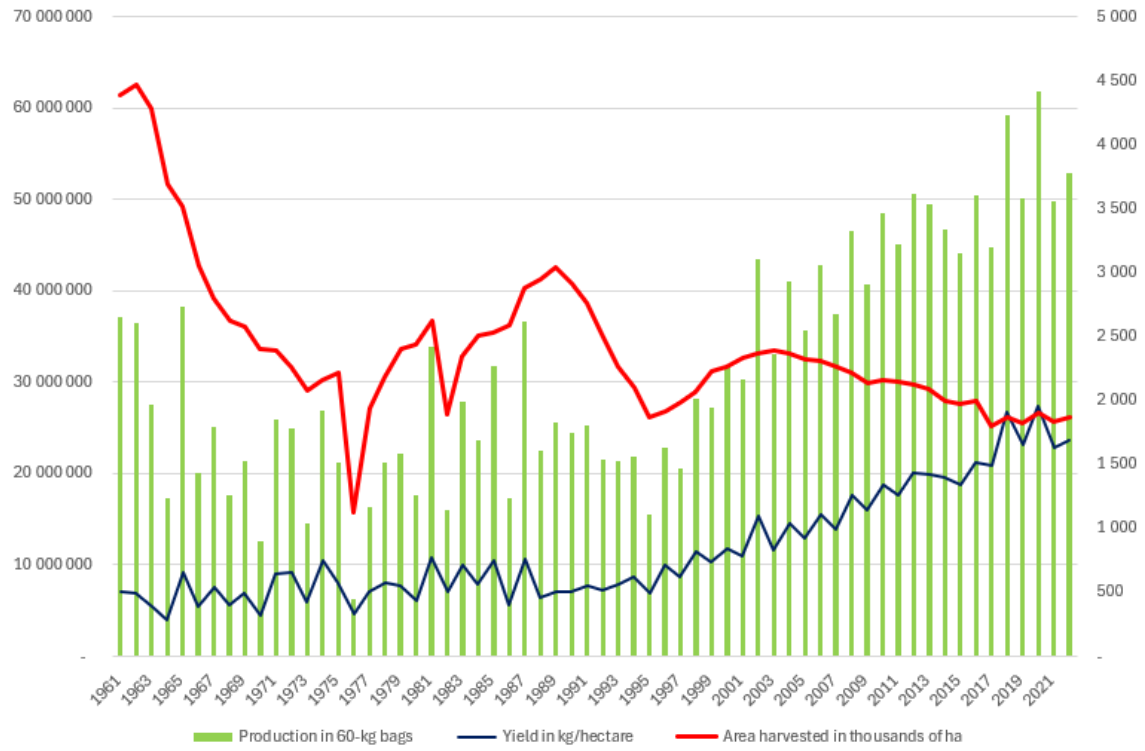


Figure 1. Brazil coffee production (left axis), surface area (right axis), and yield (right axis), 1961-2022
Source: BASIC, based on FAOStat [11]
Remark: the decision was made to represent area harvested in thousands of hectares to better show the relative trends of yield and area harvested, and their 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 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 Paolo.[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]

[11] FAOStat database, https://www.fao.org/faostat/en/#data/QCL.
[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.
[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 onstage that produces exclusively Robusta, while Paraná, Bahia, São Paolo, 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.

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 years[21] (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 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 264,000[29] to 300,000[30] coffee farms, smallholder farmers represent a much smaller share of farms than in the other countries studied – Vietnam, Colombia, and Ethiopia, where 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]

[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.
[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 Estatistica (IBGE) statistics, 2017.
[30] Teixeira dos Reis 2020, op. cit.
[31] Instituto Brasileiro de Geografia et Estatistica (IBGE), "2017 Agricultural Census: Table 1.6.31 – Arabicas," 2017.
[32] Instituto Brasileiro de Geografia et Estatistica (IBGE), "2017 Agricultural Census: Table 1.6.32 – Robustas," 2017.

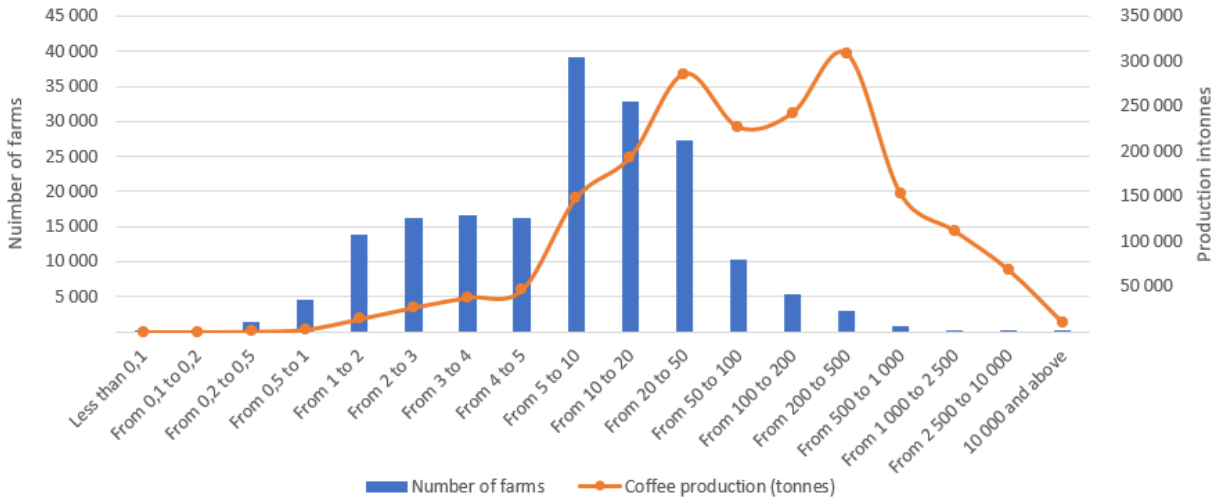


Figure 2. Number of producers and coffee production by acreage class in hectares – Arabicas in Brazil.[33]
Source: BASIC, based on IBGE, 2017

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 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, Manhuaçú; Barra do Choça; Venda Nova do Imigrante; Guaxupé; and Luís Eduardo Magalhães (see details in the table below).

[33] Instituto Brasileiro de Geografia et Estatistica (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.
[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.

Farm profile	Economic model	Economic performance[41]
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)	• Source of data: Manhuaçú • Family farming with resort to hired labour • Very low levels of pesticides • Often on hilly terrain where mechanization not possible • Outsource hulling (rent machine)	• Top cost structure elements: fertilizer and hired labour • Yield: Manhuaçú is at 1.56 tonnes/ha; GCP data suggests yield for this farm size is at 1.77 tonnes/ha
Small farms: "manual," "high technology" "family" farm 5 to 10 ha ≈21% of Arabica producers (39,192 farms), 8% of production (148,674 tonnes)	• 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	• 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
Medium-sized, "high technology," "manual" family farm 10 to 20 ha ≈18% of Arabica producers (32,912), 10% of Arabica production (194,002 tonnes)	• 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)	• 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
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)	• 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…)	• 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
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/ha[38]; Luís Eduardo Magalhães is at 3 tonnes/ha; GCP data suggests yield for this farm size is at 1.97 tonnes/ha

[38] Almeida and Zylbersztajn 2017, op. cit.

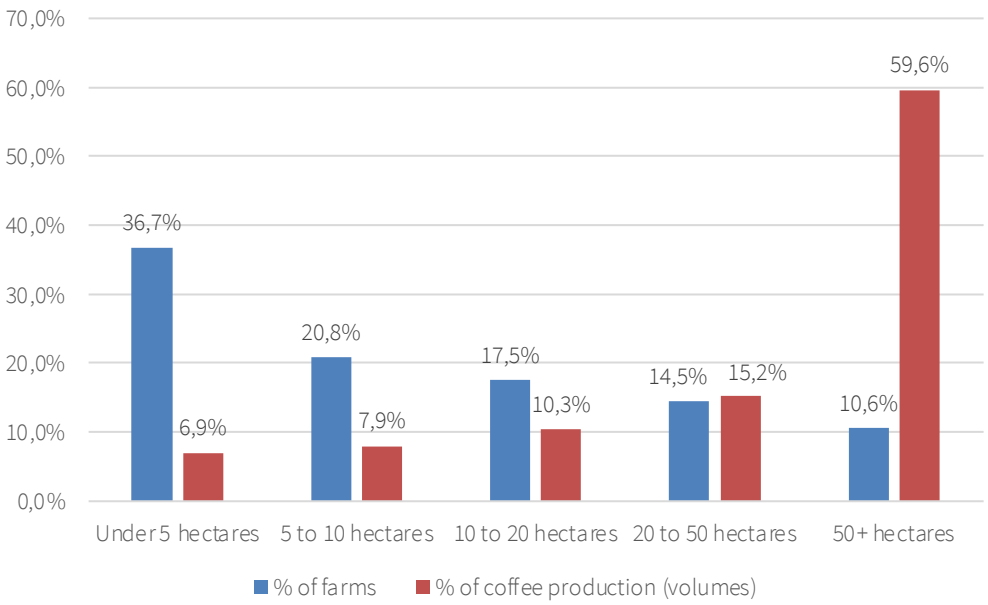


Figure 3. Breakdown of number of farms, and coffee produced, by farm size/archetype – Arabica coffee. Source: IBGE[40]

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 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 study[45] (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).

[40] Instituto Brasileiro de Geografia et Estatistica, Census data for 2017, Table 1.6.31
[41] Ibid.
[42] Mechanized harvesting is still possible by using portable, hand-held harvesters known as derriçadeira. 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.
[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 Estatistica, 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.

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 "semimechanized." 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 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]

3.1. 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 archeytpes 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.

[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.
[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/planilhas-de-custo-de-producao/item/16300-serie-historica-custos-cafearabica-2003-a-2020.

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.

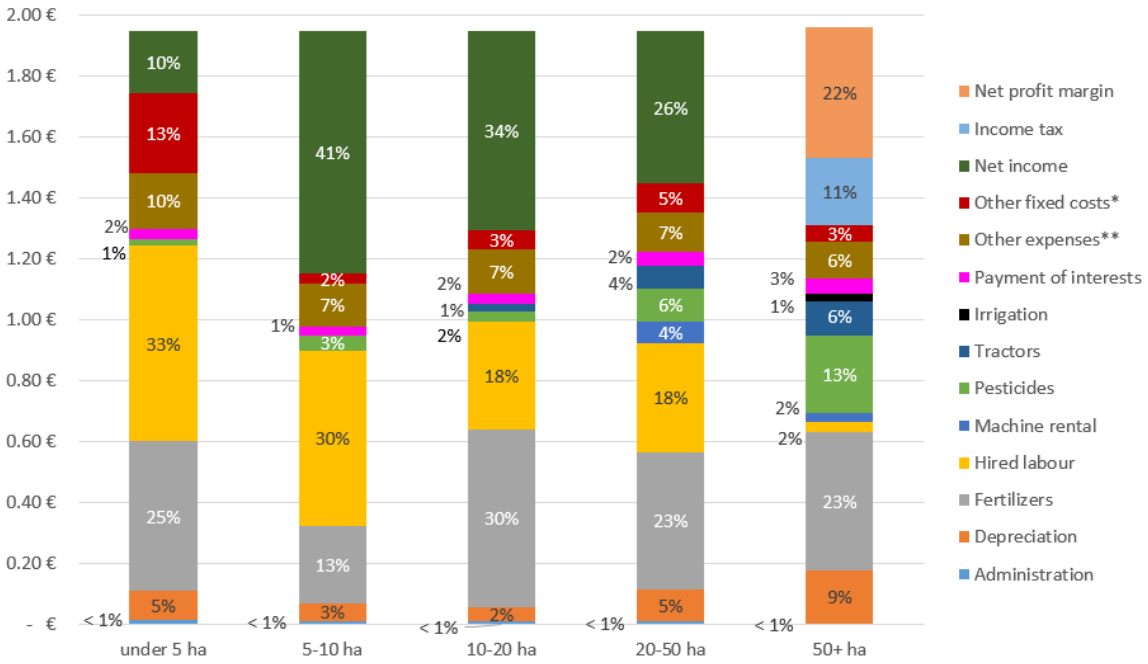


Figure 4. Production costs of coffee in €/kg for 5 archetypes of Arabica coffee farms in Brazil, with a farmgate price of 1.94 €/kg.
Source: BASIC, based on CONAB, 202362
***Other fixed costs include periodic maintenance, social charges, fixed capital insurance and leases.*
***Other expenses include 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).

[61] 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.

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 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.

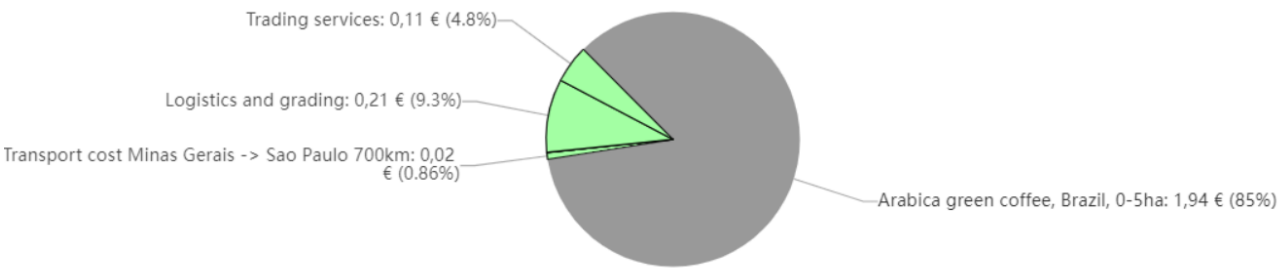


Figure 6. Main costs of production for collectors and exporters of conventional Arabica coffee from Brazil in 2021.
Source: BASIC, based on bibliography and interviews (2023)

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]

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 inBrazil.[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.

[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.
[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.

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.

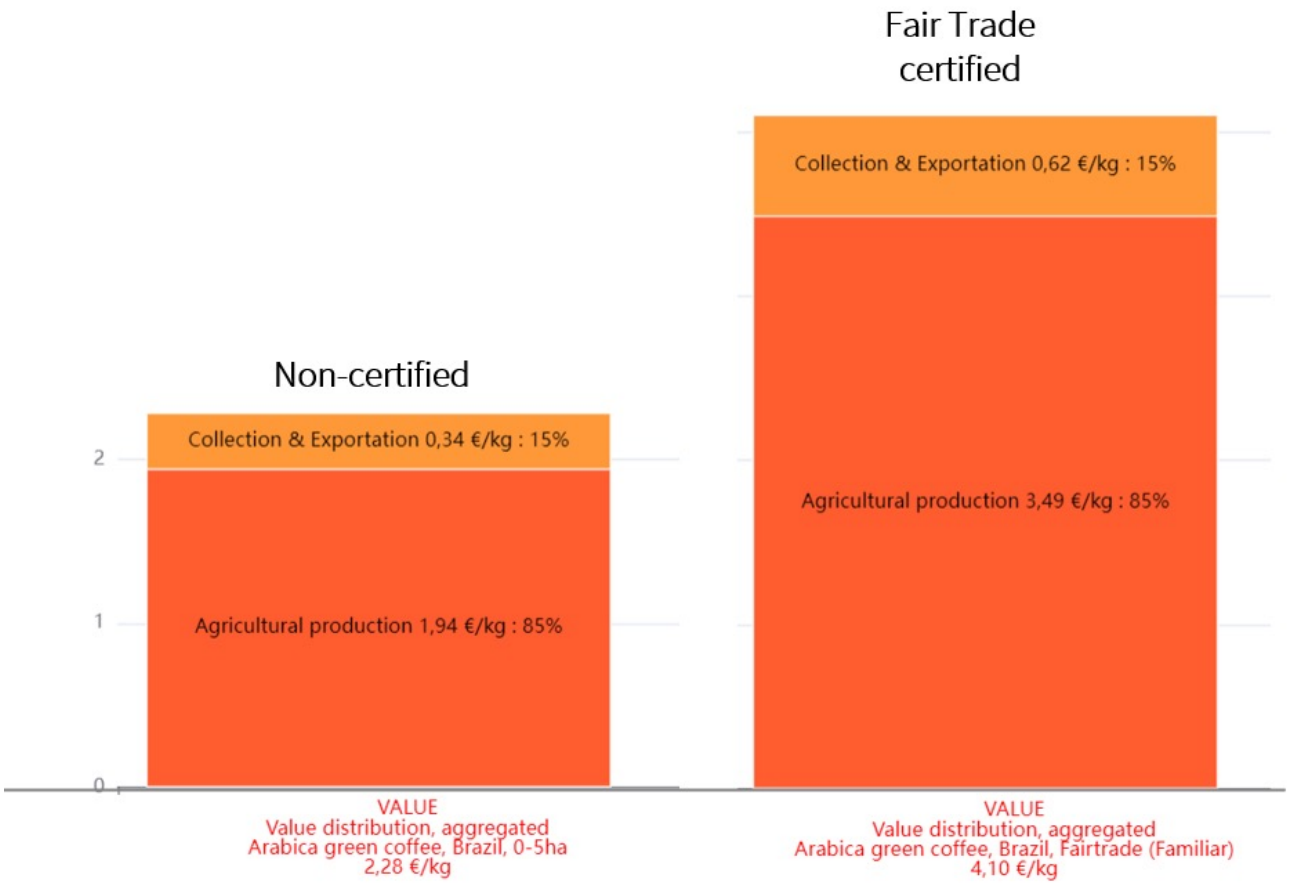


Figure 7. Distribution of value for non-certified (left) and Fairtrade-certified (right) exported Arabica coffee from Brazil in 2021, for coffee producers (red) and collectors and exporters (orange). Source: BASIC, based on bibliography and interviews (2023)

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.

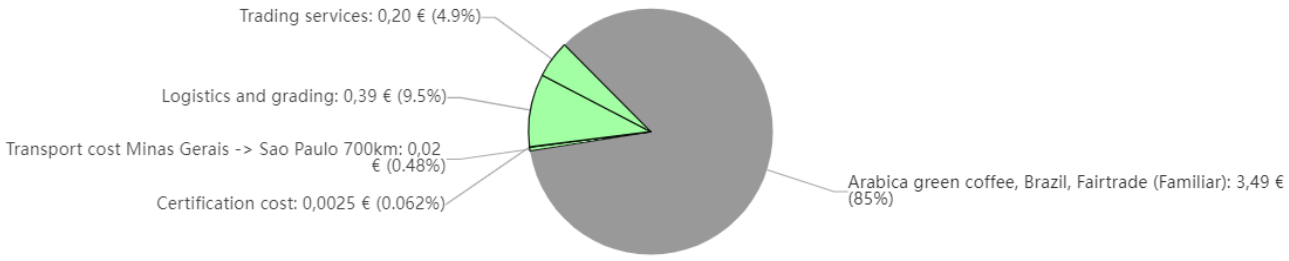


Figure 8. Main costs of production (in green) for collectors and exporters of Fairtrade Arabica coffee from Brazil in 2021. Source: BASIC, based on bibliography and interviews (2023)

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.

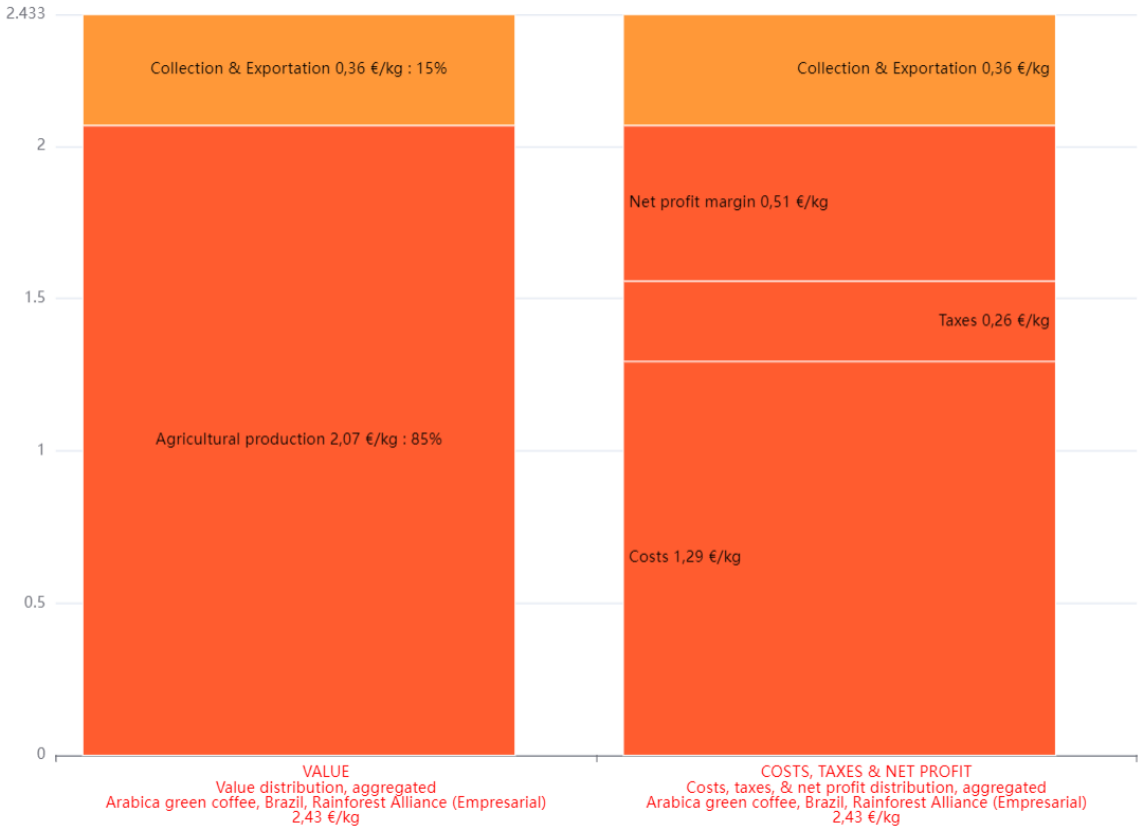


Figure 9. Distribution of value (left) and costs, taxes, and net profit margin (right) for Rainforest Alliance-certified coffee sourced from Brazil, for farmers (in red) and collectors and exporters (orange). Source: BASIC, based on bibliography and interviews (2023)

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.

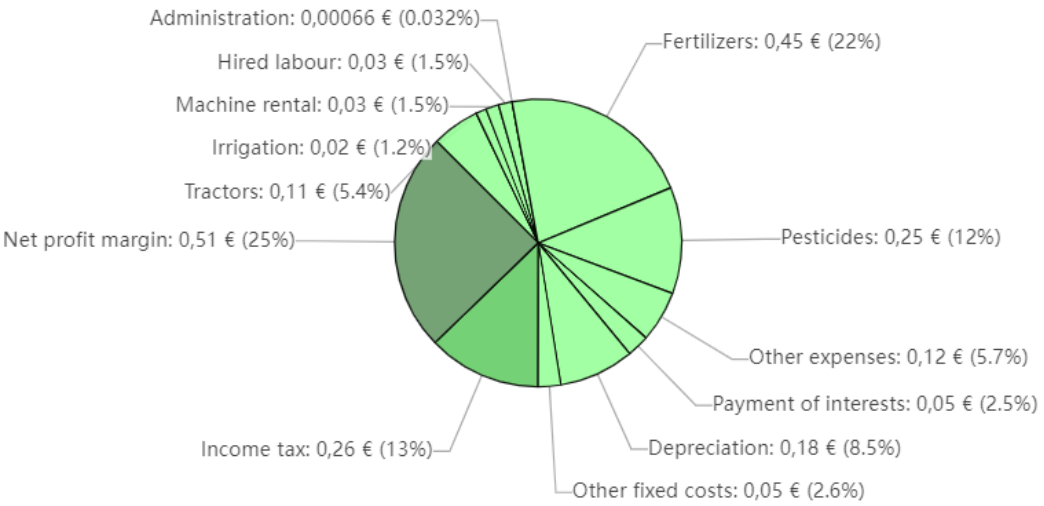


Figure 10. Main costs of production, income, and net profit margin for an archetype 5 farm (large Arabica plantation above 50 ha) selling Rainforest Alliance certified coffee in Brazil in 2021. Source: BASIC, based on CONAB, bibliography, and interviews (2023)

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.

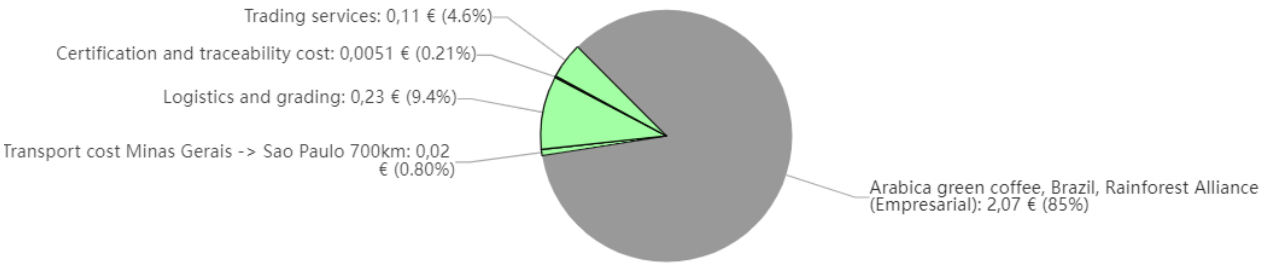


Figure 11. Main costs of production for collectors and exporters of Rainforest Alliance certified Arabica coffee from Brazil in 2021. Source: BASIC, based on bibliography and interviews (2023)

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**[70] 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 coffee[71]. 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 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.

[70] Net actual income of a farm is calculated by discounting production costs from gross income (GCP, Living income study in coffee, 2023).
[71] Living income gap is calculated by deducting cost of living to net actual income.

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 Arabica[73] 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 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:

[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.
[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.

	Area stratum					
	0-5 ha	5-10 ha	10-20 ha	20-50 ha	50-100 ha	Total
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:

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

[76] Ibid., p. 15.
[77] BASIC correspondence with Brazil coffee sector expert, 8 February 2024.

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[78] 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. 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.

13.2 COFFEE PRODUCER COUNTRY PROFILE: COLOMBIA

1. RELEVANT CONTEXT REGARDING ECONOMIC VIABILITY

This section begins with an overview of farming in Ethiopia (1.1). In the subsequent sections 1.2 through 1.4 we detail critical aspects of the Ethiopian coffee trade that must be reviewed if one is to understand the economic functioning of the value chain.

1.1. Production and export profile

Colombia is the world's third-largest coffee producing country, having produced approximately 14.1 million 60 kg bags, i.e. 846,000 tonnes, for the years 2019, 2020 and 2021.[1] Of these, approximately 12.4 million bags, i.e. 744,000 tonnes, were exported.[2] All Colombian production is Arabica.[3]

Colombia has succeeded in imposing itself as one of the leaders of quality Arabica coffee, and in organizing Colombian value chains with the aim of producing a coffee whose organoleptic qualities are widely recognized.[4] As a result of this strategy, the export price of Colombian coffee has been on average 10% higher than the price of all other milds since the 1990s.[5] In 2021, the country differential even rose to + 52 US¢/lb, i.e. + 0.97 USD/kg,6 and in September 2022 it soared to + 75 US¢/lb, i.e., 1.5[6] euros/kg, out of a C-market price of 2.23 USD/lb.[7] This means that in September 2022, the country differential of Colombia was equivalent to approximately a quarter of the Colombian coffee price.

Production in Colombia has fluctuated in the last twenty years, with a pronounced dip between 2008 and 2014 due to coffee rust epidemics, among other factors.[8] Since then, yield and production have mostly recovered, but there was another dramatic dip in yields in 2021 (see Figure 1 below), due mainly to climatic conditions but also in the context of a national strike in Colombia in 2021 that delayed exports while also affecting the delivery of fertilizers.[9] Fluctuations in productivity are also due to the fact that in coffee renovations there have been losses of sites that have not been replaced, and this has seriously affected productivity. Where yields have improved, it has been mainly thanks to "replanting of coffee rust resistant varieties, which also boosted crop productivity by reducing the average age of coffee trees and increasing plant density."[10]

[1] ICO, "Coffee production series: Table 1a - Total production," 2022.
[2] FNC, cited in Global Coffee Report, "Why Environmental Sustainability Is Key to Colombian Coffee Production," 15 June 2022.
[3] Sustainable Coffee Challenge, "Colombia: Country Profile," 2 March 2019.
[4] Global Coffee Report, "Why Environmental Sustainability Is Key to Colombian Coffee Production," 15 June 2022.
[5] ICO, "Historical Data on the Global Coffee Trade, Table 3c: ICO Composite & Group Indicator Prices," 2023.
[6] FNC, "Informe de Gestión 2021: Executive Summary," May 2022.
[7] FNC, "Informe del gerente 2022," 30 November 2022.
[8] https://publications.cirad.fr/une_notice.php?dk=575723 accessed on 12 March 2024
[9] Federación Nacional de Cafeteros, "Producción de café de Colombia cierra 2021 en 12,6 millones de sacos," 12 January 2022.
[10] Global Coffee Report, "Why Environmental Sustainability Is Key to Colombian Coffee Production," 15 June 2022.

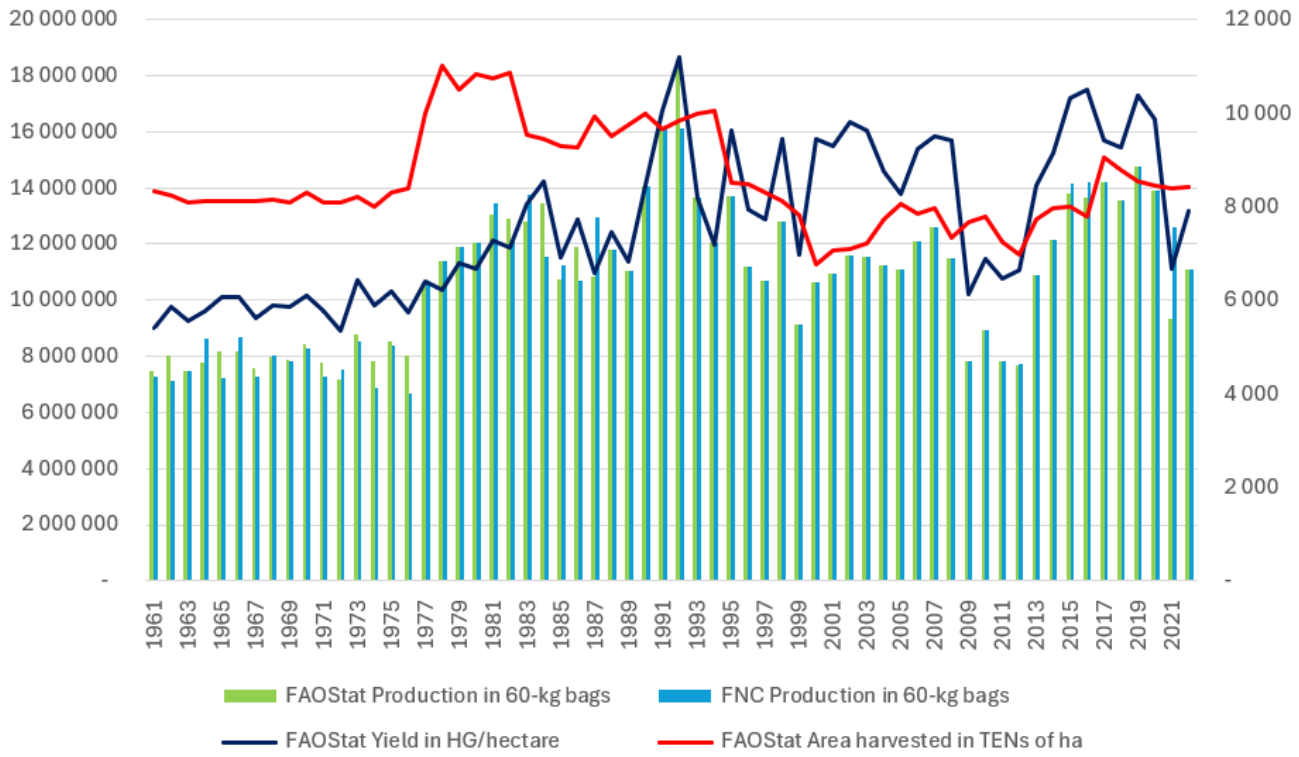


Figure 1. Colombia production (left axis), area harvested (right axis) and yield (right axis), 1961-2022
Source: BASIC, based on FAOStat (production, area harvested, yield), and based on FNC (production)[11]
Remark: the decision was made to represent area harvested as tens of hectares, and yields in hectograms (the default FAOStat parameter) so as to make it easier to see the trends in both variables, as well as their relative contribution to Colombia's production.

In 2022, the main trading partner for green coffee was the United States, to which 44% of Colombia's coffee was exported (in volume), followed by Canada (7%), Germany (7%), Japan (7%), and Belgium (also 7%). Twenty-six percent (26%) of exports go to Europe.[12]

1.2. Overall farming context

Colombia is known for its dense network of smallholder farmers specialized in coffee. About 540,362 coffee producers were registered in 2020, living in 483,389 households, contributing 0.9% of total GDP (11% of total agricultural GDP).[13] The vast majority of farms are just a few hectares in size. This stems in particular from the progressive decrease of the average coffee farm size at the national level which has taken place since the 1950s[14] and up to the mid-1990s[15] which was initially driven by restrictive labour regulations[16] to incentivize small, family-operated farms.

Colombia's coffee-growing regions are characterized by hilly terrain where Brazil-style mechanization is almost impossible. Some technologies can be used to make the harvest more efficient. For instance, where coffee is planted in rows and when the ground is flat, it is possible to use tarpaulins under the tree instead of baskets around one's waist (coco in Spanish) as the receptacle for the picked cherry: this simple innovation reportedly increases the harvest efficiency by 40%. There are also hand-held harvesters which shake the tree branch and cause the ripest cherries to fall to the ground, but these have mixed results.[17]

[11] While we relied on just FAOStat data for other countries, in this graph we have an additional, highly reliable source which is the FNC. In the end, in terms of coffee production, the FNC and the FAOStat databases have most often have identical numbers, as can be seen in the Figure (this is since the FNC is the official FAOStat source). FNC link: https://federaciondecafeteros.org/wp/estadisticascafeteras/ and FAOStat link: https://www.fao.org/faostat/en/#data/QCL.
[12] FNC, "Exportaciones de Café Colombiano: Volumen de Las Exportaciones Colombianas de Café Según Destino - Anual," 2023. https://federaciondecafeteros.org/wp/estadisticas-cafeteras/.
[13] Suárez et al., "Contribution of Livelihoods to the Well-Being of Coffee-Growing Households in Southern Colombia: A Structural Equation Modeling Approach." 2022
[14] This evolution started in Colombia before spreading to most of the producing countries in the second half of the 20th century (Daviron, "The Coffee Paradox," 2007).
[15] During the 1970s and 1980s, larger plots of land continued to be subdivided to make small farms. This can be seen in statistics comparing the percentage of smaller farms in 1970 vs mid-1990s: there is a vast increase in the proportion of small farms during this period as well as a decrease in the area of the farm where coffee is grown. García, Julián. "Evolución de la distribución de las fincas cafeteras," 2001.
[16] At the beginning of the 1950s, Colombian coffee production was transformed: the right to work was regulated in the large coffee operations. Larger plantations eventually lost their profitability as the costs of the workforce increased.
[17] There are two main problems: First, even these require some manual labour to lay out and collect tarpaulins under the row of coffee trees; and later to manually pick the last of the ripe cherries off the branch, to avoid the spread of coffee cherry borer. Second, the hand-held harvesters are reported to be heavy and unwieldy on the steep terrain, and even tarpaulins may be difficult to deploy due to the sloped land (Colombia's humid and rainy climate makes it difficult to terrace the land). Barista Hustle 2023, op. cit. and BASIC Interview with Colombia coffee sector expert, 23 August 2023.

A more structural and long-term trend has been the development of on-farm wet processing as the dominant form of processing coffee in Colombia.[18] Thanks to this on-farm integration of the first level of wet treatment, farmers get better value for their coffee, selling parchment coffee instead of cherry coffee.[19] This trend is still underway today, with the replacement of hand-cranked machines by machines running on electricity or generators. After depulping, the coffee is left to ferment for 12 to 36 hours, depending on the weather and the elevation.[20] It is subsequently washed, then left to dry until it reaches optimal humidity. Due to frequent rain, some farms are equipped with blow-dryers to accelerate the drying process or sliding roofs to cover the drying patios.[21]
In terms of organizational structure, the history of Colombian coffee is inseparable from the role and activities undertaken by the FNC, or National Federation of Coffee Growers (Federación Nacional de Cafeteros). Founded in 1927, this parastatal body is in charge of designing sectoral policies and implementing them through the affiliated regional cooperatives. The FNC represents Colombia's coffee growers, particularly smallholders. It oversees extension services as well as agronomic research through Cenicafé (the National Coffee Research Centre), and access to FNC credit is conditional on adoption of improved varieties from Cenicafé.[22] (The result of this policy is that the majority of Colombia's coffee trees are rust-resistant.)[23] In recent decades, the FNC has made use of various mechanisms to support the coffee sector: purchase guarantees funded by taxation on export, coffee storage/warehousing, funding of social infrastructures within the communities, and control of exports for private dealers.[24]

The FNC collects the national coffee contribution of 6 USD¢ per lb., i.e. 0.11 euros/kg on all coffee exported, the proceeds of which go to the National Coffee Fund (Fondo Nacional del Café, or FoNC), which finances the main activities of the FNC – purchase guarantee, Cenicafé, the Extension Service, and commercialization and marketing efforts.[25]

Most notably, the FNC operates a "purchase guarantee" (garantía de compra) at each of its 500+ purchase points across the country: this is a programme that gives all farmers the opportunity to sell parchment coffee at a publicly announced base price that tracks the world price, with small discounts or FNC fees and slight price adjustments based on quality and location.[26] For our study period (Oct. 2020 to September 2021),[27] the average base price was 1,290,123 COP/arroba dry parchment coffee, i.e. 2.33 euros/kg, which translates to 2.84 euros/kg green coffee equivalent at farmgate. Traders are reported to follow the FNC price, since farmers always have the option of getting a better price at the FNC affiliated regional cooperatives. After coffee is collected, sampled, and graded at the points of sale, the FNC's cooperatives undertake the milling (for their farmers and sometimes also for other actors of the Colombian coffee sector). The FNC's share of exports has seen a slow but steady decline in the last twenty years, from 36% in 2001 to 17% in 2022.[28]

The FNC also promotes Colombian coffee domestically and abroad. To achieve this, it has developed a comprehensive strategy to differentiate Colombian coffee on the world market and promote coffee consumption on the domestic market, based on a prominent character: the fictional farmer "Juan Valdez," who appears with a large sunhat and a mule on a bright-red logo advertising "100% Colombian coffee."[29] Using this character as a flagship, the FNC created a chain of coffee shops in 2002 on the Starbucks model, to promote the consumption of quality coffee produced in Colombia. After being developed domestically, the chain started to spread in the United States. As of 2022, Juan Valdez had 361 shops in Colombia and 133 shops in 33 international markets.[30]

Figure 2. Juan Valdez with mule, the promotional logo Colombian coffee developed by the Federación Nacional de Cafeteros (FNC)

[18] In some areas, depulping machines – a byproduct of the remoteness of Colombian farms – were widespread well before the 1950s. For example, "in 1922, 97% of Antioquia's coffee growers had their own depulper." Mejía et al. 2017, cited in Barista Hustle 2023, op. cit.
[19] Daviron, "The Coffee Paradox," 2007.
[20] Except if it is "fully washed" in a demucilaginator, i.e., a machine for processing coffee that uses friction instead of fermentation to remove mucilage. Barista Hustle 2023, op. cit.
[21] Barista Hustle 2023, op. cit.
[22] Rust-resistant varieties became compulsory after a rust epidemic in 2011. However, these new varieties (Castillo, Tabi, and Colombia) have a shorter life span (about 8-10 years vs. 30 years for the traditional Típica variety), which obliges producers to renew their plantations more regularly and to commit to a logic of intensification of their operations. With the change in varieties, the agricultural practices also had to develop: alignment of rows, decrease in tree cover to facilitate maintenance and harvesting, and systematization of use of crop protection products and artificial fertilizer. Cenicafé, "CASTILLO: Nueva variedad de café con resistencia a la roya," 2005; Cenicafé. "Nueva Variedad De Café De Porte Alto Resistente a la Roya," 2002; Cenicafé. "Manual Del Cafetero Colombiano: Investigación y Tecnología Para La Sostenibilidad de La Caficultura," 2013.
[23] Today, a significant proportion of area is planted with rust-resistant plants – up to 75% in 2019 as against 25% in 2010. The Sustainable Coffee Challenge estimates that less than 10% of Colombia's coffee surface area needs R&R (farm renovation and rehabilitation). Sustainable Coffee Challenge. "Colombia: Country Profile," 2 March 2019.
[24] Technoserve, "Colombian Coffee Production and Costs," 2014.
[25] FNC, "Fondo Nacional Del Café," 2023. https://caldas.federaciondecafeteros.org/fonc/
[26] The guaranteed and announced reference price is calculated by taking the C-price on the New York market, adding the Colombian coffee differential, subtracting fees paid to the FNC (the contribución cafeteria), and subtracting costs and expenses incurred by the FNC. Then, the guaranteed reference price is adjusted based on the quality of the lot brought by the farmer. For example, the price is higher if the coffee has a better output (factor de rendimiento – quantity of parchment coffee needed to produce green beans, where a low score is preferable) or depending on the quantity of imperfections in a sample. The FNC publishes a daily bulletin detailing the Cprice, the purchase price, and the different discounts or bonuses applied to coffee based on its quality. There are minor variations in price from region to region, partly due to prorating transport costs. The FNC also purchases pasilla de finca coffee, i.e., coffee with many impurities or non-whole beans. FNC, "Aprenda a vender su café," 2023.
[27] 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.
[28] FNC, "Exportaciones de café colombiano," 2023.
[29] Although the logo may date to 1981, Juan Valdez as a character in FNC promotional material – print and TV – has existed since 1958. The first advertisement featuring Juan Valdez dates from 1958. Barista Hustle 2023, op. cit. For the photograph of the farmer with donkey, the source is: FNC/Comité departamental de cafeteros de Tolima, "Compra de café por factor de rendimiento," 2000.
[30] USDA Foreign Agricultural Service, 'Cofffe Annual 2023: Colombia', 18 May 2023 and Juan Valdez, "Nuestra historia," 2023. This is an increase from 2017, when there were 252 Juan Valdez shops in Colombia and 119 abroad in 15 countries. FNC. "FNC En Cifras," 2017.

Producers have a variety of options to market their coffee. The FNC is one buyer, along with its cooperatives. Producers can also sell to an estimated 38 non-FNC-affiliated cooperatives in Colombia. They can also sell to other buyers such as Expocafé or private traders such as Volcafe, Neuman Group, and Ecom Trading. Finally, the role of middlemen in the Colombian coffee trade should not be underestimated. [32]

2. PRODUCERS' ARCHETYPES

Methodological remarks

In sections 2 and 3 we examine production costs and income dynamics for different archetypes of farms in Colombia. It should be underlined that Colombia, 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 Colombia, for instance, the data on which we built the model factored in family labour as well as hired labour in the costs of coffee production; thus, references to labour in the text are clearly indicated as "family and hired labour," except in circumstances where the discussion focuses on one or the other. Third, we make a distinction between total farm coffee income and net farm coffee income. In the model, we estimate the total farm coffee income per kilogram based on the farmgate purchase price guaranteed by the Federación Nacional de Cafeteros (FNC), which stood at 2.74 euros/kg for our study period (1.242 million COP per arroba).[33] It should be noted that this is a simplification made for the purposes of the model (in reality, actual sales price vary from farmer to farmer – this is not unique to Colombia, and according to one interviewee, the price is often above the FNC guaranteed price.) [34] Net farm coffee income is calculated as total coffee income minus the costs of coffee production.

In terms of number of coffee farms in Colombia, the vast majority are small family farms: 96% of them are estimated to be under 5 hectares;[35] 90% are under 3 hectares and 23% have less than 0.5 hectares sowed as coffee.[36] The average size of coffee-planted plots on farms nationwide is 1.57 hectares as of 2020.[37] In volume terms, the farms under 5 hectares represent 69% of the total Colombian coffee production at national level.[38]

Of the countries included in this study, Colombia is unique in that we were able to access detailed information on costs of coffee production and other agronomic and economic indicators (area harvested, yields, income) thanks to a comprehensive survey with a large sample size (n = 2,130) conducted annually by Solidaridad.[39] Although this survey only consolidates data from certified farms, it represents a good basis for establishing farm archetypes because (1) the majority of Colombian farms have at least one certification and (2) our analysis is based on a comparison of how groups of farms perform relative to one another rather than on absolute values for each farm category.[40]

Based on this Solidaridad study, we retained four archetypes for the quantitative model: farms under 2 hectares, farms between 2 and 5 hectares, farms between 5 and 10 hectares, and farms above 10 hectares. The table below summarizes the farmers' archetypes as delineated in this study:

[32] According to an estimate from one interviewee, up to 40% of the volume of coffee traded may be purchased by middlemen and resold to exporters who conduct the secondary processing. BASIC Interview with Colombia coffee sector expert, 2 8 July 2023.
[33] 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).
[34] BASIC correspondence with Colombia coffee sector expert, 22 March 2024.
[35] USDA Foreign Agricultural Service. "Coffee Annual: Colombia," 2 June 2022.
[36] FNC, "Ensayos Sobre Economía Cafetera no. 34," 2021, p. 38.
[37] FNC, "Ensayos Sobre Economía Cafetera no. 34," 2021.
[38] USDA Foreign Agricultural Service, Colombia Coffee Annual, 2017.
[39] Solidaridad, Indicatores Del Negocio Cafetero En Colombia 2023. https://agrolearning.org/finanzas/documentos/soluciones/dashboard_costosCafe.html
[40] We have assumed that certified and non-certified farms perform similarly in relative terms.

Farm profile	Economic model	Economic performance[41]
Micro-smallholder farms Under 2 ha ≈25% of Arabica production	• Permanent family labour + hired labour at harvest time • Use of improved varieties. • Washing on-site or with a pulper at the "washing station" of nearby cooperative • May diversify with plantain, cassava, guamo, yarumo, nogal cafetero, avocado, soursop trees, or inga[42]: (only 20% of coffee in Colombia is grown in full sun).[43] However, the proceeds from diversification are not counted as a source of income in our model, since we only calculate farm coffee income.	• Main costs: labour (family and hired) for the harvest; fertilization • Yield: 1.235 tonnes/hectare • Average net coffee income tends to increase with the land area dedicated to coffee cultivation (see discussion next section)
Small farms 2 to 5 hectares ≈44% of Arabica production	• Permanent family labour + hired labour at harvest time – slightly more hired labour than farms under 2 hectares (see details below) • Use of improved varieties • Washing on-site or with a pulper at the "washing station" of nearby cooperative • May diversify (see above)	• Main costs: labour (family and hired) for the harvest; fertilization • Yield: 1.294 tonnes/hectare • Average net coffee income tends to increase with the land area dedicated to coffee cultivation (see discussion next section)
Medium-sized farms 5 to 10 hectares ≈15% of Arabica production	• Mainly hired labour at harvest time • Use of improved varieties • Washing on-site • May diversify (see above)	• Main costs: labour (family and hired) for the harvest; fertilization • Yield: 1.499 tonnes/hectare • Average net coffee income tends to increase with the land area dedicated to coffee cultivation (see discussion next section)
Large farms 10 or more hectares[44] ≈0.9% of farms, 16% of Arabica production	• Mainly hired labour at harvest time • Use of improved varieties • Washing on-site • May diversify (see above) • May mechanize when the terrain allows it[45]	• Main costs: labour (hired) for the harvest; fertilization • Yield: 1.593 tonnes/hectare • Average net coffee income tends to increase with the land area dedicated to coffee cultivation (see discussion next section)

[41] Information in this column is 2022 data taken from Solidaridad. "Indicadores Del Negocio Cafetero En Colombia," 2023. https://cafe.agrolearning.org/finanzas/documentos/soluciones/dashboard_costosCafe.html.
[42] Machado Vargas et al., Social-Ecological Resilience of Small-Scale Coffee Production in the Porce River Basin, Antioquia (Colombia), 2018.
[43] Barista Hustle 2023, op. cit.
[44] They can go up to 1,000 hectares in size; the average in the Solidaridad sample is 18.3 hectares.
[45] Although this cannot be confirmed, it is assumed that these plantations can afford to mechanize if they choose, thanks to a greater capitalization (hand-held mower for weed removal, hand-held feller-harvester to force cherries off the branch, etc.). There are two main problems: First, even these methods require some manual labour: first to lay out and later collect tarpaulins under the row of coffee trees; and later to manually pick the last of the ripe cherries off the branch, to avoid the spread of coffee cherry borer. Second, the hand-held harvesters are reported to be heavy and unwieldy on the steep terrain, and even tarpaulins may be difficult to deploy due to the sloped land (Colombia's humid and rainy climate makes it difficult to terrace the land, unlike a place like Yemen where the dry weather preserves the terraces). Barista Hustle 2023, op. cit. and BASIC Interview with Colombia coffee sector expert, 23 August 2023. The FNC actively promotes the harvester, however: see FNC, "Derribadora Brudden DSC-18," 2020, https://youtu.be/1OtoYjvvB1w.

Producers have a variety of options to market their coffee. The FNC is one buyer, along with its cooperatives. Producers can also sell to an estimated 38 non-FNC-affiliated cooperatives in Colombia. They can also sell to other buyers such as Expocafé or private traders such as Volcafe, Neuman Group, and Ecom Trading. Finally, the role of middlemen in the Colombian coffee trade should not be underestimated. [32]

3. RESULTS OF THE MODEL

As described earlier, a little more than a quarter of exported Colombian coffee goes to Europe, with Germany the leading EU destination accounting for 7% of the volume of the country's coffee exports.

Comtrade data suggests that Colombia accounts for around 5% of Germany's annual coffee imports (in weight). The data collected for this study suggests that most of this Colombian coffee is incorporated in coffee blends sold in higher value added formats in German retail stores (whole beans and capsules), due to the higher price of Colombian Arabica.

Single origin Colombian coffee only represents about 0.2% of coffee supermarket sales in Germany. It, too, is sold in more expensive formats (whole beans and capsules) under two brands that represent 93% of sales: one national brand's whole bean and capsules with Fairtrade and Rainforest Alliance certifications, and another national brand's capsules.

3.1. Farm level

This section presents the results of the quantitative model of the distribution of costs and net farm coffee income at the coffee cultivation stage. For the distribution of costs, we relied on data from Solidaridad. For net farm income based and the farmgate price, we relied on data from the FNC.

Two points need to be underlined at this stage. First, as stated earlier, the farmgate price of coffee has been estimated based on the data published in FNC statistics for Arabica and for the 2020/2021 campaign, i.e. 2.73 euros/kg. This price is consistent with the data collected on the ground by Solidaridad ('Indicadores del Negocio – Comparativo anos') which reflects prices slightly higher by 2% to 3% compared to the FNC statistics, depending on the size of the farm. We have thus chosen to simplify the model and used the FNC price across all archetypes.

Second, we have decided to use the data collected on the ground by Solidaridad since 2021 to inform the costs of coffee production per archetype. Indeed, this is the most detailed and up-to-date database on production costs we've found for Colombia (even compared to FNC data). It made it possible not only to estimate costs consistent with producers' archetypes, but most importantly to include both hired labour and family labour in the estimates of production costs (which no other source of information does).[46] Thus, the "harvest" cost item in Figure 3 below includes the expenses incurred to pay for the hired labour needed for harvesting as well as the monetized cost of family labour. The same applies to fertilization, processing, rejuvenation, weeding, and other manual tasks. The Solidaridad study also provides the total number of days of family labour related to these tasks, per farm size and province. This makes it possible to give a comprehensive picture of the microeconomics of coffee farms in Colombia, in particular the smallest family farms which are more than just a business for producers as they constitute their living environment, in a context where other economic opportunities are scarce for them.

Figure 3 shows the expenses linked to the cultivation of coffee and the net income from coffee on each of the four archetypes of farms, based on the Solidaridad data.[47]

[46] Figures are an average of those reported by Solidaridad in its annual "Costos de producción de café" reports for 2021 and 2020. See https://cafe.agrolearning.org/finanzas/documentos/documentacion/informeCostos2020.pdf and https://café.agrolearning.org/finanzas/documentos/documentacion/informeCostos2021.pdf.

[47] Due to a lack of data, the production costs for micro-smallholders (< 2 ha) are taken from the data for small farms (2–5 ha). This is why the two cost profiles in the figure appear identical.

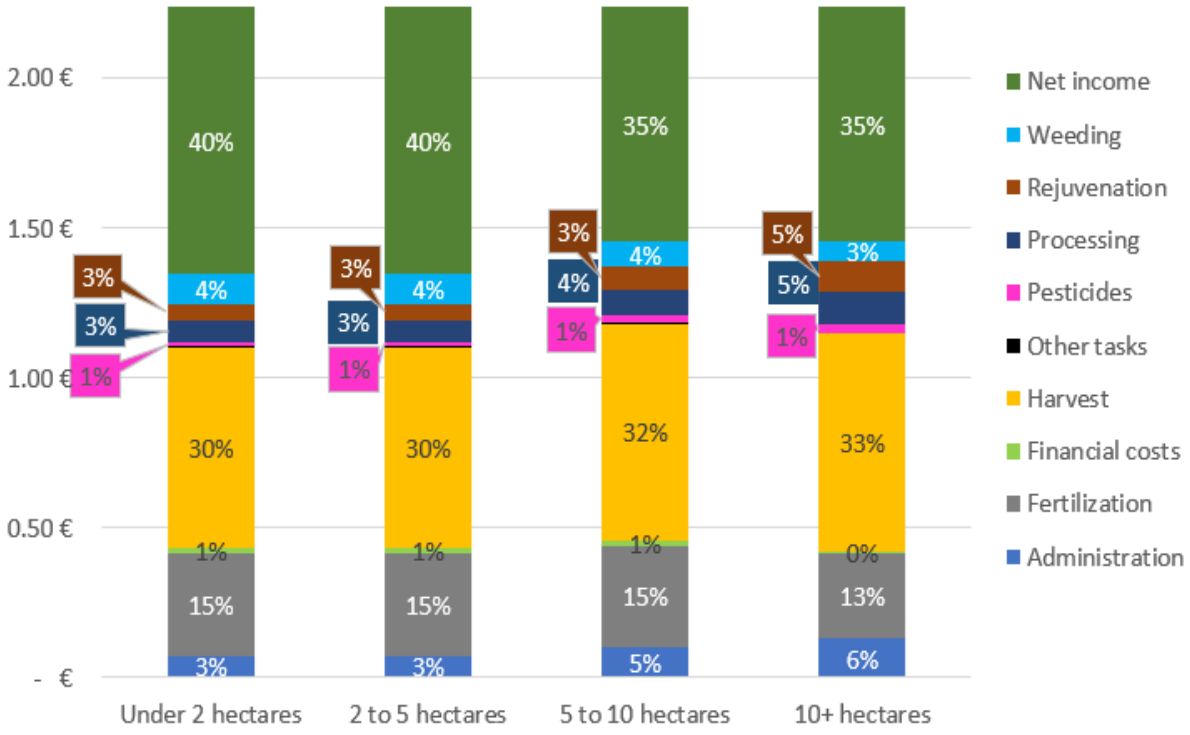


Figure 3. Costs of production in €/kg for four archetypes of farms in Colombia, with a farmgate price of 2.73 €/kg. Source: BASIC, 2023, based on data from Solidaridad, 2020 and 2021[48]

The "harvest" category represents the highest single cost to all four archetypes. This category encompasses patrones de corte (decisions about picking and harvesting patterns), the cost of jute bags as well as cocos or tarros (rigid buckets in which to collect coffee), and labour.[49] The second most important expense is fertilization, followed by administrative costs, post-harvest processing, weeding, rejuvenation, and pesticides. It is worth underlining that more money is spent on weeding than on pesticides. Further, radical increases in the price of fertilizer in the past two years are said to have decreased their use.[50]

The in-depth study and data from Solidaridad also gives information (for farms up to 5 hectares) about the degree of reliance on hired labour versus family labour. Two elements stand out. First, even very small farms have recourse to hired labour. Second, smaller farms have a greater reliance on family labour, both in absolute terms per hectare and as a percentage of total labour. Indeed, farms under 2 hectares supply 51% of total labour days (69 days of family work out of a total of 135), while farms 2 to 5 hectares provide only 34% of labour days (44 days of family work out of a total of 131 days). This is intuitive as, in most cases, increasing acreage absorbs family labour, leaving room for hired labour as the surface area to be tended to, harvested, and treated post-harvest increases.[51]

Typically, a farmer drives to a nearby town in a pickup truck and returns with day labourers in the back. These labourers are not unionized, and while they may receive basic accommodation and meals, they perform difficult work from sunrise to sundown. Pickers are paid by weight, with the caveat that there are incentives to pick only ripe cherries. Experienced pickers can make in one day three times the minimum wage, and recurring labour shortages have ensured that wages remain competitive.[52] However, the labour is seasonal and labourers may not make an annual living wage.[53] In addition, there was a notable development in 2022, when in the wake of rising coffee prices, casual labourers were able to negotiate significantly better pay.[54]

[48] Figures are an average of those reported by Solidaridad in its annual "Costos de producción de café" reports for 2021 and 2020. See httpcafécafe.agrolearning.org/finanzas/documentos/documentacion/informeCostos2020.pdf and https://cafe.agrolearning.org/finanzas/documentos/documentacion/informeCostos2021.pdf
[49] Solidaridad, "Costos de producción de café 2022," 2022, pp. 30 and 36.
[50] BASIC Interview with Colombia coffee sector expert, 23 March 2023.
[51] Solidaridad, "Indicatores Del Negocio Cafetero En Colombia," 2023.
[52] BASIC correspondence with Colombia coffee sector expert, 22 March 2024.
[53] Solidaridad, "Understanding The Situation of Workers in Corporate and Family Coffee Farms," December 2016, page 8.
[54] Barista Hustle 2023, op. cit., citing Smith 2022: "The typical pay for coffee pickers is around 550–600 COP (US$ 0.11–0.12) per

Despite this, finding qualified hired labour is a challenge. Many rural Colombians move from the countryside to larger cities or turn to other sectors such as construction. In 2020, there was also a shortage of Venezuelan migrants who, in 2019, were reported to make up 90% of the labour force on Colombian coffee farms during the harvest.[55] According to one interviewee, the COVID crisis prevented some of these workers from coming to Colombia, making the hired labour shortage more acute.[56] On the very smallest of farms, families have to harvest their own coffee, solely relying on the help of a neighbour who is repaid in kind.[57]

Once all the production expenses are covered – including hired labour, fertilizers, family labour – all that remains is the net coffee income. As it stands, this net income of Colombian family coffee farms included in the model is the amount of money left for the family to invest on the farm, make their living, face contingencies and emergencies, etc. It is important to stress that this net coffee income is the result of a study of agricultural and farm economics conducted by Solidaridad, not a survey of farm accounts. Consequently, the costs estimated in the model do not include important accounting concepts such as amortization, debts or provisions and they cannot be used to quantify a "net profit" as in an entrepreneurial farm with published official accounts. Therefore, the available data did not make it possible to arrive at any estimate of "net profits" at the level of Colombian coffee farmers.

Analysing the coffee net income measured by the Solidaridad study for coffee farms up to 5 ha (screenshots for 2021,[58] online platform for 2022[59]), results show that it increases proportionally to the coffee acreage cultivated, and proportionally to the achieved yields which in turn increase with farm size. This is true in absolute terms, but also when expressing the net income earned by farmers per kg of coffee produced and sold (see Figure 3 above). At equal levels of acreage, high-productivity (high yield) farms tend to have a higher net income than those with low productivity (low yield), strengthening the importance of this factor in the economic performance of Colombian coffee farms.

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. Actors in the value chain on this rung of the chain can include the FNC, cooperatives that export through Expocafé, international traders, etc. In reality, all these actors have different business models and costs, making it difficult – as in other producer countries – 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 exporter costs, taxes, and net profit margins – only isolated information in academic papers, "grey" literature, or the websites of parastatal agencies that regulate, survey, or are otherwise associated with 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. This is indeed an important challenge regarding transparency for the coffee industry in Colombia and other origins.

Nonetheless, we were able to obtain an estimate of costs at the export stage thanks to a single interview. This interview indicated that for 2021, the total value-added of this stage of the coffee chain was 0.82 euros/kg, divided between costs (0.61 euros/kg), taxes (0.13 USD/kg) and net profit margins on exports (0.08 euros/kg).[60]

[55] Barista Hustle 2023, op. cit.
[56] BASIC Interview with Colombia coffee sector expert, 12 April 2023.
[57] Barista Hustle, "The Coffee Buyer's Guide to Colombia," 2023.
[58] Solidaridad, "Costos de Producción de Café 2022," 2022. https://café.agrolearning.org/finanzas/documentos/documentacion/informeCostos2022.pdf.
[59] Solidaridad, "Indicadores Del Negocio Cafetero En Colombia," 2023. https://cafe.agrolearning.org/finanzas/documentos/soluciones/dashboard_costosCafe.html. Last accessed 15 March 2024.
[60] BASIC Interview with Colombia coffee sector expert, 16 August 2023.

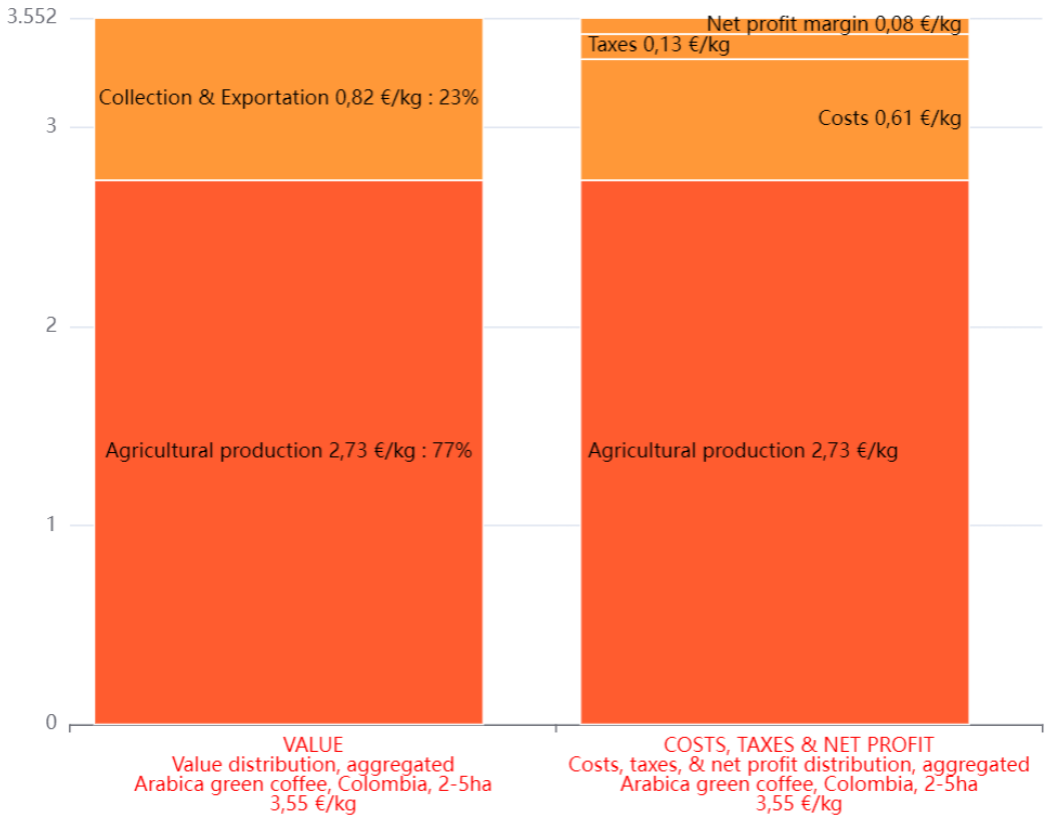


Figure 4. Value distribution (left) and costs, taxes, and net profit margin (right) for exported non-certified Colombian coffee, for farmers (in red) and collecting agents and exporters (orange). Source: BASIC, based on bibliography and interviews, 2023

3.3. Certifications

Although certifications in Colombia took off somewhat later than in other countries,61 today Colombia is a leader in environmental, social, and quality certifications. As of 2019, 61% of coffee purchased by cooperatives of the FNC was certified.[62] According to Dietz et al. (2020), cited in another article, "Colombia is also one of the world's most important producers of coffee produced under sustainability certifications: it has the largest area of Fairtrade-certified production, the secondlargest area certified under 4C, and the third-largest Rainforest Alliance–certified area in the world."[63]

3.3.1. Results for Fairtrade certified Colombian Arabica

Figure 5 shows costs, taxes, and net profit margins for Fairtrade-certified coffee in Colombia at the export stage.

Our model of Fairtrade coffee is based on the family agriculture model between 2 ha and 5 ha, which appears to be the archetype most consistent with available reports on Colombia.

The farmgate price for Fairtrade coffee, estimated at 3.21 euros/kg, is the weighted average of:

- Fairtrade minimum price for October 2020 to April 2021 (when farmgate prices were below the 2021 Fairtrade threshold of 1.40 USD/lb, i.e. 2.60 euros/kg at the time)
- FNC[64] data for the remaining months of the study period (May 2021 to Sept 2021), i.e. after the coffee price increased above the Fairtrade minimum price.

The resulting farmgate price for Fairtrade coffee, standing at 3.21 euros/kg, represents a substantial (+18%) differential of 0.48 euros/kg relative to the non-certified coffee price of 2.73 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, to which is added the Fairtrade premium, the specific use of which is decided by the cooperatives themselves.

[62] FNC, "Informe Consolidado De La Gestión De Las Cooperativas: Año 2019," June 2020
[63] Barista Hustle 2023, op. cit.
[64] The Federación Nacional de Cafeteros (FNC) publishes daily and monthly export prices of Excelso coffee. See Federación Nacional de Cafeteros. "Estadísticas Cafeteras," 2023. https://federaciondecafeteros.org/wp/estadisticas-cafeteras/.

Figure 5 shows the distribution of value between family farms (in red), and collectors and exporters (in orange) in the Colombian Fairtrade-certified coffee value chain in 2021.

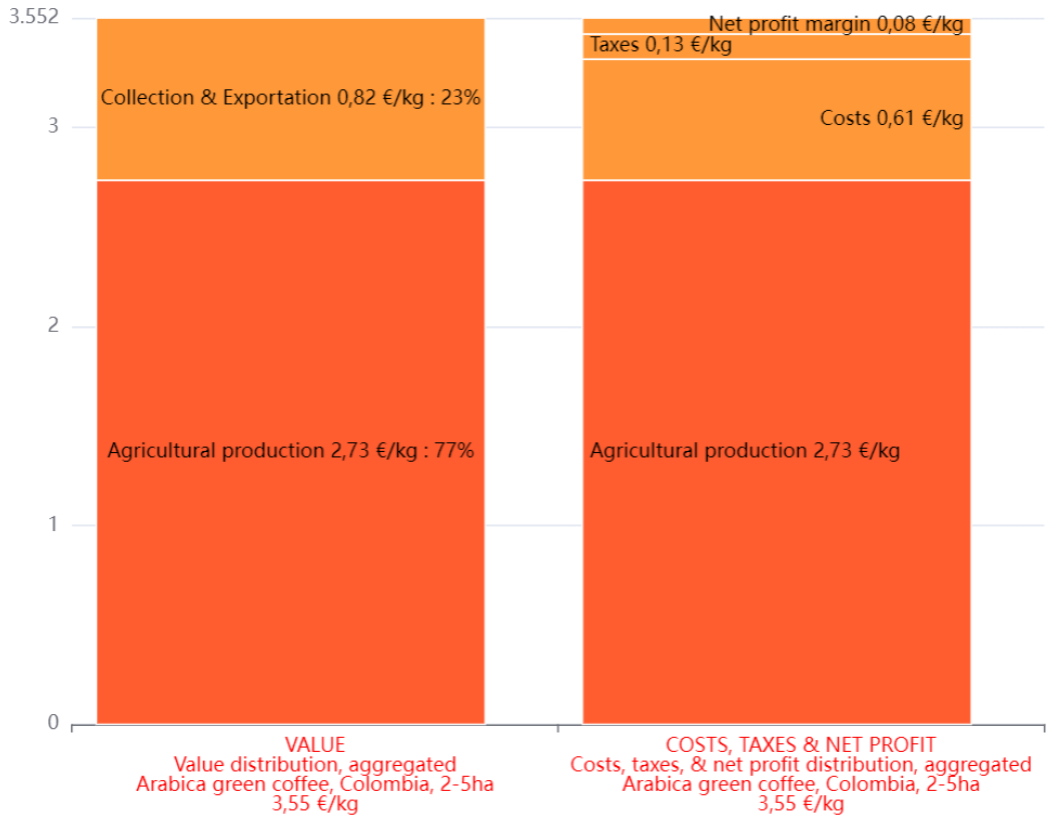


Figure 5. Value distribution (left) and costs, taxes, and net profit margin (right) of exported Colombian Fairtrade certified coffee, for farmers (in red) and collecting agents and exporters (orange). Source: BASIC, based on bibliography and interviews, 2023

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, the rest of added value as well as the net profit margin increases (net profit margin increases by 0.02 euros/kg relative to conventional). As noted above, farmgate prices for archetype 2 stands at 3.21 euros/kg for Fairtrade Arabica coffee. This represents 77% of the FOB price of Fairtrade coffee, as can be seen from the grey part of the pie chart in Figure 6.

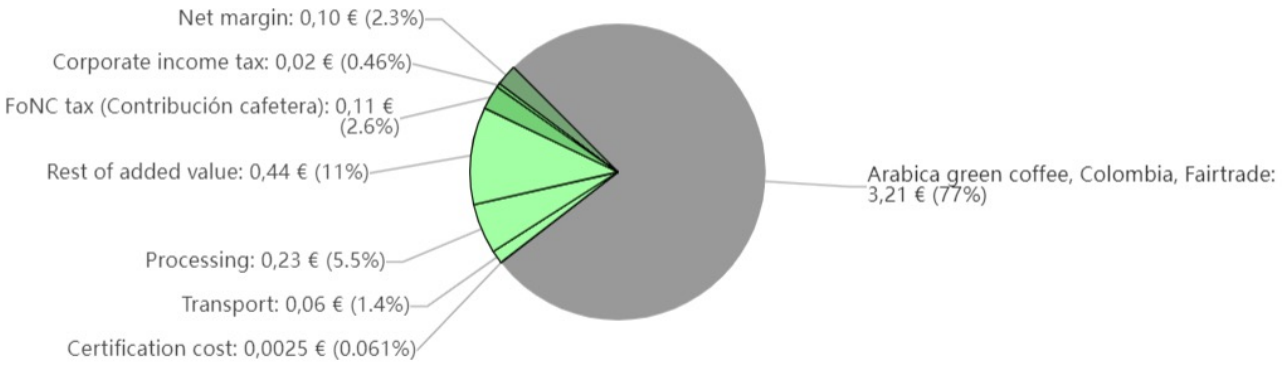


Figure 6. Main costs of production (light green), taxes (green), and net profit margin (dark green) for collectors and exporters of Fairtrade Arabica coffee from Colombia in 2021. Source: BASIC, based on bibliography and interviews (2023)

3.3.2. Results for Rainforest Alliance certified Colombian Arabica

In terms of prices, based on the information collected for this study, Rainforest Alliance coffee is purchased from farmers at 2.85 euros/kg, i.e. 0.12 euros/kg more than conventional coffee. This represents an increase of 4% from the conventional farmgate price.

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

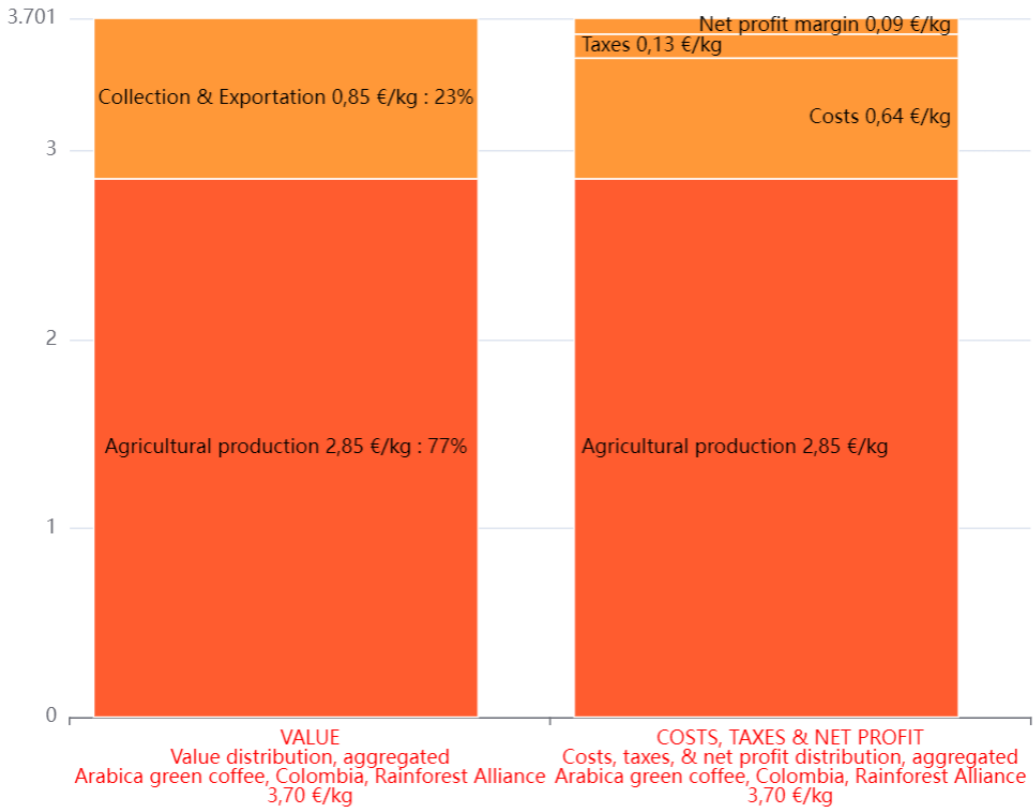


Figure 7. Value distribution (left) and costs, taxes, and net profit margin (right) for exported Colombian Rainforest Alliance certified coffee, for farmers (in red) and collecting agents and exporters (orange). Source: BASIC, based on bibliography and interviews, 2023

At the exporter level, there is a slight increase in costs associated with the Rainforest Alliance certification, which continue to represent 23% of the FOB price. There is a new cost (certification and traceability), as well as an increase in the rest of added value. While corporate income tax remains approximately the same, net profit margin increases by 0.01 euros/kg.

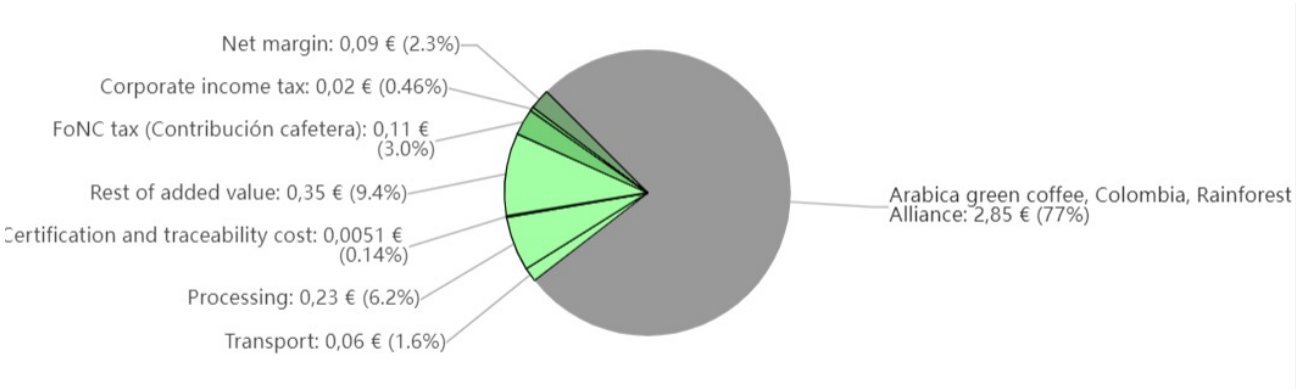


Figure 8. Breakdown of costs for exporters of Rainforest Alliance green Colombian coffee
Source: BASIC, based on bibliography and interviews, 2023

4. COMPARISON BETWEEN NET INCOME AND COSTS OF DECENT LIVING

For Colombia, we unfortunately have not been able to compare the net actual income generated by the coffee farms included in the model to the costs of decent living of Colombian coffee growers' households. This is because, while estimates of a cost of decent living for rural regions of Colombia are available,[65] we have not found hard data on the proportion of the income from coffee to reach the living income threshold. Therefore, it is not possible to compare the net income from coffee farming calculated in the model to the share of costs of decent living covered by coffee farming.

[65] Solidaridad, "Indicadores Del Negocio Cafetero En Colombia," 2023. https://cafe.agrolearning.org/finanzas/documentos/soluciones/dashboard_costosCafe.html. And Fair Trade. "Fairtrade Living Income Reference Prices for Coffee from Colombia," 2021. https://files.fairtrade.net/Fairtrade-Living-Income-Reference-Prices-for-Coffee-from-Colombia-2021_EN.pdf.

13.3 COFFEE PRODUCER COUNTRY PROFILE: ETHIOPIA

1. RELEVANT CONTEXT REGARDING ECONOMIC VIABILITY

This section begins with an overview of farming in Ethiopia (1.1). In the subsequent sections 1.2 through 1.4 we detail critical aspects of the Ethiopian coffee trade that must be reviewed if one is to understand the economic functioning of the value chain.

1.1. Overview

Ethiopia is Africa's largest coffee producer and the world's fifth largest exporter of Arabica coffee. For the crop year 2023/2024, it is estimated that total production will reach 8.35 million bags, i.e., 501,000 metric tonnes. However, of this amount, a large portion will be consumed domestically. Regarding exports, Ethiopia's main trading partners for coffee in growing year 2020/2021 were, in volume terms and in decreasing order of importance: Germany (19% of volumes), Saudi Arabia (17.3%), the USA (12.5%), Belgium (9.7%), Japan (7%), South Korea (6.3%), and Sudan (3.2%).[1] The list of countries and their respective shares of value broadly resemble the data for volumes.[2]

Smallholders under 1 ha represent the vast majority of the production in Ethiopia, but coffee is not their only source of income. Instead, they diversify to make ends meet: selling food or cash crops, running a small shop, owning a transport business, working on a neighbouring farm, etc. According to several surveys, the coffee part of the net income of coffee-growing families "ranges from 30% (Harar) to 50% (Sidama), but most regions are near to a level of 40%."[3] Common sources of income other than coffee include grains, maize, qat, and off-farm labour,[4] in addition to other forest/farm crops like firewood, honey, and rare spices – forest pepper and Aframomum corrorima, a kind of false cardamom.[5] Yields in Ethiopia tend to be low, as are inputs. Chemical fertilizer and pesticides are very rarely used, as it is not customary and/or the price of chemical inputs is too high for Ethiopian farmers.

Except in the most remote areas, smallholders in Ethiopia typically have a range of actors to whom they can sell their cherry (red or dried) at either a kebele-level "selling centre," or at a washing station specialized in wet processing.[6] Higher-quality washed Arabicas are slowly gaining ground thanks to the spread of wet mills in the countryside, but progress is slow because harvesting red cherries is very labour-intensive and because in a high inflationary context, farmers prefer drying their coffee as a form of savings and insurance through the entire year. At selling centres and washing stations, a farmer will typically encounter small private traders, medium-size traders, or cooperatives to buy his or her coffee. However, farms above 2 hectares can sell their coffee directly to exporters, and so can cooperatives and traders, provided they have a licence to do so.

As of 2018, only 10% of Ethiopian farmers were said to be members of cooperatives (GCP cited in SüdWind).[7] More recent information suggests that between 10% and 20% of farmers might be members of cooperatives.[8] Cooperatives are organized into Unions, the largest of which were established in the late 1990s/early 2000s and have upwards of 50,000 members.[9] The level of membership in cooperatives varies greatly from region to region.[10] It should be emphasized that farmers are free to sell to traders outside the cooperatives and cooperative unions, and they may sell the majority of their crop to other traders who work for private companies[11] – by one estimate, around 10% to 30% of coffee production is marketed by cooperatives.[12]

[1] USDA Foreign Agricultural Service. "Ethiopia: Coffee Annual 2022," September 9, 2022.
[2] Ibid.
[3] Minten et al. 2015a:9; Mitiku et al. 2017:9, cited in SudWind. "Impact of Supply Chain Relations on Farmers' Income in Ethiopia," October 2020. The exact figure is 37.7% in the article Minten et al., "Coffee Value Chains on the Move: Evidence in Ethiopia," August 2017. Calculated from figures in Table 3.1, page 6. The Ethiopia Strategy Support Program (ESSP) study, a benchmark study conducted in February 2014 that has inspired numerous academic papers, likewise estimates that on average 40% of the income of farmers comes from coffee production. Global [113] Coffee Platform. "African Coffee Sector: Addressing National Investment Agendas on a Continental Scale. Ethiopia Case Study," September 2016.
[4] Global Coffee Platform 2016, op. cit.
[5] Enveritas. "Creating a 'Coffee Rejuvenation Impact' Index for Ethiopia," 31 August 2019.
[6] *A kebele* is the smallest administrative unit in Ethiopia.
[7] SüdWind. "Impact of Supply Chain Relations on Farmers' Income in Ethiopia," October 2020, p. 23.
[8] BASIC Interview with Ethiopia coffee sector expert, 16 November 2023; according to other interviewees, there are currently 6 cooperative unions, around 580 cooperatives, and about 550,000 members (BASIC Interview with Ethiopia coffee sector expert, 6 September 2023). This would mean that approximately 1 in 10 of Ethiopia's coffee smallholders are members of a cooperative.
[9] Examples cited were the Oromia Coffee Farmers Cooperative Union, est. 1999 with 75,000 members as of 2010 (their website claims to currently represent 557,000 households: http://tinyurl.com/22n5uxlv); the Sidama Coffee Farmers Cooperative Union, est. 2001 with over 80,000 farmers (https://sidamacoffee.com/); Yirgacheffe Coffee Farmer's Cooperative Union, est. 2022 with 46,000 farmers (https://yirgacheffeunion.com/); Kafa Forest Coffee Farmers Cooperative Union, est. 2004 with nearly 10,000 farmers (cf. FairTrade Africa. "Kafa Forest Coffee Farmers' Cooperative Union," June 2022. https://fairtradeafrica.net/wp-content/uploads/2022/06/Kafa-Forest-Digital.pdf.) BASIC bibliographical research and Interview with Ethiopia coffee sector expert, 16 November 2023.
[10] According to one estimate, around 60 to 80% of farmers are members of cooperatives in Sidama and Guji, while in Wolaita the figure is closer to 5%. This also reflects the history of the cooperatives: while in Sidama and Guji they were formed by farmers to secure a better market for their coffee, in Wolaita province the cooperative union was government-established. Inter Aide. "Report on the Visit in Sidama – Oromia," April 2021.
[11] BASIC Interview with Ethiopia coffee sector expert, 15 February 2024.
[12] SudWind. "Impact of Supply Chain Relations on Farmers' Income in Ethiopia," October 2020, p. 23. One source told the author that "it is estimated that 8% of the coffee produced in Ethiopia goes through cooperatives and unions."

1.2. Farmgate price situation

Ethiopia consumes around half the coffee it produces on the domestic market – usually lowerquality coffee, as high-quality coffee is expected to be sold on the international market. The government forbids the sale of any export-grade coffee on the local market, even when the local market offers a better price[13] There is nonetheless a domestic market for high-quality coffee which may be illegally supplied with high grade coffee when prices are higher than those fetched by exports.[14]

Regarding exports, most published estimates of the farmgate capture of the FOB coffee price by Ethiopian farmers are relatively low – between 50% and 60%[15] This is because of factors such as poor transport infrastructure, low levels of organization at cooperatives and the fact that farmers in Ethiopia outsource post-harvest processing to actors down the chain.

However, since 201716, Ethiopian coffee farmers are reported to have received a (much) higher share of the FOB price. This is related to the business and banking environment in Ethiopia. Specifically, according to banking regulations, exporters must surrender a portion of the foreign exchange that they receive for their coffee to the National Bank of Ethiopia (NBE), where it is converted into birr at the official exchange rate and stored in a birr-denominated account. Meanwhile, exporters are also granted a USD-denominated account within which they store the remainder of the foreign exchange (forex) that they receive for coffee. The amount that exporters can keep in their forex accounts with the NBE has ranged from 70% before September 2021 to 40% in September 2021, and from January 2022, the rate became 20% (it is now back to 40% since August 2023).[17] Exporters' forex accounts can only be used to finance imports. Furthermore, the money converted to birr on the NBE birr account is converted to the official exchange rate, which is currently around 57 birr to the dollar,[18] whereas on the black market the currency is nearly double this figure (100 to 120, as of September 2023).[19] According to multiple sources, this situation has led some coffee exporters to sell coffee at a loss on the international market while recouping their losses by engaging in more profitable import business activity using their forex account. Although its scale cannot be ascertained, this phenomenon is well documented (8 interviews and 4 bibliographical sources).[20]

We hypothesize that one of the reasons that we found a relatively high level of FOB capture (approximately 94% FOB capture in our model, whereas the literature puts FOB capture at around 60%[21]) can be explained in large part by this phenomenon, in line with the study conducted by Beyene et al. in 2021.[22] Our farmgate capture is calculated as the ratio of green-bean equivalent farmgate on the one hand, and FOB price on the other, and for this period[23] the import/export situation drove up farmgate prices, as detailed above.[24] Further, our calculations do not take into account the margins made by coffee exporters off their import business. Although they sell coffee at a loss, they can make a significant margin on their imports. If these margins were to be considered and added into the model, then the farmgate capture ratio would decrease.

The foreign exchange situation also leads coffee traders and exporters to hold on to their coffee, in the hope of a further devaluation;[25] this practice is condemned by the local authorities, which regularly inspect warehouses and impose fines on coffee "hoarders"[26] and in 2022 ordered exporters to sell their coffee while they were still at risk of taking a loss.[27] The Government of Ethiopia has also attempted to rectify the situation by imposing, from 28 January 2020 onwards, a minimum export price for coffee that is published on a weekly basis by the Ethiopian Coffee and Tea Authority.[28]

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[13] USDA (FAS) 2023, op. cit.
[14] BASIC Interview with Ethiopia coffee sector expert, 20 April 2023 and SudWind. "Impact of Supply Chain Relations on Farmers' Income in Ethiopia," October 2020.
[15] In 2016, for example, the Global Coffee Platform estimated that Ethiopian farmers captured only 61% of export value, with the remainder accruing to the downstream supply chain. Global Coffee Platform. "African Coffee Sector: Addressing National Investment Agendas on a Continental Scale. Ethiopia Case Study," September 2016. Beyene et al. (2021) found that producers captured 60% of the wholesale (ECX) price on average from 2008 to 2017. Beyene et al., "Trade, Value Chains, and Rent Distribution with Foreign Exchange Controls: Coffee Exports in Ethiopia." 2021. One interviewee placed farmgate capture at around 50% to 60% green bean equivalent (BASIC Interview with Ethiopia coffee sector expert, 13 September 2023.), while one report of a field visit to Ethiopia estimated FOB capture at around 50%. BIGG. "Our Ethiopian Experience Part Two: The Coffee." One BIGG Island in Space (blog), 5 February 2023.
[16] Beyene et al., "Trade, Value Chains, and Rent Distribution with Foreign Exchange Controls: Coffee Exports in Ethiopia." 2021; also confirmed by BASIC Interview with Ethiopia coffee sector expert, 24 July 2023.
[17] In other words, "As per the existing [January 2022] regulation, exporters were required to surrender 70 percent of their foreign currency earnings to the central bank at the prevailing exchange rate. They were only allowed to retain 20 percent of the earnings. The remaining 10 percent had to be surrendered to commercial banks." In August 2023, "the National Bank of Ethiopia doubled the retention limit for exporters to 40 percent of their foreign exchange proceeds. Since then, exporters will have to surrender only 50 percent of the forex earnings to the central bank. The 10 percent share for commercial banks remains unchanged." Frontier Africa Reports. "Ethiopia Doubles Foreign Currency Retention Limit for Exporters", 28 September 2023. https://www.frontierafricareports.com/article/ethiopia-doubles-foreign-currency-retention-limit-for-exporters. See also Mehrteab Leul & Getu Associates. "The National Bank of Ethiopia's New Directive on Retention and Utilization of Foreign Currency Earnings from Export and Inward Remittance (06 January 2022)", 27 January 2022. https://mehrteableul.com/index.php/insights/news-and-updates/item/42-the-national-bank-of-ethiopia-s-new-directive-on-retention-and-utilization-of-foreign-currency-earnings-from-export-and-inward-remittance-06-january-2022.
[18] It was around 32 birr to the dollar in January 2021, and 46 birr to the dollar in January 2021.
[19] BASIC Interview with Ethiopia coffee sector expert, 13 September 2023.
[20] BASIC Interview with Ethiopia coffee sector experts, 13 September 2023, 6 September 2023, 16 November 2023, 28 July 2023, 24 March 2023, 9 February 2024, 12 February 2024, and 7 March 2024. As for the literature/bibliography, in the words of four different sources: "coffee exporters are willing to incur losses during exporting by offering high prices for coffee locally in order to access scarce foreign exchange. [...] the consequent high wholesale prices for coffee are transmitted to producers, so that coffee farmers are unintended beneficiaries of this rent." Beyene et al. 2021, op. cit. Also, "It is to be noted that Ethiopian coffee has been selling far above the international coffee market prices. Although partly due to high domestic consumption and high production costs, prices are mainly driven up by the country's restricted foreign currency policy. This has attracted opportunistic players from other sectors like vehicles and construction to the coffee business as a means to gain foreign currency. They buy coffee at a high price and export at a loss, while making huge profits from their imported goods/equipment." Fairtrade International. "Fairtrade Living Income Reference Price for Coffee from Ethiopia: Explanatory Note," July 2023. Third, "some traders buy coffee via the ECX at a price that cannot be obtained by exporting the coffee. In other words, they know that they buy at a price which is higher than the world market is prepared to pay for Ethiopian coffee. They are prepared to do this, because they need the foreign currency for other businesses with high margins. This assessment was shared with very similar words by many interviewees." SudWind. "Impact of Supply Chain Relations on Farmers' Income in Ethiopia," October 2020. Finally, this phenomenon is also mentioned in the Ithaka Coffee blog on 25 May 2020, 30 October 2020, and 5 February 2021, to cite just a few. See https://www.coffeeithaka.com/.
[21] For sources for the 60% figure, see above.
[22] Beyene et al., "Trade, Value Chains, and Rent Distribution with Foreign Exchange Controls: Coffee Exports in Ethiopia." 2021
[23] 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.
[24] Another factor is that the number of exporters increased, creating competition in the field – see discussion below.
[25] USDA (FAS) 2023, op. cit. and BASIC Interview with Ethiopia coffee sector expert, 28 July 2023.
[26] USDA FAS (Foreign Agricultural Service), "Ethiopia: Coffee Annual," 19 May 2023
[27] BASIC interview with Ethiopia coffee sector expert, 13 February 2024.
[28] USDA Foreign Agricultural Service. "Ethiopia: Coffee Annual 2021," 14 May 2021 and "Ethiopia: Coffee Annual 2022," 9 September 2022

1.3. The Ethiopian Commodity Exchange (ECX)

Launched in 2008, the ECX is a public-private partnership that benefits from significant support from the Ethiopian State. Its aim is to organize and streamline coffee transactions on its territory to reduce the information imbalance that puts coffee producers at a disadvantage. The ECX operates a physical network of Primary Market Centres (PMCs) meant to serve as the first point of collection for much of the country's coffee; these PMCs operate in close partnership with cooperatives, which are slowly developing in Ethiopia.[29] Once graded for quality at an ECX Warehouse Delivery Centre, the coffee is brought to a marketplace where, in theory, supply and demand for agricultural products meet in a way that most closely approximates pure and perfect competition rules (players' information, standardized quality, transaction anonymity, etc.). Other commodities like sesame, legumes, wheat, and maize are also traded on the exchange. The currency in use on the exchange is the Ethiopian birr. Coffee is traded as parchment coffee for washed Arabicas, and green coffee for naturals.

The ECX has three kinds of coffee contracts: export commercial, export specialty,[30] and local coffee.
At Warehouse Delivery Centres, the ECX assigns grades based on three factors:[31]

1. Place of origin (regional profile reflecting the taste of the coffee, not always its actual region)[32]
2. Washed vs. natural
3. Grade from 1 (best) to 5 (poorest).

The first of its kind on the African continent, this structure temporarily revolutionized the organization of green coffee marketing chains in Ethiopia. The main criticisms of the ECX were that it did all the grading and exporters did not have an opportunity to sample what they were buying – they could see the coffee but not cup it; and that specialty and semi-washed coffees were not sufficiently valued.

Nearly all exports of Ethiopian green coffee were under ECX's control, except for 'speciality' labelled coffees marketed by cooperatives and, more recently, large plantations, traders, and also farms above 2 hectares. These recent reforms (2017 onwards) lessened the role of the ECX in the coffee trade, to the point that its activities today are limited, although exactly how much so is subject to debate.[33] There was notably a significant decline in recourse to the ECX in 2020 as opposed to 2019 (86% less washed coffee and 69% less naturals),[34] reflecting "the increasing proportion of specialty coffee that is now exported through direct channels under the more flexible direct-trade policy framework to encourage fully traceable, premium-value exports."[35] As of production year 2021/22, the direct-trade scheme accounted for the majority of coffee exports, handling 240,000 metric tons out of 300,000 metric tons shipped (80%).[36] However, grading of coffee destined for export is still a function reserved to the ECX.[37]

The number of exporters has increased in recent years.[38] There are two main reasons for this: first, the race for foreign currency described above in the last ten to fifteen years has caused numerous new actors to enter the coffee business. These stakeholders are less focused on selecting quality coffee and more interested in exporting as much commercial coffee as possible to access scarce foreign exchange to finance imports.[39] The second reason is the direct-trade authorization of 2020/2021, which enabled so-called "vertical integration" between exporters and traders, cooperatives, and even farmers above 2 hectares. The increase in the number of exporters is said to have created upwards pressure on farmgate prices due to competition at the trader level.[40]

[29] BASIC Interview with Ethiopia coffee sector experts, 20 April 2023 and 16 November 2023. Ethiopia has several large cooperatives and cooperative unions, and membership has increased in recent years to reach between 10% and 20% of Ethiopian coffee farmers.
[30] It is under pressure from international buyers that the ECX modified its grading system to accommodate specialty coffee. BASIC Interview with Ethiopian coffee sector expert, 24 March 2023.
[31] BASIC Interview with Ethiopia coffee sector expert, 24 March 2023.
[32] Nordic Approach. "Transparency in Ethiopia," 2020.
[33] Nordic Approach 2020, op. cit. One interviewee said only about 10% of Ethiopia's crop still transits through the ECX, and it is all low quality (23 June 2023); another said the ECX is virtually defunct with all transactions taking place through direct trade (24 July 2023). Note that the USDA 2022 "Coffee Annual" for Ethiopia continued to state that in crop year 2021/2022, "80–85% [of Ethiopian coffee for export] goes through the ECX." This appears to be a reference to the ECX's role grading coffee, rather than its role as a trading platform.
[34] Ithaka Coffee. This Week in Ethiopia: ECX Sale Volumes Drop Like a Stone!, 21 July 2020 https://www.coffeeithaka.com/2020/07/31/.
[35] USAID. "Feed the Future Ethiopia Value Chain Activity," 2021. Charles Seara Cardoso of the Ithaka Coffee blog seconds this analysis, writing in November 2020 that "Since Y-O-Y ECX sales (to November) are down by 30% we believe that a higher proportion of coffee is by-passing ECX, with most of this growth coming from Vertical Integration deals [emphasis added] rather than increased production on large farms or increased exports by Cooperatives."
[36] Capital magazine, "Government condemns coffee traders for defaulting on vertical trading platform," 10 March 2024.
[37] BASIC Interview with Ethiopia coffee sector expert, 16 November 2023.
[38] There are reportedly over 1,500 exporters of coffee today whereas there were only 50 or so twenty years ago. BASIC Interview with Ethiopia coffee sector expert, 7 March 2024.
[39] BASC Interviews with Ethiopia coffee sector experts, March 2024.
[40] Algrano. "New Ethiopian Coffee Harvest: Price, Quality & What to Expect in 2024," 6 December 2023 and CUPRIMA. "Ethiopia: What to Expect from Crop Year 2022/2023," 27 April 2023.

1.4. Other background information on Ethiopian coffee

The coffee industry is vital to Ethiopia's economy and foreign exchange balance. There are an estimated 4.5 million smallholder coffee farmers in Ethiopia, and an additional 15 to 30 million people (i.e., up to 25% of the country's population) directly or indirectly dependent on this industry.[41] Coffee is also vital to the state, generating at least 24%[42] of the country's total export earnings – 30% to 35% by other estimates.[43] The area harvested has also increased substantially since the 1990s, partly as a result of deforestation due to the expansion of coffee cultivation.[44]

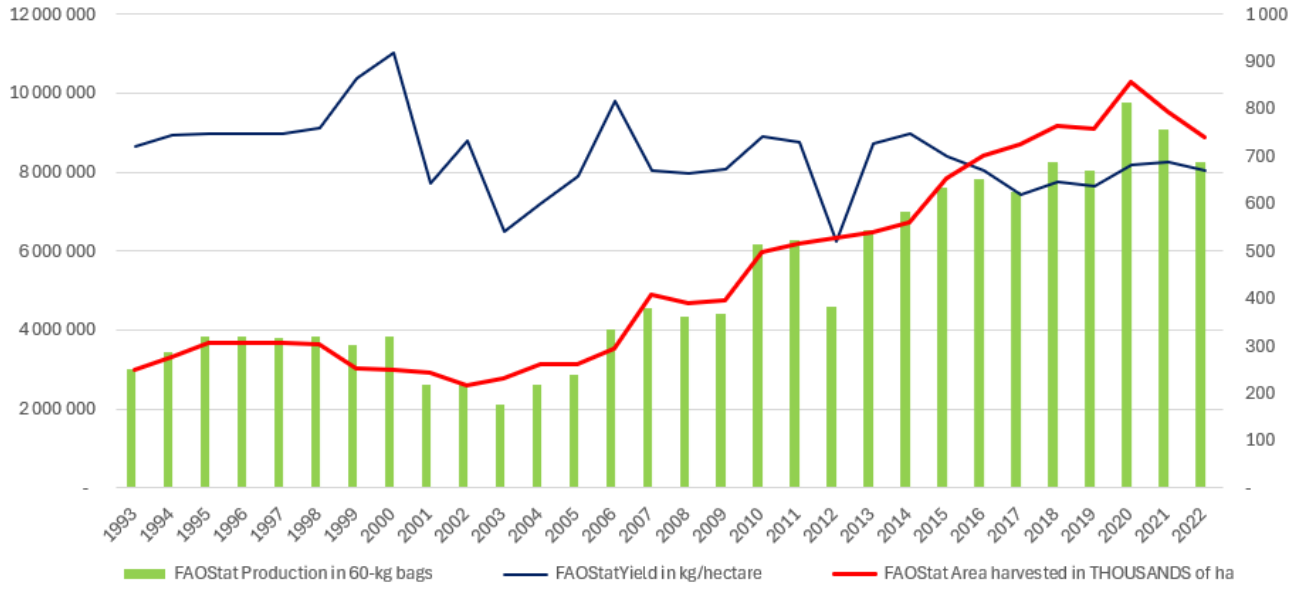

Figure 1. Ethiopia coffee production (left axis), area harvested (right axis), and yield (right axis), 1993-2022
Source: BASIC, based on FAOStat (production, area harvested, yield).
Remark: the decision to represent area harvested in thousands of hectares was so as to make it clear on the chart the relative contribution of both yields and surface area to growth in production over timer. The rise in production in response to the expansion of surface area is also significant and easily seen.

2. PRODUCERS' ARCHETYPES

Methodological remarks

In sections 2 and 3 we examine production costs and income dynamics for different archetypes of farms in Ethiopia. It should be underlined that Ethiopia, 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 different types of labour: in Ethiopia, farms use a mix of family, collective, and hired labour. The type of labour that is referred to is clearly indicated whenever labour is discussed. 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 farmgate price obtained from multiple interviews and in bibliographical research. Net farm coffee income is calculated as total coffee income minus costs of coffee production.

Coffee is traditionally produced in the highlands in the south and southwest of the country. Coffee from southern regions (Sidamo, Guji, Yirgacheffe) and from the high-altitude parts of the Limu region is considered to be of higher quality.[46]

[41] USAID. "Feed the Future Ethiopia Value Chain Activity," 2021, citing USDA; Gurmessa et al., "Sustainability and Gender Dynamics of Coffee Value-Chain Development Intervention: Lessons from Ethiopia." 2022. Also USDA FAS (Foreign Agricultural Service), "Ethiopia: Coffee Annual," 19 May 2023
[42] ICO. "The Value of Coffee. Sustainability, Inclusiveness, and Resilience of the Coffee Global Value Chain," 2020.
[43] USDA (FAS) 2023, op. cit.
[44] The main drivers are "A rapid increase in population, government policies promoting intensive coffee production, farming practices by individuals who did not participate in the [Rainforest Alliance] certification program, a lack of incentive to conserve the forest, and loopholes in the auditing process." Arai et al. "Challenges in Conserving Forest Ecosystems through Coffee Certification: A Case Study from Southwestern Ethiopia." Frontiers in Environmental Science 11 (24 July 2023). https://doi.org/10.3389/fenvs.2023.1193242, citing numerous articles from the early 2000s onwards covering different areas of the country. In January 2024, the Ethiopian government in partnership with the United Nations Development Programme (UNDP) and with the support of the Global Environment Facility (GEF), launched a major project to tackle deforestation, promote forest restoration, and integrate sustainability into the country's coffee value chains and food systems. UNDP. "Ethiopia Launched a Significant Project to Combat Deforestation and Boost Coffee Production in Ethiopia," 2 January 2024.
[45] FAOStat link: https://www.fao.org/faostat/en/#data/QCL.
[46] BASIC Interview with Ethiopian coffee sector expert, 6 September 2023. Also blog posts by Ithaka Coffee, growing seasons 2020/21 through 2023/24, and Nordic Approach. "Transparency in Ethiopia," 2022.

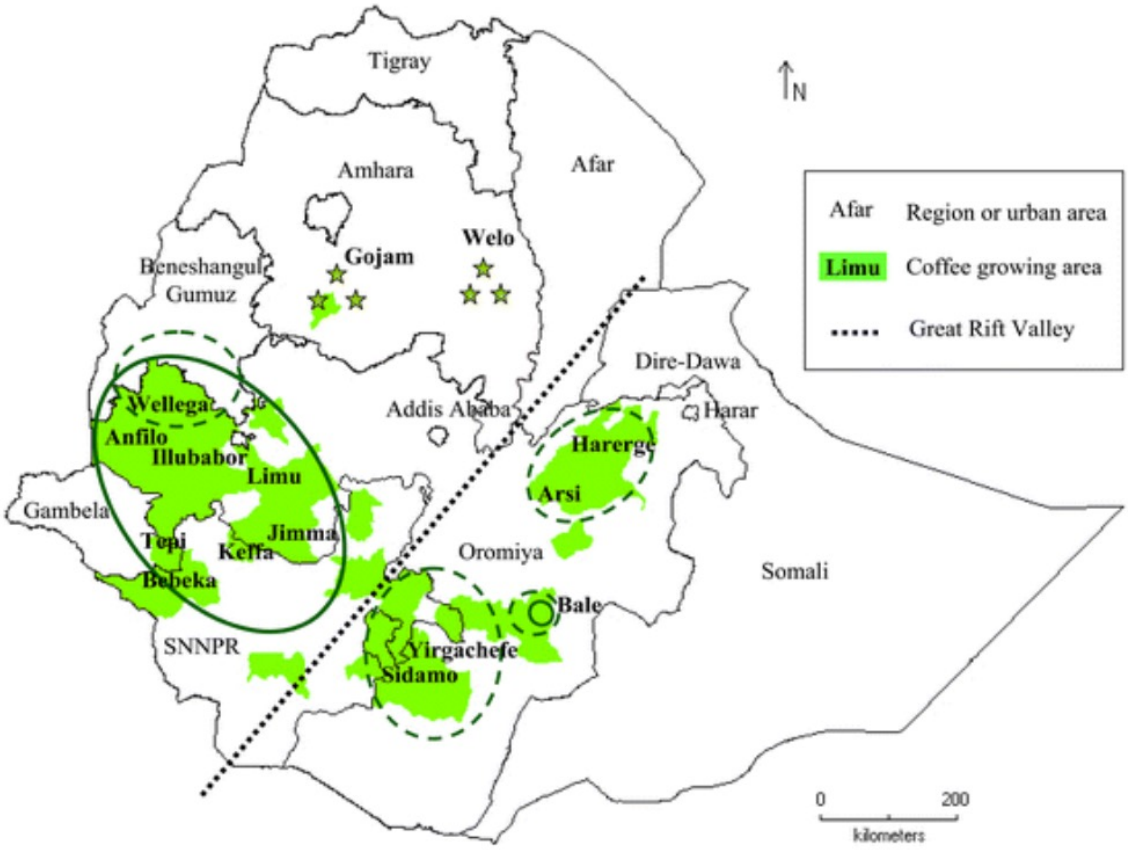

Figure 2. Key coffee growing areas in Ethiopia. Source: USDA, 2023

We have been able to identify several archetypes of coffee production.[48] It should be noted that the garden, semi-forest and forest coffee systems are forms of coffee farming, not archetypes of individual farms. Together, these 3 forms of farming have been combined as a first farm archetype representative of smallholders' coffee farming. Large plantations constitute a very distinct form of coffee farming which has been considered as the second archetype for our study.

[48] In addition to the sources mentioned individually in each paragraph, this section is based on all BASIC interviews with Ethiopia coffee sector experts, as well as articles by Minten and by Beyene, such as: Tamru, Seneshaw, and Bart Minten. "Investing in Wet Mills and Washed Coffee in Ethiopia : Benefits and Constraints." Ethiopian Development Research Institute (EDRI), August 2018. Minten, Bart, Mekdim Dereje, Ermias Legesse, and Seneshaw Beyene. "Tracking the Quality Premium of Certified Coffee: Evidence from Ethiopia." World Development 101 (January 1, 2018): 119–32. https://doi.org/10.1016/j.worlddev.2017.08.010. Beyene et al., "Trade, Value Chains, and Rent Distribution with Foreign Exchange Controls: Coffee Exports in Ethiopia." Agricultural Economics 52 (January 10, 2021). https://doi.org/10.1111/agec.12608. Beyene et al., "Value Addition and Farmers: Evidence from Coffee in Ethiopia." PloS One 18 (January 30, 2023): e0273121. https://doi.org/10.1371/journal.pone.0273121. Minten et al., "Coffee Value Chains on the Move: Evidence in Ethiopia." Food Policy 83 (August 1, 2017). https://doi.org/10.1016/j.foodpol.2017.07.012. Minten, Bart et al., "Structure and Performance of Ethiopia's Coffee Export Sector." ESSP Working Papers, ESSP working papers, 2014. https://ideas.repec.org//p/fpr/esspwp/66.html.

Coffee production profile	Economic model	Economic performance
Garden coffee ≈50% of total coffee production	• Coffee grown alongside food and non-food crops, close to the home • Planting density 1,800 to 2,500 trees/ha • Organic fertilization • Family labour supplemented with hired labour or collective local labour (if above 1 to 2 hectares)	• Yield: up to 550 kg/ha green bean equivalent • Farmgate 2020/21: 22.5 birr/kg • Coffee is not usually the main source of income in Wolaita for example
Semi-forest coffee ≈35% of total coffee production	• Coffee harvested from wild coffee trees and/or coffee trees planted in semi-cleared forests, that are tended to • Planting density 1,200 to 2,000 trees/ha • Organic fertilization • Higher costs than garden coffee per kg • Family labour supplemented with hired labour or collective local labour (if above 1 to 2 hectares)	• Yield: unknown • Farmgate 2020/21: 22.5 birr/kg
Forest coffee ≈5% of total coffee production	• Coffee harvested from wild trees not tended to • Family labour • Sole cost is harvest and tending to cherries as they dry	• Top cost structure elements: fertilizer and labour • Farmgate and yield unknown (this model is a minority in statistics)
Plantation coffee ≈10% of total coffee production Mostly above 10 hectares	• Intensive agroforestry system installed on degraded secondary forest lands and woodland habitats • While some are family farms that have expanded over time, most are government-granted concessions to private companies with hired workers • The largest plantations are equipped with post-harvest processing equipment	• Exact yield unknown[49] • Farmgate 2020/21: unknown, but note that some plantations are vertically integrated with an exporter. Nonetheless, in the absence of better data, we maintain the same price; 22.5 birr/kg

The forms of farming for smallholders are the following:

- **Garden system.** This mode of growing consists of transplanting or planting coffee bushes to the immediate vicinity of the farmer's home, where they grow in a "garden system" alongside other food and non-food crops with organic fertilization.[50] Garden coffee surface areas can be as little as 0.1 to 0.5 hectares, and the number of trees per family can be as low as 30.[51] Some smallholders may also grow coffee more intensively, with or without shading crops.[52] Planting density varies greatly from farm to farm and from region to region, which means that yields per hectare differ too. Garden coffee is planted at a density of 1,800 to 2,500 plants per hectare, and in green bean equivalent, garden coffee production can reach approximately 550 kg/hectare.[53] Approximately 50% of Ethiopian coffee is produced in such garden conditions.[54]

- **Semi-forest system**.[55] This mode of production consists either of picking coffee from wild coffee trees that the farmer tends to periodically, or growing coffee after selectively cutting down trees to retain those most suitable to provide shade.[56] Semi-forest coffee is planted at around 1,200 to 2,000 plants/hectare, and in an optimal situation, semi-forest coffee can reach 800 kg/hectare green bean equivalent.[57] Approximately 35% of Ethiopian coffee is produced in semi-forest conditions.[58]

- **Forest system.** Some farmers engage in "forest" picking, picking coffee from forest trees that they do not tend to at all. The only costs are hired labour for the harvest (if any) and tending to cherries while they dry. Coffee produced under this system represents approximately 5% of production.[59]

[49] According to one interviewee (16 November 2023), plantations are high-productivity, high-yield farms. However, it was also said that family coffee farmers – especially those who have received training and high-quality seedlings – can obtain a high yield per tree, or even per hectare (interview, 6 September 2023). Conversely, those who decide to expand their family farm into a larger enterprise sometimes find themselves in financial trouble due to the cost of labour for weeding and harvesting. (Ibid.)
[50] According to one interviewee, it is now increasingly common for farmers to use seedlings from nurseries instead of uprooting and replanting "wildings." BASIC Interview with Ethiopia coffee sector expert, 23 June 2023.
[51] BASIC Interview with Ethiopia coffee sector expert, 15 February 2024.
[52] See Figure 3 for an archetypal Wolaita farm of this kind. Also BASIC Interview with Ethiopia coffee sector expert, 20 April 2023.
[53] Fairtrade International. "Fairtrade Living Income Reference Price for Coffee from Ethiopia: Explanatory Note," July 2023
[54] SudWind. "Impact of Supply Chain Relations on Farmers' Income in Ethiopia," October 2020. These are the conditions that one finds in particular in the Wolaita region of Ethiopia, which is densely populated and where farmers have an average of maximum 100 to 150 coffee trees. BASIC Interview with Ethiopia coffee sector experts, 9, 12 and 15 February 2024.
[55] Note: what we call the "semi-forest" archetype corresponds to what Fairtrade International 2023, op. cit., calls "forest coffee" – this is evidenced by the fact that Fairtrade "forest coffee" is related to substantial investment of costs in tending to the trees, which is not the case in a "forest" system in our sense of the word.
[56] BASIC Interview with Ethiopia coffee sector expert, 20 April 2023
[57] Fairtrade International 2023, op. cit.
[58] SudWind 2020, op. cit.
[59] Fairtrade International 2023, op. cit.

Together, these modes of production are practised on around 95% of the coffee farms in Ethiopia, representing 4 million to 4.7 million farmers,[60] and at least 90% of output in volume terms. **The vast majority of the related coffee surface areas are under 1 hectare.** Again, these are archetypes of coffee production, not individual farms: within individual farms, growers may engage in any of the three practices in combination. Moreover, some regions are better known for one type of agriculture than another: for instance, farmers in the Wolaita region practise mainly garden and monocrop coffee (densely populated areas, few forests, see photographs below), while the Sidama and Oromia regions are known for their semi-forest coffee (see photographs below). Further, these archetypes are blurred in reality, as the profile of the land and the plants grown on it can change over time, generally in the direction of greater intensification (forest → semi-forest → garden).[61]

As for larger farms, there are very few above 3 hectares of coffee (the richest farmers may farm more than 5 hectares).[62] In this ideal type, the farm is structured in more or less concentric circles or interlocked rectangles around the house, beginning with a plot of enset (a kind of false banana that is a staple crop in Ethiopia and whose leaves can serve as fodder for animals), followed by garden coffee with or without shading, followed by large fields for annual crops. The annual crops, which receive chemical fertilizer and are ploughed by oxen, provide food for humans and animals (which in turn provide manure for compost; milk; and/or ploughing power).[63] In-kind exchanges between local producers are a pillar of the economy in some areas (such as Wolaita, but potentially others): for instance, poor farmers farm the land of richer farmers in exchange for a share of the crop, or they may tend to the animals of richer farmers, using the manure to make compost, and sharing (if it is a cow) the butter and milk of the cow with the richer owner.

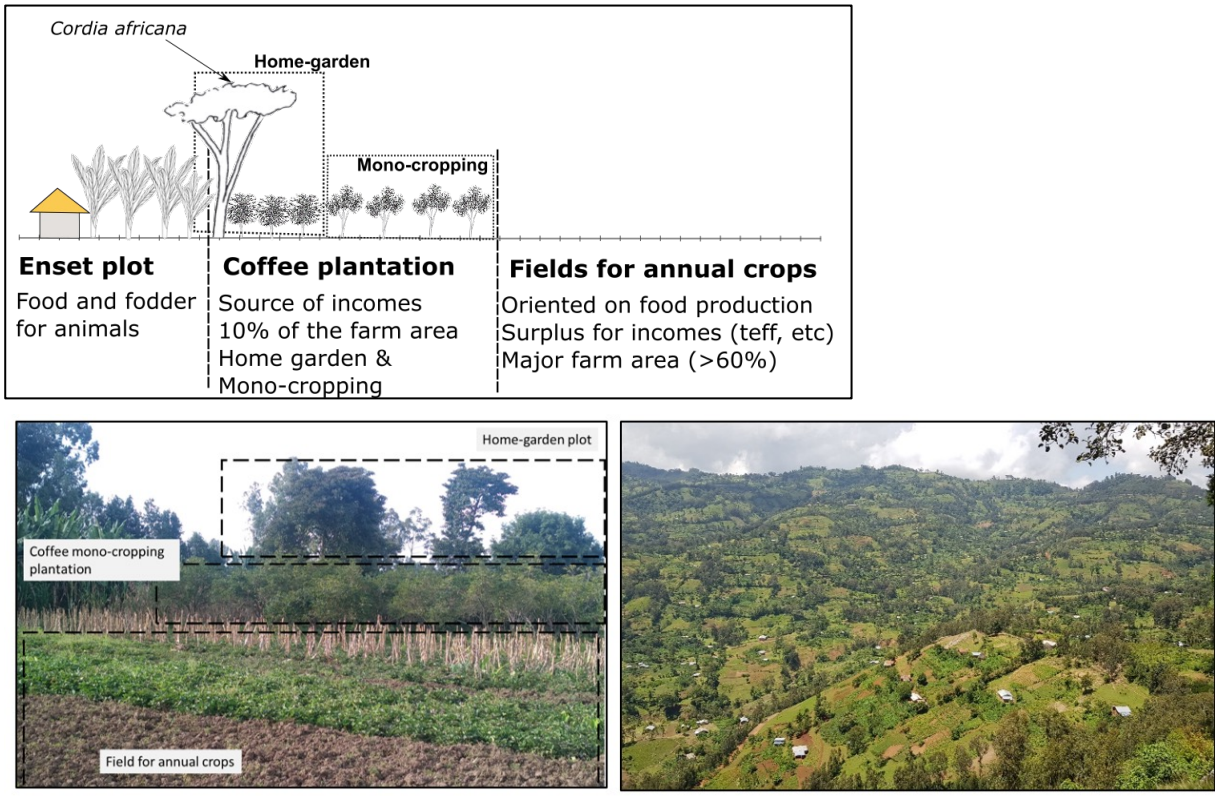

Figure 3. Archetypal family farm structure in Wolaita province, Ethiopia. Source: Inter Aide64

[60] For the figures 4 to 4.7 million, FAO 2014 ("Analysis of price incentives for coffee in Ethiopia); Ethiopian Central Statistics Agency (CSA) 2013, cited in Minten et al., "Structure and Performance of Ethiopia's Coffee Export Sector," 2014; and Teferi, "Coffee Weed Management Review in South West Ethiopia," 2018, citing the CSA but in 2015.
[61] SudWind 2020, op. cit.
[62] This is clearly visible in the figure on page 15 of Global Coffee Platform. "African Coffee Sector: Addressing National Investment Agendas on a Continental Scale. Ethiopia Case Study," September 2016, where one sees that the number of farmers above 3 hectares or above 10 hectares are completely absent from the graph, whereas plantations make up a few percentage points of the number of farmers. Also BASIC Interview with Ethiopia coffee sector expert, 20 April 2023.
[63] Inter Aide. "Report on the Visit in Sidama – Oromia," April 2021.
[64] Inter Aide, "Agrarian Diagnosis in Ofa Woreda," 15 September 2020.

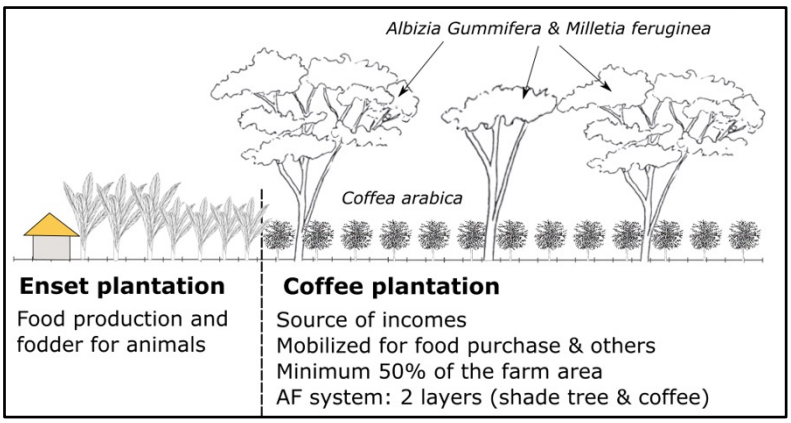

Figure 4. Archetypal family farm structure in Sidamo and Guji, Ethiopia. Source: Inter Aide

- **Plantation coffee** (mainly above 10 ha). Coffee can also be grown in a plantation style, meaning an intensive agroforestry system that functions as a corporation employing workers, as opposed to a farm where the owner farms the land directly and is self-employed.[66] Some plantations are the natural result of expansion of family farms over more and more land,[67] but in the last two decades the state has also granted large concessions of land (beginning around 10 ha but going up to 1,000 ha)[68] to private enterprises to grow coffee in an intensive agroforestry system.[69] Some were initially forest concessions that were partially cleared to make way for coffee, while others were fallow land or land used for other annual crops. According to one description, "commercial/large-scale producers manage coffee plantations mainly in degraded secondary forest lands and woodland habitats, and to a lesser extent semi-forest coffee production."[70] Some of these plantations are vertically integrated up to the export stage. Many hire farm workers. Neighbouring farmers may sometimes work for the plantation, and they are usually invited to sell their ripe cherries to the plantation. Beginning at around 50 to 100 hectares in size, these plantations are said to include a washing station.[71] These plantations represent around 5% to 10% of national production. (The Global Coffee Platform estimated in 2016 that about 200 plantations produce ~7% of total coffee volumes in Ethiopia and in 2018 revised this estimate to 10% of total volumes.)[72]

[66] BASIC Interview with Ethiopia coffee sector expert, 20 April 2023.
[67] BIODEV 3030 et al., "Ethiopian Coffee Sector and Biodiversity: Options and Scenarios of Voluntary Commitments in Favor of Biodiversity by Key Economic Actors in Bale Eco-Region and Southwest Forests," November 2022.
[68] One interviewee reported knowing of a plantation that was 40,000 hectares. BASIC Interview with Ethiopia coffee sector expert, 24 March 2023.
[69] BASIC Interview with Ethiopia coffee sector expert, 24 March 2023.
[70] BIODEV 3030 et al., "Ethiopian Coffee Sector and Biodiversity: Options and Scenarios of Voluntary Commitments in Favor of Biodiversity by Key Economic Actors in Bale Eco-Region and Southwest Forests," November 2022.
[71] BASIC Interview with Ethiopia coffee sector expert, 20 April 2023.
[72] Global Coffee Platform 2016, op. cit.; Global Coffee Platform. "Ethiopia: A Quick Scan on Improving the Economic Viability of Coffee Farming," August 2018.

3. RESULTS OF THE MODEL

Ethiopian coffee accounts for 5% of coffee imports in Germany, but just 0.5% of German supermarket sales are single origin Ethiopia certified, most of them being organic coffee (75%). It is likely that most Ethiopian coffee production is incorporated in higher value products (certified coffee, coffee capsules and overall national brand products), due to the higher price and quality of Ethiopian green coffee.

3.1. Farm level

This section presents the results of our research on the Ethiopian coffee family farms that are included in the model. The first take away of our research is the low level of expenses linked to the costs of production of coffee in Ethiopia:

Cost of agricultural inputs. Unlike for the other producing countries, in Ethiopia synthetic inputs on coffee are virtually unheard of (they are used on some annuals). The costs linked to fertilization are manual labour costs associated with producing compost and applying it to the farmland. Farmers rely on livestock to produce manure for compost; as noted, there are modes of production whereby farmers who do not have enough capital to purchase an animal will tend to a milk cow belonging to a wealthier family and are paid for this service in-kind (part of the cow's production of milk or butter). This system enables poor farmers without livestock to obtain valuable organic fertilizer.

Cost of hired labour. Based on the information collected for this study, family labour is supplemented with hired labour or collective local labour only in cases of farms above 1 to 2 hectares (cf. section 2 above). However, according to several sources, even small farms would need to hire external labour for fertilization, weed control, rejuvenation, harvest, post-harvest processing, and replanting.[73] In practice, according to one interviewee, a large proportion of small farmers do not have the means to hire the labour to farm their land and are thus unable to increase their productive area; it becomes more lucrative to send one family member to the city than it is to increase farm income through expanding agricultural acreage.[74] Collective labour, rotating from farm to farm within a single village, is also a practice used to increase accessibility to hired labour at a low price.[75]

In addition to the (very) low level of expenses linked to the costs of production of coffee, another factor which singles out Ethiopia from the other countries included in our analysis (Brazil, Colombia, Vietnam) is that we were unable to quantify these expenses because of the lack of statistics and available data (see text box below).

Methodological note: lack of data on the costs of production of Ethiopian coffee

Despite having conducted 12 interviews and reviewed dozens of articles and reports, we were not able to arrive at a satisfactory quantification of expenses linked to the costs of production of Ethiopian coffee. While one academic paper did provide production costs,[76] it was limited to a single region of Ethiopia and did not make a clear distinction of whether the costs were for garden or semi-forest coffee. Meanwhile, the Fairtrade living income study of 2023 did not calculate current production costs, but rather the costs related to "sustainable" coffee production.[77] In the absence of robust data on the current situation disaggregated by production model, we have focussed our analysis on the determinants of coffee farm income.

Based on the above-mentioned results, the total coffee income of the **Ethiopian coffee family farms** that is estimated in the model corresponds to the amount of money left for them to pay for the expenses linked to coffee production (if there are any), remunerate the work of the farmer who is self-employed and the work of his/her family members as well as invest on the farm, spend on contingencies and emergencies, etc. Beyond these costs borne by coffee farmers' families, the information collected in this study did not allow any estimate of "net profits" at the level of Ethiopian coffee farmers, in large part because of their self-employed structure. Therefore, the available data did not make it possible to come up with any estimate of "net profits" for the archetypes of Ethiopian coffee farms included in the model. This even applies to Ethiopian coffee plantations (archetype 2) even though all their labour is salaried, as we were unable to find published accounts showing their annual net profits (after payment of all costs).

Despite the limitations of data described above, we were also able to analyse the factors that influence the coffee farm income of smallholders in Ethiopia (see below).

[73] BASIC Interview with Ethiopia coffee sector expert, 20 April 2023 and Fairtrade 2023, op. cit.
[74] Ibid.
[75] BASIC Interview with Ethiopia coffee sector experts, 6 September 2023 and 7 March 2024.
[76] Diro et al. "Cost of Production of Coffee in Jimma Zone, Southwest Ethiopia." Ethiopian Journal of Agricultural Sciences 29, no. 3 (2019): 13–28.
[77] Fairtrade International. "Fairtrade Living Income Reference Price for Coffee from Ethiopia: Explanatory Note," July 2023.
[78] BASIC Interview with Ethiopia coffee sector expert, 15 February 2024. Ibid.

Yields, number and age of coffee trees. Because of the diversity of modes of production in Ethiopia (garden, semi-forest, forest, plantation, etc.) it is sometimes preferable to work not in terms of hectares but rather in terms of the number of coffee trees. A prime-of-age, single coffee tree in a garden system is expected to yield around 3.5 kg of cherry – 2.5 kg in "off" years and 4 to 4.5 kg in "on" years. Meanwhile, an old coffee tree might yield as little as 0.5 kg per year. Trees are tended to intensively in both smallholder and plantation systems.[79] Ultimately, farm coffee income depends most on the amount of coffee sold (total quantity produced x farmgate price).

Choice of processing (dry vs. red cherry). While wet mills have mushroomed in rural Ethiopia in recent years, there is comparatively little uptake[80] with great variation by region.[81] Farmers are reluctant to sell red cherries to wet mills because (1) the extra hired labour cost involved[82] and (2) only "impatient" (usually poorer and smaller) farmers sell red cherries, the remainder keeping their dried cherries as a form of savings/insurance to offset high inflation and negative real deposit rates.[83] It is important to underline that coffee farmers are not always free to choose whether they sell their coffee red or dry. Some producers have no choice but to sell naturals, for instance when poor transportation infrastructure makes it impossible to deliver red cherries to a washing station on time (<12 hours after picking).[84] Other farmers are pushed into selling naturals because the coffee harvest coincides with the harvest of other crops (barley, teff, maize, etc.); for lack of time, they have no choice but to strip their coffee branches (harvesting all cherries in one pass), which makes it complicated to sell red cherries only.85

Prices. In February 2020, the Coffee and Tea Authority established a minimum export price for coffee as well as a semi-official floor price for coffee at local selling centres. The minimum export price is calculated daily, based on the global weighted average of the price given to different grades of coffee from different regions.[86] At the time, the measure raised the price for green coffee by a margin of about 0.5 to 1 USD/lb for Grade 1 (best grade) coffee.[87] Exporters who sell coffee below the minimum price are subject to legal action from the Ministry of Trade[88] Meanwhile on the farmgate side, a semi-official minimum price to be respected by traders at selling centres is announced by local authorities (in at least some regions) on a daily basis.[89]

Coffee quality. As elsewhere in the world, exporters sell high-quality coffee, especially "specialty coffee" that either has a favourable cupping profile or a single, high-value geographic origin, for a higher price. However, it is unclear how much of this value-added is paid back to coffee farmers, and the lack of price transmission may disincentivize the production of high-quality coffees.[90] Quality profiles are often attached to regions: for instance, "Some regions are well known for the good qualities and achieve a higher price (e.g. Yirgacheffe and Harar) while others get a lower price than the average (e.g. Jimma and Wolaita)."[91] High-quality coffees were said to be purchased at up to 120 to 150 birr/kg red cherry in late 2023,[92] about four times the farmgate price of Grade 3 coffee.[93]

Non-coffee income. As noted earlier, if farmers cannot make a living from coffee alone, then they need to diversify their sources of income. This can be through performing off-farm labour, including on neighbouring farms; growing or collecting other crops, spices, firewood or honey; running a small business (shop, transportation service); or remittances from a family member in the city. Dynamics differ from region to region. For instance, whereas in Wolaita region, coffee is a minor source of income for families (20% to 30% of revenue),[94] in regions such as Sidama, Guji or Yirgacheffe approximately 80% of farm income comes from coffee alone.[95] On these farms there may be a small garden-style plot with taro, beans, and maize that is consumed by the family itself, but these families are not food self-sufficient, and coffee earnings are used to purchase additional food items. In the Wolaita region by contrast, where coffee is a much smaller proportion of farm income, there will be greater emphasis on annuals that can be eaten by humans, fed to animals, or sold.[96]

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[79] According to one interviewee, yields per tree can be higher in semi-forest and small garden systems than on extensive coffeeplantations, because the farmers have the time to tend to their trees individually (pruning, weeding, stumping, ...). BASIC Interview with Ethiopia coffee sector expert, 6 September 2023. However, plantations are also known to use intensive agricultural practices with resort to hired labour so as to organize "pruning, mulching and organic fertilizing, stumping, integrated weed and pest management, well-regulated shade and plant density." BIODEV 3030 et al., "Ethiopian Coffee Sector and Biodiversity: Options and Scenarios of Voluntary Commitments in Favor of Biodiversity by Key Economic Actors in Bale Eco-Region and Southwest Forests," November 2022.

[80] While the number of farmers saying they have the option to sell red cherries has increased threefold (43% in 2022 against 15% in 2014), the share of the crop that was reported to be sold as red cherries has increased only slightly (19% in 2022 versus 14% in 2014). Beyene and Minten. "Value Addition and Farmers: Evidence from Coffee in Ethiopia." 2023. There is a similar situation with semi-washed (honey) demucilagers distributed to farmers. See Gurmessa et al., "Sustainability and Gender Dynamics of Coffee Value-Chain Development Intervention," 2022.

[81] Tamru and Minten. "Investing in Wet Mills and Washed Coffee in Ethiopia: Benefits and Constraints," Ethiopian Development Research Institute (EDRI), August 2018, p. 12. The uptake in washed coffee varies by region (Ithaka 2020, op. cit., p. 11): for instance washed coffee is well-developed in the south – Sidamo (62% washed) Gedeo (37% washed) Kembata Tembaro (67%) Borena (35%) – and to a lesser extent in Jimma in the West (22% washed), while elsewhere it is widely in the minority.

[82] 52% more labour per hectare compared to farmers that do not sell red cherries, for the harvest part. This is due to the need to selectively pick red cherries instead of stripping the branches. Tamru and Minten. "Investing in Wet Mills and Washed Coffee in Ethiopia: Benefits and Constraints," Ethiopian Development Research Institute (EDRI), August 2018, pages 15 and 16.

[83] Tamru and Minten. "Investing in Wet Mills and Washed Coffee in Ethiopia: Benefits and Constraints," Ethiopian Development Research Institute (EDRI), August 2018.

[84] SudWind. "Impact of Supply Chain Relations on Farmers' Income in Ethiopia," October 2020.

[85] BASIC Interview with Ethiopia coffee sector expert, 20 April 2024.

[86] Nordic Approach. "Transparency in Ethiopia," 2020.

[87] In euros: an increase of 0.93 €/kg to 1.86 €/kg for Grade 1 coffee. Nordic Approach. "Transparency in Ethiopia," 2020.

[88] Algrano. "Ethiopia Coffee Harvest Season 2022-23," 2022.

[89] BASIC Interview with Ethiopia coffee sector experts, 8 March 2024 and 12 February 2024. According to one interviewee, the semiofficial price is the outcome of consultations between local authorities and local traders (akrabis) on the prevailing price. It is reportedly broadcast on the radio and widely known, at least in some regions. We could not confirm whether the practice exists all over Ethiopia.

[90] SudWind. "Impact of Supply Chain Relations on Farmers' Income in Ethiopia," October 2020.

[91] Ibid.

[92] BASIC Interview with Ethiopia coffee sector expert, 16 November 2023. The coffee in question was from the Sidamo region in the Karamo kebele; the first winner of the Cup of Excellence contest was from this area.

[93] The farmgate price for Grade 3 coffee for the 2023/2024 campaign was around 34.5 birr/kg. BASIC Interview with Ethiopia coffee sector expert, 12 February 2024.

[94] According to one interviewee, garden coffee in general is associated with a 10% to 30% proportion of farm income that comes from coffee. BASIC correspondence with Ethiopia coffee sector expert, 11 March 2024.

[95] BASIC Interview with Ethiopia coffee sector expert, 15 February 2024.

[96] Ibid.

Comparison of coffee net income with costs of decent living

While estimates of costs of decent living for rural regions of Ethiopia are available,[97] they do not provide the necessary data on farmers' current revenue structure to indicate whether the net income from coffee, when supplemented by other sources of income, is sufficient to cover the costs of decent living. However, the picture of rural Ethiopian coffee-growing regions painted by interviewees and other sources is one in which poverty is common. For instance, an Enveritas study from 2019 that interviewed 13,204 coffee producing households from nine coffee growing regions in Ethiopia found that only 30% to 35% of farmers in the targeted coffee regions are above the United Nation's 2011 poverty line of 3.10 USD (in line with purchasing power parity terms).98

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. Value chain actors on this rung of the value chain can include (as in other coffee production countries analysed in this study) small private independent traders, medium-sized independent traders, traders working for international exporters, cooperatives that export, cooperatives that do not export, cooperative unions, international companies, etc. 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).

Furthermore, data on this subject is virtually non-existent in the public domain. To our knowledge, there are no official statistical databases on exporter costs, taxes, and net profit margins – only isolated information in academic papers, "grey" literature, or the websites of parastatal agencies that regulate, survey, or are otherwise associated with 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 Ethiopia, we were able to obtain an estimate of individual costs to exporters – see pie chart in Figure 5 – but not taxes and net profit margins. We know only that the total value-add from farmgate to FOB for conventional coffee is approximately 0.20 euros/kg. This very narrow value-add at the collection and export stage appears to reflect the situation described above, where farmers capture a significant portion of the FOB price (here estimated at 94%) while many exporters operate at a loss on the coffee side of their business.

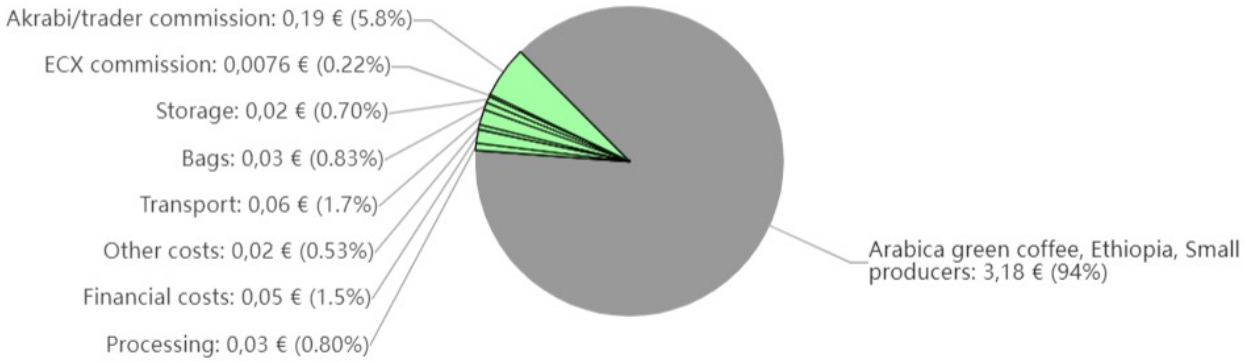

Figure 5. Distribution of costs for collectors and exporters of Ethiopian coffee. Source: BASIC, based on bibliography and interviews (2023)

[97] Fairtrade International. "Fairtrade Living Income Reference Price for Coffee from Ethiopia: Explanatory Note," July 2023.

3.3. Certifications: Rainforest Alliance

The historical certifications in Ethiopia are Rainforest Alliance, Fairtrade, and Organic.[100] Rainforest Alliance and Fairtrade include a premium that is paid either to the producer (for the former) or to the cooperative (for the latter). Figure 6 shows the distribution of value between Rainforest Alliance coffee at the export stage on the right, compared to non-certified coffee on the left. In the Rainforest Alliance scenario, farmers earn 0.14 euros/kg more than non-certified farmers for total farm income, thanks to the Rainforest Alliance premium on Arabica coffee.

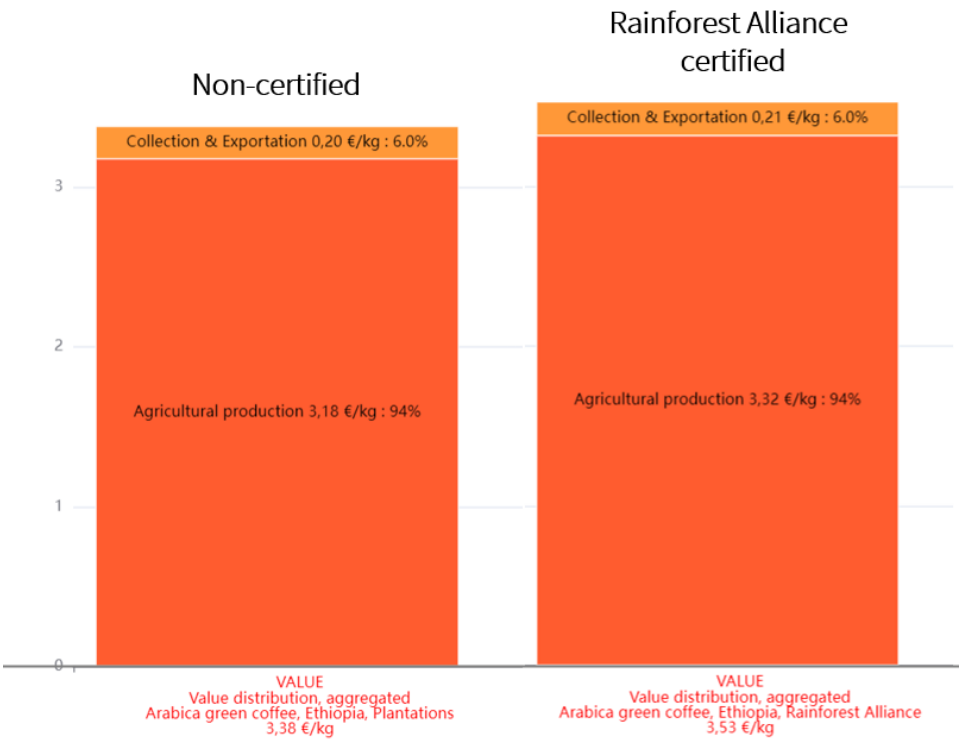

Figure 6. Distribution of value for non-certified (left) and Rainforest Alliance certified coffee sourced from Ethiopia, for plantations or large cooperatives (in red) and collectors and exporters (orange). Source: BASIC, based on bibliography and interviews (2023)

One interviewee suggested that the Rainforest Alliance was more likely to be obtained by larger farms or cooperatives which achieve economies of scale, because the return on investment for a smallholder was not sufficient to warrant obtaining the certification.[101] In a 2018 study, the analysis of data published by Fairtrade International and Rainforest Alliance showed that members of Fair Trade Certified cooperatives have very small holdings close to the Ethiopian average and belowaverage yields, whereas Rainforest Certified producers are "entrepreneurial farms" specialized in coffee growing, which they cultivate on average areas ranging from 2 ha to 7 ha[102] At the exporter level, there is almost no change to the cost structure of collectors and exporters. The only difference is the addition of certification and traceability costs, which are evaluated at less than 0.01 euros/kg. As was the case for conventional coffee, we do not have taxes or net profit margin information for exporters.

[100] TEEB. "Protection of Biodiversity through Coffee Certification? The Case of Forest Coffee in Bench Maji and Kaffa Zone, Ethiopia," 2010.
[101] BASIC correspondence with Ethiopia coffee sector expert, 26 March 2024.
[102] BASIC Coffee: The Hidden Crisis Behind the Success Study on Sustainability Within the Coffee Industry, 2018.

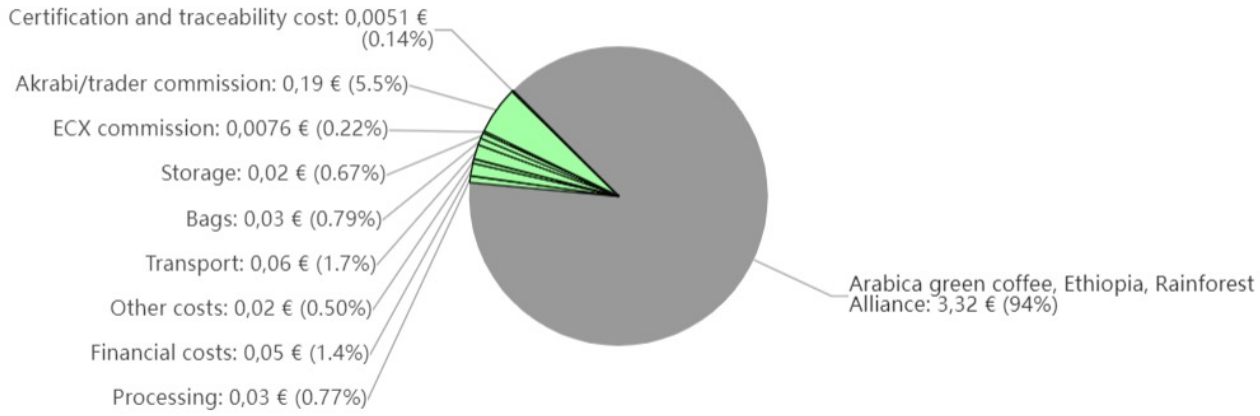

Figure 7. Distribution of costs for collectors and exporters of Ethiopian Arabica coffee in 2021. Source: BASIC, based on bibliography and interviews (2023)

Because Organic is outside the scope of this study and is always partnered with Fairtrade in Ethiopian coffee sold on the German market, the double Fairtrade-Organic certification is not included in the model. However, much of Ethiopia's coffee is produced in *de facto* organic conditions, as discussed above, with or without an Organic certification.

Whether or not certifications are "worth it" economically for farmers is an open question. As in other countries, much coffee that is produced under certified conditions is not sold as such, which means that the farmer may not recuperate his or her costs of certification.[103] Further, implementation of voluntary sustainability standards (VSS) is hampered by higher production/certification costs relative to benefits, and lack of skilled leadership; while certified farmers do receive second payments and dividends, it is expected that uptake is higher amongst commercial farms than amongst smallholders.[104]

[103] SudWind. "Impact of Supply Chain Relations on Farmers' Income in Ethiopia," October 2020.
[104] Minten et al. "Tracking the Quality Premium of Certified Coffee: Evidence from Ethiopia," 2018.

13.4 COFFEE PRODUCER COUNTRY PROFILE: VIETNAM

1. RELEVANT CONTEXT REGARDING ECONOMIC VIABILITY

1.1. Production and export profile

Vietnam is the world's no. 2 producer of coffee and no. 1 producer of Robusta. Vietnam has been second only to Brazil in world coffee exports since 2002. It produces around 30 million bags of coffee per year (1.8 million tonnes), of which 95-97% are Robusta and 3-5% are Arabica.[1] According to the Vietnam General Statistics Office, total estimated planted size was 705,900 hectares as of 2021, of which 93.9% was Robusta (FAO statistics on harvested area are slightly smaller).[2] Coffee production has been on a near-continuous increase since the late 1980s, driven in large part by increases in yields (see Figure 1).

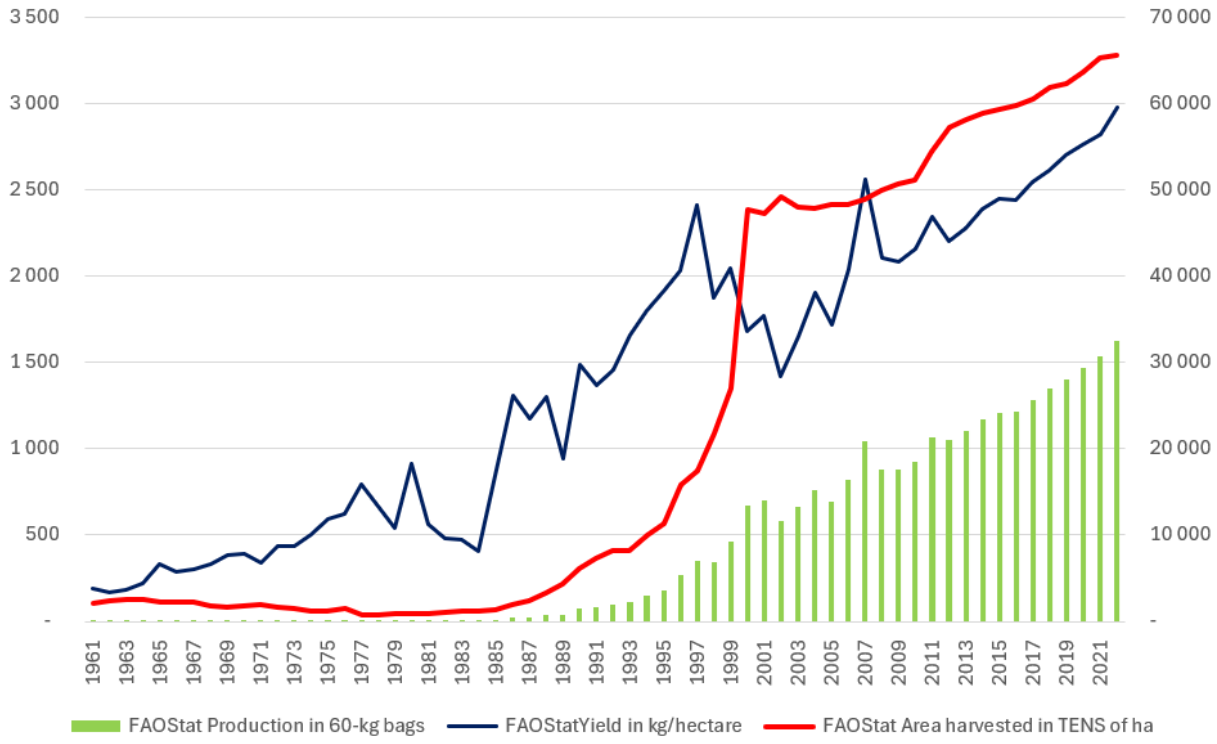

Figure 1. Estimated yield (left axis), area harvested in (right axis), and production (right axis) in Vietnam. Source: BASIC, based on FAOSTAT [3]
Remark: the decision to represent TENS of hectares was so as to make it clear on the chart to what extent it is both yields and surface area which have driven Vietnam's ascendancy to the world's second-largest coffee producer. The rise in production in response to both of these variables is also significant and easily seen.

Historically, coffee has competed with rice for the position as no. 1 value in foreign exports from Vietnam. Export value in 2019 was 2.7 billion USD,[4] making coffee a significant source of foreign exchange for the Vietnamese economy.

Currently, approximately 90 to 95% of the coffee crop is thought to be exported.[5] Dynamic growth began in the 1980s with commercial agreements with Eastern Europe,[6] and then with the rest of the world in the 1990s. Although exports to Asia have blossomed as tea drinkers turn to coffee,[7] Europe remains Vietnam's largest coffee export market: it accounts for 33.8% of total export volume and 58.9% of total export turnover.[8] Germany is Vietnam's first coffee trading partner, capturing 18% of the total value of coffee exported from Vietnam.[9] The EU-Vietnamese Free Trade Agreement has eliminated all import tariffs for all unroasted or roasted coffee products from Vietnam, creating an advantage for Vietnamese coffee.[10]

[1] USDA Foreign Agricultural Service, "Vietnam: Coffee Annual," June 2022; ICO, "Coffee Country Profile: Vietnam," 2019; also Sucafina, "Sucafina origins: Vietnam," 2023 and AgroInfo (Government of Vietnam). "In 2023, Coffee Will Be Exported To Many Large And Potential Markets." 26 December 2022.
[2] General Statistics Office of Vietnam, "Planted Current Area of Main Perennial Crops by Items, Main Perennial Crops and Year," 2023.
[3] FAOStat link : https://www.fao.org/faostat/en/#data/QCL .
[4] Hivos, "Coffee Barometer 2020," 2021 and Thăng, "The Role of Vietnam in the Global Coffee Value Chain." 2022.
[5] ICO 2019, op. cit.
[6] World Bank, and IPSARD, "Vietnam Coffee Supply Chain Risk Assessment: Draft Report," August 2011.
[7] ICO 2019, op. cit.
[8] VietnamCredit, "Top 10 Largest Coffee Exporters In Vietnam In 2021." 2021.
[9] UN Comtrade, 2023.
[10] Ibid.

Vietnam, like many countries in East and Southeast Asia, is generally a tea-drinking country. However, there is a growing domestic market for coffee. This is evidenced by, for instance, the presence of numerous roasting companies in the country, [11] as well as the rise of a variety of local coffee shop franchises.[12] It is reported that in terms of markets, the high-end segment is dominated by foreign companies, but mid- and low-price coffee is dominated by local brands.[13]

1.2. Overall farming context

Vietnam is characterized by a strong tradition of coffee smallholders who occupy small (less than 2 ha) parcels of land. According to national statistics in 2019, 91% of farmers farmed less than 2 hectares, and 61% farmed less than 1 hectare.[14] The average farm size for coffee smallholders in the Central Highlands in Vietnam, the country's "coffee-basket," is 1.3 ha.[15]

Coffee farms tend to exclusively produce coffee, although some practise intercropping with shade or non-shade crops; these can be an additional source of on-farm income.[16] Intercropping is recommended by the UN-REDD+ framework as a way of improving coffee farms' net income.[17] While it takes several years for the benefits to begin to be felt, intercropping provides additional sources of income and can serve as a buffer when coffee prices are low, in addition to other positive environmental and climate-resilience impacts.[18]

Among the costs to Vietnamese farmers, synthetic inputs – specifically fertilizer – are the single largest cost on average (discussed in section 3). Next down the line is hired labour (also discussed in section 3). There is a genuine problem of overuse of synthetic fertilizer over the years, resulting in land degradation and causing the soil to lose its fertility and be infested with fungal diseases and nematodes.[19] Coffee trees are growing old, and rejuvenation may not be proceeding at a fast-enough pace – although Vietnamese coffee farmers in some provinces have applied techniques of grafting branches for the rejuvenation.[20]

FOB price capture by smallholder producers in Vietnam is remarkably high – reaching 95% or more in some years.[21] This has only been the case since the first decade of this century, when various factors contributed to diminish the cut of coffee value taken by middlemen, which was historically around 35% to 40% of the FOB price (see inset on Middlemen below).[22] In addition, Vietnamese farmers typically process their coffee all the way to green bean, which entails higher FOB capture as the only thing left to do for the exporter is polishing, removing final defects, and grading.[23]

Focus on: Middlemen in Vietnam

Middlemen play a critical role in the coffee value chain in Vietnam. Either self-employed, salaried by an exporter, or working for a state-owned farm/exporter, a network of 2,000[24] to 3,000[25] middlemen-collectors visit villages and collect what coffee there is to buy. Middlemen come in different sizes, and smaller ones sometimes resell to larger ones.[26] Respondents to a survey on coffee in Vietnam (among other countries) conducted in 2019 showed that virtually all producers (>95%) said they only sell to middlemen, as opposed to other intermediaries.[27] In addition, international companies in Vietnam are by law prevented from buying directly from farmers. This is one of the main reasons why middlemen play such a crucial role.

[11] Vietnam Briefing News, "Vietnam's Coffee Market Faces Challenges Despite Strong Exports," 2022.
[12] Ibid.
[13] Ibid.
[14] Unfortunately, it is not clear from the data whether this is total acreage or total coffee acreage. Vietnam's General Statistics Office, which was the original source for this estimate in 2019, has ceased publishing the data on farm size distribution both online and in the Vietnam Statistical Summary Book of Vietnam, so one can only rely on the numbers given in Nguyen and Drakou, "Farmers Intention to Adopt Sustainable Agriculture Hinges on Climate Awareness: The Case of Vietnamese Coffee." 2021.
[15] BASIC Interview with Vietnam coffee sector experts, 27 February 2023 and 4 May 2023 (same organization).
[16] This is notably the case in Dak Lak province (BASIC interview with Vietnam sector experts, January 2024). The options for intercropping include pepper, avocado, durian, macadamia, mango, or cassia; the legume genus Crotalaria is also recommended to fend off pests and diseases. Although cassia is seen as not yielding benefits until the full maturity of the tree for timber, it can be used as a support for pepper, which is a vine. UN-REDD. "Addressing Smallholder Resilience in Coffee Production in the Central Highlands, Viet Nam: The Business Case for Intercropped Coffee Production," April 2020; Agergaard et al., "Global-Local Interactions: Socioeconomic and Spatial Dynamics in Vietnam's Coffee Frontier." 2009; BASIC Interviews with Vietnam coffee sector experts, 3 March 2023, 4 May 2023 and 5 May 2023.
[17] UN-REDD 2020, op. cit.
[18] Depending on how quickly the transition is made and on which crops are chosen for intercropping, the break-even point is a minimum of 6 years and can reach 14 years for coffee/cassia. UN-REDD 2020, op. cit., p. 14. As to benefits, intercropping can improve soil structure and moisture retention, promote biodiversity, and provide shade to coffee trees. This may provide economic benefits by reducing farmers' dependence on fertilizer and irrigation, and it makes farms more climate resilient. UN-REDD 2020, op. cit. and Alliance Bioversity International - CIAT. "Toward a Sustainable Coffee Future in Vietnam's Central Highlands," 29 January 2021.
[19] UN-REDD 2020, op. cit.
[20] In 2019, ICO reported that about half of the coffee trees in Vietnam are at their most productive (between 10 and 15 years old). However, for the remainder "nearly 30% of coffee trees are between 15 to 20 years old and about 20% are more than 20 years old." Their output will decrease season by season; replacing them is costly and time-consuming (ICO 2019, op. cit.). Further, existing government replanting programmes have come under criticism for targeting inappropriate areas and abandoning farmers who have too little capital to apply for credit. ICO 2019, op. cit. and Hung Anh et al., "Smallholders' Preferences for Different Contract Farming Models: Empirical Evidence from Sustainable Certified Coffee Production in Vietnam," 2019.
[21] World Bank 2005, cited in Mai et al., "Testing Vertical Price Transmission for Vietnam's Robusta Coffee." 2018; Lee, "Coffee Middlemen in Dak Lak, Vietnam: A Key Stakeholder of Coffee Value Chain as an Intermediary of Changes in Local Economies." 2013; Hivos 2021, op. cit; World Bank and IPSARD 2011, op. cit.
[22] During the period 1991–2003, "coffee growers in Vietnam, on average, received only 62 per cent of the export price (and falling as low as 31 per cent in 2003)." Mai et al. 2018, op. cit.
[23] BASIC interview with Vietnam coffee sector expert, 21 August 2023.
[24] World Bank and IPSARD 2011, op. cit.
[25] IDH and Enveritas. "An Analysis of the Role of Middlemen in Coffee Supply Chains," 2020.
[26] Ibid.
[27] Ibid.

These middlemen are also involved in the production side of the equation, as they provide inputs to up to 75% of the farmers they deal with, alongside access to finance and storage of coffee until sold.[28] Most middlemen buy already hulled green coffee[29,30] Several interviewees stated that middlemen are essential to their business, as it would be too complicated to deal with individual farmers who have only a few tons to offer each.[31]

Interviewees reported that both middlemen and traders sometimes lack transparency in their practices and they may, for instance, capture and not redistribute the premium for certified or specialty coffee.[32]

2. PRODUCERS' ARCHETYPES

Methodological remarks

In sections 2 and 3 we examine the production costs and income dynamics for different archetypes of farms in Vietnam. It should be underlined that Vietnam, 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 Vietnam, 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.[33] Net farm coffee income is calculated as total coffee income minus costs of coffee production.

Given the limitations of data that we were able to collect, three farm archetypes were modelled for Vietnam: smallholder farms of less than 2 hectares, small private farms above 2 hectares, and state-owned plantations farmed by smallholders.

Farm profile	Economic model	Economic performance
Smallholder farms Mainly under 2 ha ≈90% of private farms (not state-owned farms) INCLUDED IN THE MODEL	• Family labour + hired labour for the harvest • Obtain inputs and sometimes credit from middlemen • High use of fertiliser • May use irrigation • Naturals processing – own a hulling machine or rent it[34] • Marketing via middlemen • Non-coffee or off-farm income to make ends meet	• Top cost structure elements: • fertilizer and labour • Yields: up to 3,750 kg/ha. National average 2,825 kg/ha • Farmgate: 1.23 €/kg (Oct 2020-Sept 2021 average)[35]
Medium size private farms Mainly 2 to 10 ha ≈9% of private farms NOT INCLUDED IN THE MODEL	• Family labour + more hired labour for the harvest • Likely obtain inputs from middlemen • High use of fertilizer • May use irrigation • Naturals processing – own a hulling machine & rent it out as a service • Marketing via middlemen	• Top cost structure elements: fertilizer and labour • Farmgate and yield unknown (this model is a minority in statistics)
State-owned farms cultivated by smallholders Several hundred hectares each (at a minimum) NOT INCLUDED IN THE MODEL	• Contract farming with smallholders • Family labour + hired labour for the harvest • High use of fertilizer • May use irrigation • Naturals processing • Vertical integration with state-owned stakeholders for processing and export	• Top cost structure elements: fertilizer and labour • Farmgate and yield unknown (this model is a minority in statistics)

Table 1. Overview of the main farming archetypes identified in Vietnam. Source: BASIC, based on bibliography and interviews
Note: While stakeholder interviews and bibliographical review made it possible to identify farmer archetypes based on their economic model, these sources were not specific enough to enable segmenting yield or farmgate price by farm archetype.

[28] In Enveritas's 2019/2020 survey (Ibid.), it was found that 72% of middlemen offer inputs and that 75% of farmers purchased inputs from them. In addition, 74% of middlemen were reported to offer loans, but only 11% of farmers took advantage of them (Enveritas. "An Analysis of the Role of Middlemen in Coffee Supply Chains," 2020). Nonetheless, EU-REDD reports that on the informal credit market run by traders and collectors "Many smallholders borrow money to spend in January and repay the loan when they finish harvesting coffee from October to December." EU-REDD 2020, op. cit., p. 26.
[29] Some, however, purchase raw cherries and conduct drying in addition to hulling; others pass the baton to small processors who then sell the green coffee to exporters or domestic buyers. Lee 2013, op. cit.
[30] BASIC interview with Vietnam coffee sector experts, 21 August 2023 and 3 October 2023.
[31] BASIC Interview with Vietnam coffee sector experts, 3 October 2023 and 21 August 2023.
[32] BASIC Interview with Vietnam coffee sector experts, 3 November 2023 and 1 December 2023.
[33] Farmgate prices are taken into account for the period September 2020 to August 2021, and costs
[34] According to ICO, wet processing also takes place in Vietnam, but it is rare compared to the dry/naturals processing. ICO 2019, op. cit.
[35] 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.

Archetype 1 is substantial enough to warrant inclusion in the quantitative model, as it represents nearly 90% of farms in Vietnam ; the second and third archetypes are set aside because they represent relatively smaller fractions of coffee production in Vietnam.[36]

- **Smallholder farms (under 2 hectares).** The number of these farms is estimated at around 640,000 farms.[37] They tend to have intensive use of inputs, especially synthetic fertilizer. They rely mainly on family labour, except during harvest time, when hired labour is required, either from the local village or migrant workers. Migrants mainly come from coastal or central Vietnam and carry out the harvest from September to January.[38] Most smallholder farmers dry, then hull, their coffee before selling it as green coffee to middlemen/traders. Reliable statistics on off-farm income are hard to come by, and they vary significantly from farm to farm.[39] However, research has shown that when coffee prices decrease, migration to urban areas increases, with migrants sending remittances back to their families.[40]
- **Medium sized private farms (about 2 to 10 hectares)**. These farms above 2 hectares represent approximately 11% of private coffee farms in Vietnam and 8% of farms in Dak Lak province, the heart of coffee-growing in Vietnam.[41] It is expected that they may be more capital-intensive, deploying irrigation and possessing hulling machines – the latter of which they also rent out to smaller farmers to hull their coffee. These farms rely on hired labour for the harvest as well as plot maintenance for the remainder of the year. They too typically sell their coffee to middlemen.
- **State-owned farms cultivated by contract farmers.** These farms represent a minority phenomenon. Estimates of the size of state-owned plantations stand at around 27,000 hectares to 30,000 hectares, amounting to about 4% of coffee-farmed land.[42] On these farms, producers are contract farmers: every year, they commit to giving the state-owned enterprise a fixed quantity of coffee.[43] State-owned enterprises selling coffee are often vertically integrated, with their own network of buyers/intermediaries, milling facilities, and the capability and the right to export green coffee.[44]

In terms of yields, Vietnam has some of the world's highest productivity per hectare, reaching 2.825 tons/ha in 2021 (47,000 60 kg bags).[45] However, much land in Vietnam may already be "maxed out" in terms of synthetic fertilizer, and ageing trees threaten to decrease yields. When coffee trees reach their peak productive years, yields can reach 3,750 kg/ha,[46] and in some regions (Bao Lam, Lam Dong and others) yields reach 7 to 8 tonnes per hectare.[47] In addition, there is still potential for increasing yield through improved varieties.[48]

To try to obtain a better price for their coffee, some farmers have demonstrated increasing interest in producing high-quality coffee; by introducing higher-cupping varieties,[49] for instance, or applying "good agricultural practices" and post-harvest techniques. However, this entails changing practices and new costs.[50]

Due to a shortage of labour and time,[51] it is common practice for smallholders in Vietnam to strip their coffee (the entire crop is picked in just one pass), decreasing the value of the crop.[52] There have been improvements in the past decade in terms of post-harvest infrastructure,[53] but this progress is not uniform.[54] Where progress has not been made, this has a negative impact on potential farm net income.

[36] For this number, too (see footnote 14), it is unclear whether total farm size or coffee farm size is meant. See Nguyen and Drakou 2021, op. cit., citing Vietnam General Statistics Office, 2019. Based on the available information, the differences in production cost structure were not sufficient enough to warrant breaking down this category into two smaller ones.
[37] ICO, "Country Coffee Profile: Vietnam," 2019.
[38] BASIC Interview with Vietnam coffee sector expert, 4 May 2023.
[39] According to a BASIC Interview with a Vietnam coffee sector expert, off-farm income can range from as little as 10% to as much as 90% of net income. BASIC Interview with Vietnam coffee sector expert, 1 December 2023. Another interviewee stated that 30% to 35% of farmers work off-farm. BASIC Interview with Vietnam coffee sector expert, 3 December 2023.
[40] Narciso, "Crop Prices and the Individual Decision to Migrate," 2020.
[41] For this number, too (see footnote 14), it is unclear whether total farm size or coffee farm size is meant. See Nguyen and Drakou 2021, op. cit., citing Vietnam General Statistics Office, 2019.
[42] BASIC Interview with Vietnam coffee sector experts, 21 August 2023, and 4 December 2023.
[43] BASIC interview with Vietnam coffee sector expert, 21 August 2023. According to one source, contracts can also be multi-year (5 to 6 years on average). Hung Anh et al. 2019, op. cit. Also Lee 2013, op. cit. Note that one interviewee contradicted this report, saying that farmers on state-owned farms are paid as employees (BASIC Interview with Vietnam coffee sector expert, 3 December 2023).
[44] ICO 2019, op. cit.
[45] BASIC interview with Vietnam coffee expert, March 3, 2023.
[46] BASIC Interview with Vietnam coffee sector expert, 6 December 2023.
[47] BASIC Interview with Vietnam coffee sector expert, 17 January 2024.
[48] The local research institute (WASI) has released new clonal Robusta varieties that present numerous improvements including increased yield of up to 4 to 6 tons per hectare, thanks to a combination of characteristics. The variety provides good quality beans and also presents suitable size beans, resistance to Hemileia vastatrix disease, and an even pattern of ripening; the cherries also reach maturity later in the year, which is better from the standpoint of irrigation, harvesting and drying. Hung Anh et al. 2019, op. cit.
[49] ICO 2019, op. cit.
[50] Higher-quality coffee requires substantial effort by farmers – switching to higher-grade varietals and replanting: better pruning/canopy management techniques; improved harvest and post-harvest processing methods; investments in fermenting, washing, and drying infrastructure; targeted use of composts or biofertilizers over chemicals; and building internal quality sampling and control capacity.
[51] One interviewee stated that on average there is a 40% labour shortage, which leads to stripping. BASIC Interview with Vietnam coffee sector expert, 3 October 2023. Also BASIC Interview with Vietnam coffee sector expert, 3 December 2023.
[52] ICO 2019, op. cit.
[53] BASIC Interview with Vietnam coffee sector expert, 5 February 2024.
[54] There are still reports of post-harvest infrastructure being inadequate for producing high-quality coffee. Specifically, the criticism is that harvested coffee is mainly dried in the yard, but in many cases "the area for the drying yard is not adequate, leading to the coffee being dried too thickly or piled up, not ensuring the drying and preliminary processing of coffee within 24 hours after harvest." Thăng 2022, op. cit.

3. RESULTS OF THE MODEL

In 2021, Germany was the top destination for Vietnamese coffee exports, accounting for about 17% of the value of exports.[55] Germany was labelled the fastest growing market for Vietnamese coffee exports between 2020 and 2021 according to Vietnamese interviewees. This trend is coherent with information gathered through interviews with German industrial stakeholders, according to whom coffee products sold to German consumers had an increasing share of Vietnamese Robusta.

Within the scope of this study, Vietnamese Robusta is present in each blend sold to German consumers,[56] as it is the sole Robusta origin within the selected four producing countries. There is no Vietnamese Robusta single origin product currently modelled in the study.[57] While Comtrade data indicates that Vietnam accounted for 19% of German green coffee imports in 2021, IRI data suggests that all Vietnamese coffee is sold without any mention of origin in German supermarkets. We estimate that it is most often blended with a certain amount of Arabica to adjust for taste and strength.

3.1. Farm level

This section presents the results of the quantitative model of the distribution of costs and net farm coffee income in the Vietnamese coffee chain, at the farm level.

One important point needs to be underlined at this stage. 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, which only takes into account salaried work. Moreover, coffee farmers of the archetype included in the model are self-employed. The cost of production in this model does not capture family labour which is paid according to the net income generated by the coffee.

Figure 2 shows the breakdown of costs to farmers at the coffee cultivation stage per kilogram of green coffee equivalent, in euros, for smallholder farms of archetype 1 (the only archetype included in the model).

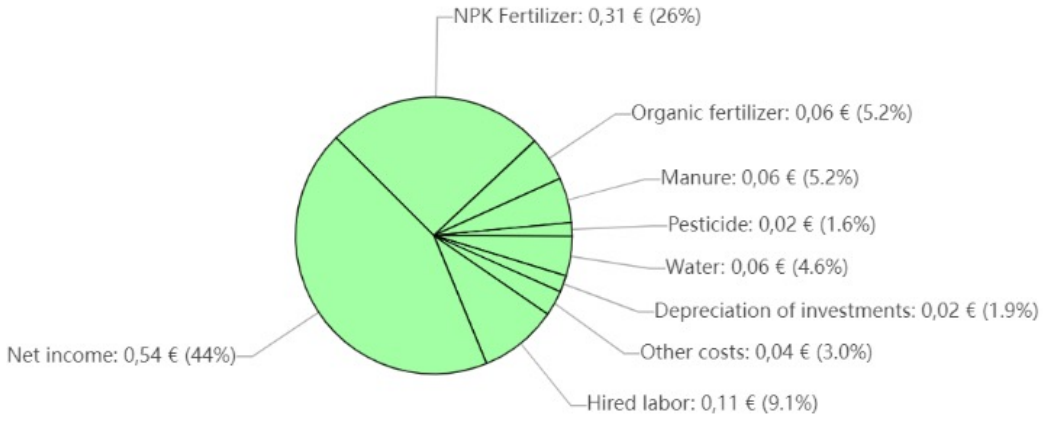

Figure 2. Main costs of production and income for a smallholder farm in Vietnam in 2021. Source: BASIC, based on Hung Anh et al. 2019 [58]

The total value of the pie chart corresponds to the total farmer gross income. Some of this total gross income makes it possible to cover the costs of producing coffee, which are detailed individually (including hired labour, but excluding family labour); the remainder is net income (= total gross income minus costs).

[55] UN Comtrade database.
[56] Typical blend modelled for this study is 60% Arabica and 40% Robusta (see more details in research report).
[57] Circana did not gather data in Germany 2021 on Vietnamese Robusta single origin. Potentially, there are coffee products sold in Germany which are 100% Vietnamese Robusta but if they are not labelled as such, the data is not gathered by Circana and therefore it cannot be modelled in the study.
[58] Hung Anh et al. 2019, op. cit., p. 9.

The single most expensive cost to Vietnamese farmers is synthetic fertilizer.[59] In 2019, NPK fertilizer cost amounted to 0.31 euros/kg,[60] i.e. 26% of sales/farmgate price. Over the years, the cost of fertilizer has increased significantly.[61] In spite of this, its use has been found to exceed the amounts recommended by local authorities and research institutes by 30% to 50%.[62] Current application practices are such that the crop takes up only one-third to one-half of fertilizer nutrients, while the rest leaches into the environment.[63] As to other synthetic inputs, relatively little is spent on pesticides. Nonetheless, a study in the heart of the Central Highlands (Dak Lak province) found that "there were still over 60% of coffee farmers in the province using pesticides for the entire farm even if pests or diseases only occur in a small production area."[64]

The second highest cost to Vietnamese farmers is hired labour. Hired labour costs approximately 0.11 euros/kg; that is, 9.1% of sales/farmgate price.[65] The value is high as there is a shortage of labour, due to rural-to-urban migration and lack of interest in the difficult work of coffee picking.[66] One interviewee reported that some farms have started to invest in mechanization to compensate for lack of labour, but this development is still in its infancy.[67] Finally, a small proportion of Vietnamese farmers who work in forested areas (not included in the model) pay rent on their land.[68]

Once all the production expenses – including fertilizers, pesticides, hired labour, etc. – are covered, all that remains is the **net income.** As it stands, net income of the Vietnamese family coffee farms included in the model is the amount of money left for them 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 face contingencies and emergencies, etc. Beyond these costs borne by coffee farmers' families, the information collected in this study did not allow any estimate of "net profits" at the level of Vietnamese coffee farmers, in large part because of their self-employed structure. Therefore, the available data did not make it possible to come up with any estimate of "net profits" for the archetypes of Vietnamese coffee farms included in the model. This contrasts with the model of business actors situated downstream in the coffee chain for which all labour is salaried, and that generate net profits (after all costs have been paid) which are documented in their annual published accounts.

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 independent traders, medium-sized independent traders, traders working for international exporters, state farms, international companies, etc. In practice, 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). Furthermore, data on this subject is virtually non-existent in the public domain. To our knowledge, there are no official statistical databases on exporter costs, taxes, and net profit margins – only isolated information in academic papers, "grey" literature, or the websites of parastatal agencies that regulate, survey, or are otherwise associated with 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 Vietnam, we were able to identify costs, but not taxes or net profit margins for exporters. The total value-add at the export stage is 0.09 euros/kg for the 2020/21 season, and this represents the cost of transport and other costs incurred by traders and exporters. The value is low because Vietnam is known to have very high levels of FOB capture (94% in our estimate for the 2020/21 harvest; it has been both higher and lower at various times in recent years).[69]

[59] Ibid. It should be noted that according to research conducted by one interviewed organization, labour is the single largest cost, at 50 to 53%, while fertilizer comes in second, at 33 to 36% of total costs. Interview with Vietnam coffee sector experts, 5 February 2024.
[60] Hung Anh et al. 2019, op. cit. It should be noted that while Hung Anh et al. refer to synthetic fertilizer as NPK fertilizer, this is shorthand for different synthetic fertilizers. The actual fertilization regime on coffee uses a variety of non-organic substances, including lime, urea, calcium phosphate (the P component of NPK), and KCL (the K component of NPK). UN-REDD 2020, op. cit., p. 32.
[61] The international price of DAP fertilizer has increased 68% since 2017. This was taken as the indicator because DAP fertilizer is the most commonly applied to coffee trees in terms of weight, and because its price tracks closely with that of other fertilizers, notably urea (the N component in NPK fertilizer). The World Bank's Fertilizer Price Index has increased by 60% in the last ten years, with a peak in April 2022 at 293% of the end-2013 price (see YCharts (paywall), http://tinyurl.com/yw8vbh7n).
[62] IDH and True Price, "The True Price of Coffee from Vietnam," March 2016.
[63] UN-REDD 2020, op. cit.
[64] Hung Anh et al. 2019, op. cit.
[69] The maximum difference between years is in the order of about 10 percentage points.

At the exporter level, the value of the main additional costs are as per Figure 2 below. The 94% represents the estimated FOB capture over the period. Apart from transport, the main other costs are middlemen's cut, storage, cleaning, grading, and other fees and risk management. We were unable to establish whether Vietnamese middlemen/exporters make a significant net profit margin or pay taxes, so taxes and net profit margins do not appear in the pie chart.

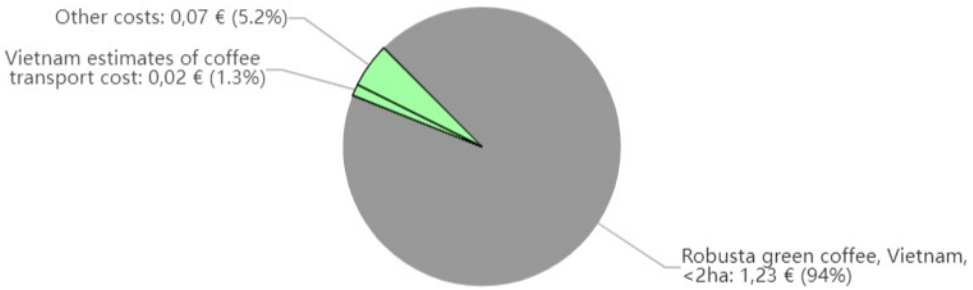

Figure 2. Main production costs for an exporter of coffee from Vietnam in 2021. Source: BASIC, based on interviews with Vietnam coffee stakeholders (2023)

3.3. Certifications

An estimated 25% to 30% of the coffee cultivated in Vietnam is certified under various sustainability standards.[70] Alongside 4C and Fairtrade, the Rainforest Alliance certification is well established in Vietnam. There is evidence in the academic and grey literature of a positive impact of certifications on farmer welfare, in terms of yields,[71] prices, [72] net profit margins,[73] and net income.[74]

Nonetheless, there are criticisms of some certification schemes: the key ones are that most producers cannot afford the certification process, that premiums are too low and fail to offset increased production costs, and that the hired labourer's wage is not taken into account.[75] Reportedly, volumes of certified coffee in Vietnam *overall* have decreased in the last ten years (in individual regions, they may have increased).[76]

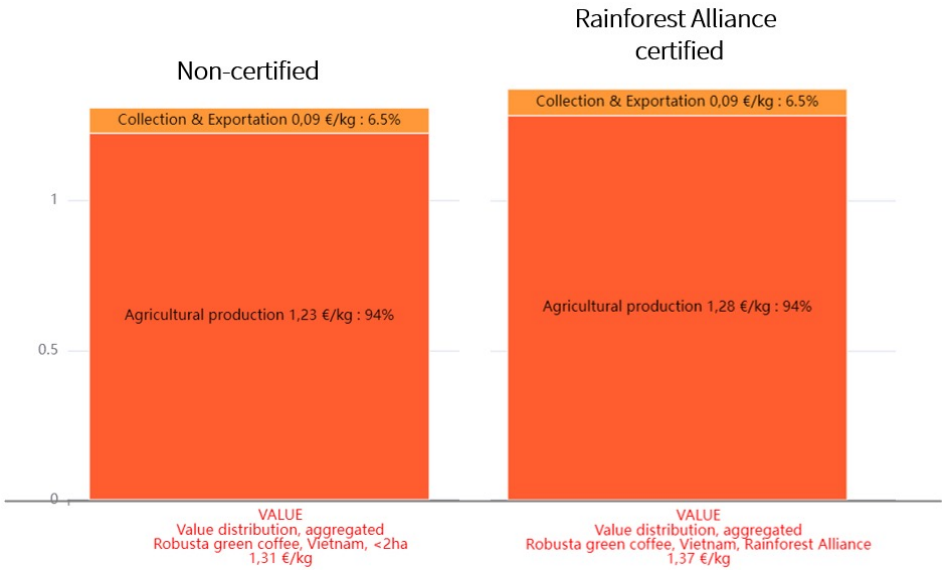

Figure 3. Distribution of value for non-certified (left) and Rainforest Alliance certified (right) coffee sourced from Vietnam, for farmers (in red) and collectors and exporters (orange). Source: BASIC, based on bibliography and interviews (2023)

[70] The exact share of Rainforest Alliance coffee, which is found on the German market, is unknown; cf. BASIC Interview with Vietnam coffee sector expert, 1 December 2023.
[71] According to one study of certified coffee, producers with sustainable certifications have significantly higher yields: 3.2 tonnes for certified producers versus 2.9 tonnes for non-certified producers. Hung Anh et al. 2019, op. cit.
[72] Hung Anh et al. 2019 (Ibid.) found that certified farmers earned a price that was significantly higher than the price received by non-certified farmers (34.82 thousand VNDs/kg vs. 33.14 thousand VNDs/kg).
[73] "Certified farms are on average 13% more profitable than conventional farms, with a yearly profit of € 1,695/ha vs. €1,472/ha." IDH and True Price, "The True Price of Coffee from Vietnam," March 2016.
[74] Reportedly, certified farms have a higher net income than conventional farms (€2,800 vs. €2,380 per family respectively). They also make a higher net income per hectare.
[75] EU REDD Facility, "Reducing the bitterness of coffee from Vietnam's Central Highlands," 20 June 2022.
[76] BASIC Interviews with Vietnam coffee sector experts, 1 December 2023, 3 December 2023, 3 October 2023, and 27 February 2023.

Figure 3 shows the distribution of value for non-certified (left) and for Rainforest Alliance-certified (right) coffee exported from Vietnam. The FOB value for Rainforest Alliance certified coffee stands at 1.37 euros/kg, approximately 0.06 euros/kg higher than conventional coffee, and the difference in price is picked up mostly by the farmer (achieving a 1.28 euros/kg farmgate price as against 1.23 euros/kg for conventional coffee). In German supermarkets, most Rainforest Alliance product references are blends, and it is estimated that a fair proportion of the blend comes from Vietnam (around 40%).

Regarding the Fairtrade certification, while it is present in Vietnam, it was not included in the model because it is estimated that there is no or almost no Fairtrade coffee from Vietnam sold in supermarkets in Germany. This conclusion is based on the observation that, to the best of our knowledge based on available data, all Fairtrade coffee in German supermarkets is single-origin coffee, but Vietnam is not one of the countries for which there is single-origin Fairtrade coffee in German supermarkets. Indeed, Circana data indicates that less than 3% of Fairtrade sales are blends (with potentially Vietnamese coffee in the blend), the rest being single origin from other countries (Brazil, Colombia, Peru, Honduras, or others). We conclude that if Fairtrade Vietnam coffee in fact reaches the German consumer, it must be through channels other than supermarkets.

4. COMPARISON BETWEEN NET INCOME AND COSTS OF DECENT LIVING

For Vietnam, we unfortunately have not been able to compare the net actual income generated by the coffee farms included in the model to the costs of decent living of Vietnamese coffee growers' households. This is because, while estimates of a cost of decent living for rural regions of Vietnam are available,[77] we have not found hard data on the proportion of the income from coffee to reach the living income threshold. Therefore, it is not possible to compare the net income from coffee farming calculated in the model to the share of costs of decent living covered by coffee farming.

[77] Global Living Wage Coalition, "Living Wage Update: March 2020 Rural Vietnam," March 2020. https://www.globallivingwage.org/wp-content/uploads/2018/04/Update-Report_Rural-Vietnam_2020-FINAL.pdf.