

**DISCUSSION PAPER / 2014.01**

ISSN 2294-8651

# Colombian Coffee Strategies And The Livelihoods Of Smallholders



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# **Colombian Coffee Strategies And The Livelihoods Of Smallholders**

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January 2014

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## ABSTRACT

The purpose of this paper is to assess the effects that different competitiveness strategies based on commercial quality attributes may have on the livelihoods of small coffee growers in Colombia. Using a combination of global value chain and sustainable livelihood approaches, it appears that the impacts of traditionally applied material quality, symbolic and in-person services characteristics are quite different for the growers.

The possibility of smallholders to benefit from quality attributes is greatly influenced by the global chain governance structure imposed by big multinational roasters in developed countries and the National Federation of Coffee Growers who acts as domestic lead firm and official external regulator in Colombia.

The unequal power distribution in the chain has effects on growers' income as they grasp direct benefits from the first transformations of coffee, but are far from the end product that consumers buy. Most of the value added during the coffee transformation process accrues to the consuming country where branding, marketing and advertising are high-value generating activities. From the micro-level perspective it appears that endowments of key assets are not enough for growers to reach the poverty line through coffee production exclusively, while the socio-cultural assets of coffee growing are also threatened by disintegrating pressures from the nearby capital Bogotá. Further material and symbolic quality improvements may benefit the growers but are usually not enough to raise household income above the poverty line. A regional denomination of origin strategy may improve the local economic and cultural sustainability of coffee growing.

## 1. INTRODUCTION

Coffee trade has considerable implications for developing countries. More than 50 countries in the South cultivate coffee, involving more than 20 millions of smallholders that have as a primary or only source of income this activity (Pelupessy, 2007; Lewin et al., 2004). In Colombia coffee played an unprecedented role to boost economic development during the XX century (Bejarano, 1987; Giovannucci et al., 2002). Today coffee production in Colombia remains as the first agricultural activity with more than 500.000 families that depend mainly on this crop to generate their livelihoods. Coffee represents 32% of the permanent crops; it generates about 600.000 jobs in the Colombian rural sector and 19% of the agricultural GDP (Forero, 2010).

As one of the main coffee producer countries, Colombia developed competitiveness strategies based on both material quality and product differentiation (Reina et al., 2007). Embarking on either strategy results in different opportunities to obtain higher returns as the valuation of quality differs between material and symbolic attributes. While material quality is a primary condition to participate in the global market, product differentiation is a strategy to gain recognition from consumers.

During the past century Colombia made important achievements in terms of market participation as well as recognition and prices (Reina, et al., 2007). Nevertheless, after the breakdown of the International Coffee Agreement (ICA) competition among coffee producing countries increased. Vietnam and Brazil, for instance, implemented highly competitive production systems that resulted in extensive volumes of coffee in the market. Other countries, particularly in Central America, increased their supply of *Arabicas* affecting the demand for Colombian coffee. In consequence, the country lost market share mainly in Europe. In the time period from 2000 to 2009 Colombia went from having the third largest import share in the European Union (EU) to the sixth place (ECF, 2001; ECF, 2010).

This situation has repercussion on coffee growers, considering that global coffee trade entails linkages between networks of actors located in different countries, executing different processes during the transformation of harvested coffee cherries into a beverage. From the Global Value Chain (GVC) perspective, it seems that actors concentrated in the creation of symbolic quality attributes are able to generate higher rents than those based exclusively on material characteristics (Daviron and Ponte, 2005). Looking at the empirical evidence on income distribution among chain actors, different studies have shown that cultivators comprise the node with the lowest benefits, particularly after the disappearance of the legal framework provided by the ICA (Talbot, 1997; Fitter and Kaplinsky, 2001; Daviron and Ponte, 2005; Pelupessy, 2007). This also means that value chain dynamics as well as competitiveness strategies are seen as part of the context in which growers perform their livelihoods strategies that affect their living conditions.

Coffee production in Colombia is characterized by smallholding and high dependency on the crop as main economic activity. Moreover, coffee had developed into a tradition in different regions across the country. There is a culture created around coffee cultivation which is strongly linked to the rural sector, particularly to small farmers who generation after generation have been performing this activity. Behind coffee production there are thousands of families that have created a way of social organization and most importantly a way of living that has not only an economic value, but one of which Sen (1999) refers to as a freedom to chose the life that people has reason to value. In this context, the participation in global value chains and also the policy decisions adopted at a macro-level influence coffee growers and their families not only in

terms of income generation but also on socio-cultural aspects.

The main study objective is to assess the relationship between competitiveness decisions based on marketed quality attributes at the macro level and the problems small coffee growers face in order to generate enough income through coffee production. This is done first by looking at the dynamics of the coffee value chain and its effects on the benefits of coffee producers and the way they can participate in different competitiveness strategies. Second, by considering that strategies based on material and symbolic quality attributes may have different effects on coffee growers depending on their asset position. In the particular case of Colombian small coffee growers, the farm size, the area planted with coffee and the production systems become key aspects to determine the results of participation in a specific strategy.

We will use the coffee value chain from Colombia to Belgium to study the income distribution and power relations that allow or constrain the participation in specific competitiveness strategies. The role of the National Coffee Growers Federation (FNC) as domestic governance force and external regulator will be highlighted. Then we analyse coffee growers located in the central region Cundinamarca to find out how smallholders comprise their asset portfolio to generate their livelihoods and how the participation in particular strategies based on quality attributes may affect the outcomes. In Colombia there are regional differences that influence the opportunities for small growers to grasp more benefits through coffee activities. Specific asset endowments of coffee growers offer prospects to participate in different competitiveness strategies based on material or symbolic quality attributes?

Many coffee value chain studies have examined the vertical dimension of the chain by analyzing the income distribution, the governance structure and the effects of the institutional framework (Talbot, 1997; Fitter and Kaplinsky, 2001; Ponte, 2002; Daviron and Ponte, 2005; Muradian and Pelupessy, 2005; Pelupessy, 2007). However, not much has been said about the horizontal dimension when considering particular actors located in a specific context. Bolwig et al. (2010) proposed a framework to integrate GVC, livelihoods and environmental analyses; Challies and Murray (2011) exemplified the integration of GVC and livelihoods approaches by studying the case of raspberry growers in Chile. This paper will contribute to the literature on two main fronts: first by adding empirical evidence of global value chain income distribution and second, by trying to combine GVC and livelihoods analyses to assess the results of competitiveness strategies locally.

The applied methodology corresponds to that of a qualitative study, mainly based on secondary sources data. To map the value chain, actors located in both Colombia and Belgium were interviewed. To investigate the asset portfolio of coffee growers a local group was selected and interviewed. Other actors at the national and regional levels also provided information, such as the National Coffee Growers Federation (FNC) in Bogotá and the Coffee Growers Committee for Cundinamarca. Scenario analyses were used for alternative quality and labour surpluses effects.

After this introductory part, in section 2 the analytical framework includes the different quality attributes in the GVC approach, as well as the relationships that can be drawn with the sustainable livelihoods setting. Section 3 will give the results of the coffee value chain dynamics from Colombia to Belgium and the role of important agents. In section 4 will follow a discussion on the role of the FNC as regulator, main processor and commercial agent in the Colombian coffee market. Section 5 will analyze the asset composition of coffee smallholders and their possibilities to benefit from particular strategies and section 6 will finally summarize the conclusions and recommendations.

## 2. GLOBAL VALUE CHAINS, COFFEE QUALITIES AND SUSTAINABLE LIVELIHOODS

GVCs are referred here as analogous to Global Commodity Chains (GCCs), which are defined as “sets of inter-organizational networks clustered around one commodity or product, linking households, enterprises and states to one another within the world economy” (Gereffi et al., 1994: 2). The linkages among nodes constitute networks that are socially constructed. Hence the analysis of a global commodity chain informs about the different processes within the chain as products of social relations (Gereffi et al., 1994).

The global coffee chain describes the interactions and relationships of the network of actors participating in the transformation of coffee from its first stage of cultivation until the final consumption of the brew. The main discussions on coffee value chains (and other commodity chains) have been centred on the presence of key actors or leading forces that are able to set and enforce the governance structure by organizing and controlling strategic parts of the chain. This role allows them to appropriate the greatest surpluses in the whole transformation process. Several studies indicate that roasters comprise the lead segment of coffee chains (Talbot, 1997; Fitter and Kaplinsky, 2001; Daviron and Ponte, 2005), despite fierce competition from big retailers and supermarket chains (Pelupessy, 2007). These actors have the ability to control “flows” (Ponte, 2008) of material resources, finance, knowledge and information within the chain. In particular, the management of information asymmetries of blends and symbolic attributes is a key element for the consolidation of roasters as leading force of the chain (Muradian and Pelupessy, 2005).

With the end of the economic clauses of the ICA the roaster’s segment in importing countries went into a period of further strengthening. The rules of the game became more favourable for them with the abolition of protective frameworks by market liberalization policies in producing countries. The disappearance of producer’s organizations and regulating bodies weakened the position and bargaining power of growers in the global chain. Roasters maintained blending, branding, marketing and advertising strategies with a definition of quality based on both symbols and physical attributes of coffee.

To facilitate the understanding on how quality attributes affects value chain dynamics, we draw on the notion of quality presented by Daviron and Ponte (2005) that differentiate material from symbolic and in-person services attributes. Material quality is referred to as the physical attributes intrinsic to the coffee bean such as size, body, acidity and aroma. Blends were introduced by roasters to reduce costs and dependency from certain providers and for the creation of specific tastes for consumers. Symbolic quality attributes are those non-measurable characteristics related to consumers’ perception and valuation of the product. Symbols generate value as they have the capacity to attach ethereal qualities or feelings to the product that result in marketing arguments (Power and Hauge, 2008). Symbolic attributes of coffee include brands, trademarks, geographical indications and certifications. In-person quality attributes are those related to services that are provided only at the moment of consumption. Quality in this case includes service, ambiance and consumers feelings about the specific place and people involved in the consumption experience.

Symbolic attributes such as brands’ are created by manufacturers and constructed through the continuous interaction between marketers and consumers with particular meanings that are the result of their own socio-cultural context. Quality in this case is related to what

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[1] Brands can be signs, names, symbols, designs or combinations of these elements.



consumers end up feeling about a brand rather than the material qualities of the product itself. Many of the coffee brands with considerable market shares contain high percentages of coffee with low material qualities (Pelupessy, 2007).

Certifications are other symbols conceived in consuming countries, which may provide consumers with more information about the product, organization of production systems, environmental effects and labour conditions in the production nodes. In fact, some certification schemes imply changes in the productive process that affect material quality (i.e. organic coffee). Generally, certifications imply the participation of third parties or organizations that are not chain actors but are part of the institutional framework of the chain (e.g. Fair Trade, UTZ and Rainforest Alliance). They may influence to some extent the income distribution among chain actors. The demand for certificated products is increasing and provides certifications with strong marketing arguments for branded manufactures and retailers. Organic labels had the greatest share in world imports of certified coffee from 2005 to 2009 while UTZ was the leading label in the Europe specialty segment<sup>2</sup> imports during the same period (Pierre et al., 2010).

Through these kinds of quality attributes, global value chains are increasingly driven by downstream actors near the final consumer, who are able to generate value through the introduction of symbolic and in-person services characteristics. This means that chain governance is given not only by market share and entry barriers but also by the ability of supplying the most valuable attributes of the product. At the upstream side of the chain, producers of developing countries continue to work on improving material quality with the intention of catching better prices because the definition of quality for them is entirely linked to physical characteristics, while ignoring that final consumers may value coffee more for its symbolic attributes and in-person services (Lyon, 2009). Coffee growers may not benefit (fully) from these high-value attributes.

Within the GVC or GCC framework we can pay attention to upgrading opportunities for small farmers in Colombia, taking into account the possibilities provided by the value chain governance structure as well as the institutional context. However, at local level there are conditions that allow or constrain small coffee producers to participate in certain quality creations to upgrade the value chain. The relationship between the linkages of local-global economies and the variety of factors that influence the construction of livelihoods should be considered in order to find upgrading opportunities for coffee growers. To frame this discussion we will employ concepts of the Sustainable Livelihoods Approach (SLA) (Scoones, 1998; DFID, 1999; Carney, 1998; Carney, 1999).

The bases of sustainable livelihoods are the tangible and intangible assets owned, controlled, claimed and accessed by households (Chambers and Conway, 1992; Ellis, 2000). The endowment with or access to specific 'stock of capitals' or assets (Ellis, 2000) determines the way people generate their means of living. The assets owned, claimed and accessed by households allow for the elaboration of strategies that aim at increasing both income and wellbeing. Most literature on sustainable livelihoods agree on five assets categories (DFID, 1999; Carney, 1999; Ellis, 2000): natural capital that comprises land, water, trees and other natural resources; physical capital at household and community levels that includes infrastructure and machinery (buildings, cars, roads, etc); financial capital which refers to money available in the form of savings, credit, remittances, insurances; human capital related to education, skills, ability to labour and health; and social capital which includes personal, familiar and community networks which people rely on when pursuing different livelihoods strategies.

[2] This segment commonly refers to sustainable, flavoured, gourmet or premium coffees (Giovannucci et al. 2002)

The access to assets and activities is an ongoing process modified by socio-economic and institutional contexts, including social relations, markets and organizations. Particularly these structures often define access and rights regimes (Allison and Horemans, 2006) to determine forms of participation in specific activities for households. When considering households incorporated in global value chains, they might be influenced by domestic context conditions such as access to markets, land policies, customs, social relations, regulations and so on. Also they have influence from factors proper to the international context where the chain is developed, such as international market prices, international regulations and signals sent from downstream nodes of the chain. All these factors influence their livelihoods strategies and more importantly the perception of their own way to make a living. In this perspective well-being should be understood not only in terms of higher income levels but also as what people can get out of these to achieve their own happiness or to choose the life they value (Sen, 1999). Research has demonstrated that non-material elements such as social relations, family, friends, and neighbours are important for an individual's life (Frey et al., 2008). Moreover, the meaning of people's valuable achievements and happiness may vary significantly across cultures as they are shaped by socio-cultural modes of persons and social groups (Uchida et al., 2004; Diener et al., 2010)

Although the SLA includes culture as part of the transforming or mediating processes because it explains differences in the ways "things are done" (DFID, 1999), we consider cultural elements as stocks of capital that could be exploited to improve livelihoods, particularly when their strategies are connected to global contexts. We propose therefore to expand the category of social capital to socio-cultural capital since the creation of social bonds, cohesion ties and identity allows individuals and communities to generate opportunities for social and economic development (Soto, 2006; Molano, 2008). Socio-cultural capital has a considerable role in the design of livelihood strategies that enhance the wellbeing and happiness of households (Diener et al., 2010).

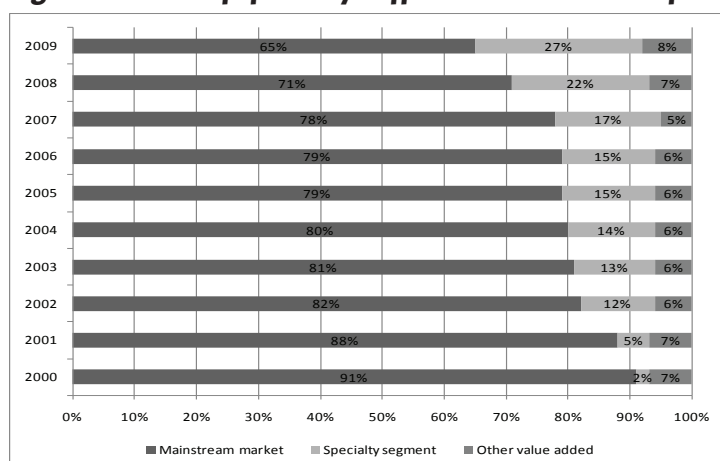
Considering that in global contexts, development processes at local level require a degree of differentiation, it becomes necessary to highlight the role of the territory and its cultural richness. According to Acampora and Fonte (2008), a strategy based on the product as carrier of a local culture that traverses the value chain and reaches consumers located in distant geographical and cultural destinies, may allow the community to retain more economic benefits and reinforce their local identity. Taking into account that precisely global coffee value chains are characterized by information asymmetries, a strategy based on an explicit cultural reality would be useful to shorten the distance between consumers and producers. The economic benefits for growers would be obtained not only because consumers are willing to pay higher prices for differentiated products but also because the rents would not be exclusively allocated to other actors of the chain. This scenario of course depends on the type of intermediaries or institutions that facilitate the implementation of a product based strategy.

According to the framework provided by both GVC and livelihoods approaches, it is useful for our purpose to combine elements of each one. On the one hand, it is necessary to look at the chain dynamics in terms of governance structure, institutional context, value distribution, and the options of different competitiveness strategies at macro level in order to propose upgrading opportunities. On the other hand, the analysis of the local context and particular living conditions will allow determining possibilities for specific small growers to participate in the creation of quality attributes and upgrade the value chain.

The case of Colombian coffee growers offers interesting aspects to enrich the analysis. During its coffee production history, the country has implemented different strategies to compete in international markets based on quality attributes. Material quality was and is at the core of Colombian competitiveness strategies during the past and present centuries. Since the 1930's the country has implemented efficient production systems to standardize quality from all its coffee regions. This was a particular challenge given different levels of infrastructure development as well as the bio-diversity present in the country. When the standard (high) quality was finally achieved, Colombia made important efforts to differentiate its coffee in the global market. Symbolic attributes were introduced for the first time as early as 1959 with the creation of 'Juan Valdez'<sup>3</sup> as the image to promote Colombian coffee.

Both material and symbolic quality strategies led by the FNC have contributed to maintain a superior competitive position for Colombia in international coffee markets. The price of "Colombian Milds" has remained higher than "Other Milds" during the past 30 years. After the coffee crisis faced by producing countries at the end of the 1990s, Colombia has increased the share in market niches aiming at rising returns for coffee growers (Figure 1). The FNC as individual exporter has increased the participation of specialty coffees (see footnote 2) as well. In 2002 it exported 0.9 million bags (60kg) of these coffees, while in 2008 this became 2.5 million bags. The exports value increased 2.68 times, in nominal terms during this period (FNC, 2011a).

**Figure 1. Share of specialty coffees in Colombian exports 2000-2009**



Source: FNC – Competitive Intelligence Office

Coffee production in Colombia is distinguished by smallholder production with high dependency on family labour. In 2008 the total number of coffee farms was 650,000. About 81% of these farms had less than 5 hectares (ha) and were characterized by high proportions of coffee areas. According to the FNC (2011a), the share of this area was on average about 70% in 2008. The number of coffee families for the same year was 516,000 and the average planted area was 1.7 ha (FNC, 2011a). Smallholder production contributes 55% to the national coffee production per year (Forero, 2010) and provides a living to about two million people (FNC, 2011a).

For Colombian coffee smallholders the natural and human resources are fundamental for survival (Garcia, 2003; Lozano, 2007, Forero, 2010). First, the endowments with enough land appropriate for coffee cultivation make the basis for income generation. Second, the labour productivity shows that small coffee growers have labour surpluses that are used in other farms or activities in order to increase their income (Lozano, 2007). This asset becomes critical when

[3] The brand as such was created in 2002.

coffee production is not enough to satisfy the household needs, which is often the case for coffee growers whose farm size is less than five hectares and even more frequent for those with less than one hectare. Other assets also play an important role for livelihoods construction. Physical capital, for instance, is necessary for coffee growers as production involves the transformation of coffee cherries into parchment coffee with the utilization of pulping machines and drying infrastructure. At community level, roads are needed to facilitate the access to markets for rural producers and traders. In terms of financial capital, households may rely on savings and credits. In particular, due to the low saving capacity of rural households (Garcia, 2003), credit becomes important to improve production processes or crop renewal. Finally, in terms of social capital the relationship of producers with specific networks, organizations and intermediaries affect not only the access to other types of resources (Bebbington, 1999) but also their performance within a value chain, particularly in terms of access to global markets. Similarly, the degree of organization of producers is directly related to their bargaining power and therefore to the gains they can obtain in negotiation processes with other chain agents. A local governance structure may be necessary, as was the case in the Chilean and New Zealand wine clusters (Visser, 2003; Gwynne, 2006). Another example is the extraordinary growth of the pineapple smallholders sector in Costa Rica driven by a domestic lead firm (Vagneron et al., 2009).

As coffee growers participate in global value chains different possibilities to raise their income may arise. The growers' association (FNC) is the domestic governance force in Colombia, which historically had been able to assure the continuity of the crop. Globalization allows opportunities for development based on a territorial approach where areas with distinctive historical, cultural or environmental attributes can be translated into the producers of goods and services with an identity (Soto, 2006). This identity is demanded by contemporary final consumers who have found themselves immersed in the consumption of products which origins and contents are mostly unknown due to industrial mass production processes (Acampora and Fonte, 2008). In this sense, territorial identity may be seen as a collective resource from which local communities can obtain economic benefits as consumers in developed markets are willing to pay for those distinctive characteristics in their search for products with specific identities and narratives from remote origins. The materialization of such territorial identity is expressed in symbols that become means of information for consumers.

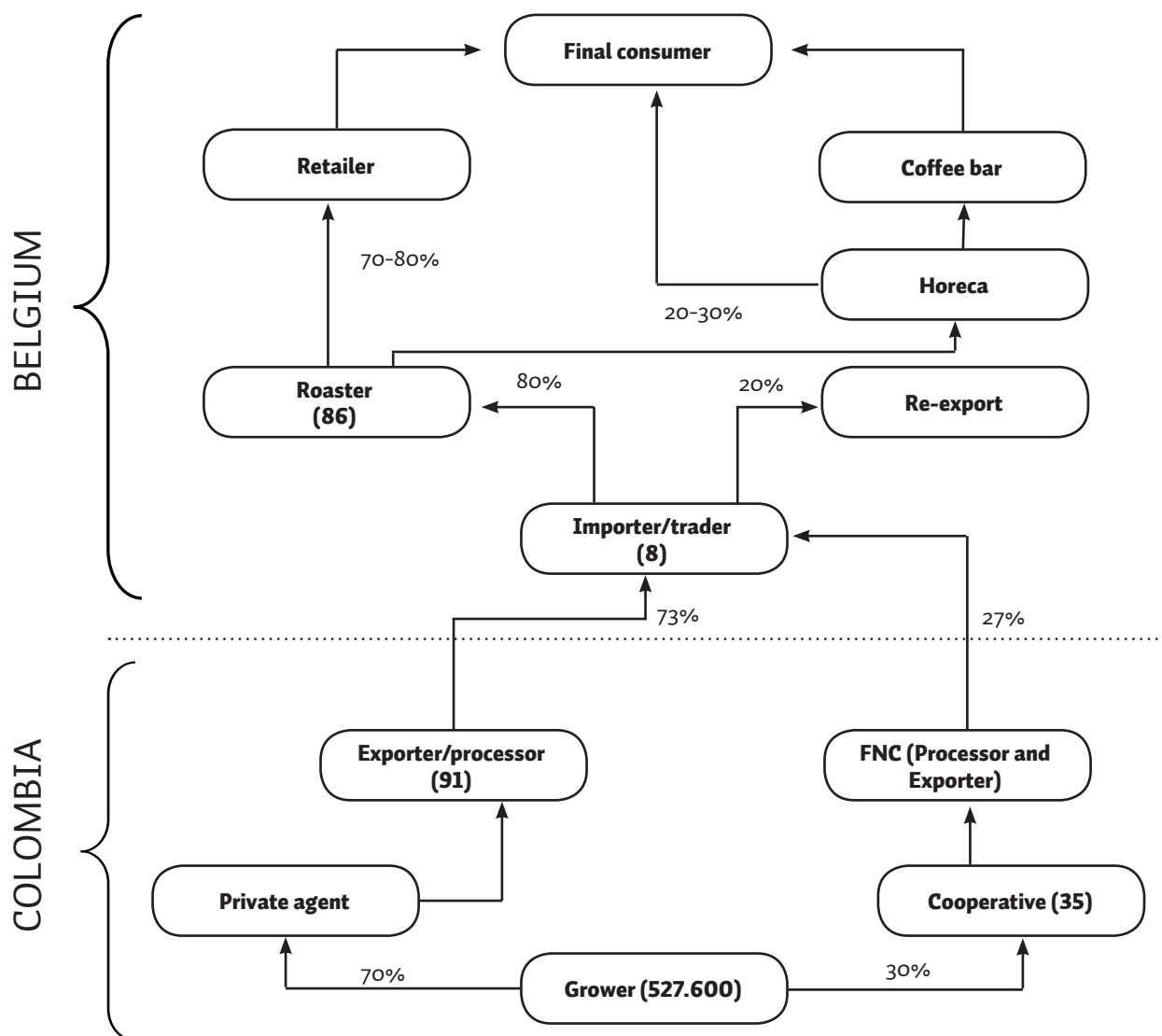
### 3. INCOME DISTRIBUTION IN THE COFFEE VALUE CHAIN

Colombia is the first producer of Arabica coffee with the United States (US) and the European Union (EU) as main destinations. Belgium is not only an important consuming country within the EU but also a great re-exporter and processor of coffee. The port of Antwerp accounts for more than 44% of the green coffee stocks in Europe and there are more than 80 roasting companies in Belgium. This country is also the second destination of Colombian coffee within the EU (FNC, 2011a).

#### 3.1. Main chain agents

The input- output structure of the coffee value chain from Colombia to Belgium is similar to many global commodity chains where nodes of primary production, first processing and exports are located in producing countries while imports, manufacturing, distribution and consumption mostly take place in consuming countries (Figure 2).

**Figure 2: Coffee Value Chain Colombia – Belgium**



Source: Data from Interviews and references in text

Note: figures in brackets are numbers of actors: % are shares of traded volumes

In Colombia, coffee production involves 527,609 coffee growers<sup>4</sup> in more than 500 municipalities. Coffee growers sell 'dry-parchment coffee' to either cooperatives or private agents. Production, commercialization and exports activities are regulated by the FNC. This organization sets a minimum price daily for dry-parchment coffee according to the futures price of Colombian Milds at the New York Stock Exchange (NYSE) market, the foreign exchange rate and premium for quality<sup>5</sup>. The price received by growers includes costs of production, packing and transport to the cooperatives (FNC, 2011a). There are 35 cooperatives with about 516 outlets in coffee producing regions. They bought 30% of the harvest in 2008 (FNC, 2010) and private agents bought the remaining 70%. They use the daily price announced by the FNC as a benchmark to negotiate with growers. In some remote regions there are intermediaries or *pergamineros* who buy small quantities of parchment coffee at farm gate price (which could be about 40% less than the cooperative price, Reina et.al., 2007) and sell it to exporters in larger volumes. Intermediaries sometimes buy wet-parchment coffee and transform it into dry parchment coffee, gaining some margin for the drying process.

Cooperatives deliver parchment coffee to ALMACAFE, the FNC's company in charge of milling and export activities. Green coffee is classified according to size, density and presence of defects to be either exported or roasted and distributed in the domestic market. When coffee is sold to private agents, the route is similar; they transform parchment coffee into green coffee and export it or sell it in the domestic market. The FNC is the largest exporter; in 2008 its share was 27% in total exports. Six private companies control about 40% of the exports and 85 companies sell the remaining 33% of green coffee. The FNC inspects quality at the port through sampling of all green coffee to be exported.

In Belgium, there are eight companies<sup>6</sup> that import green coffee from about 40 countries to supply roasters in Europe. Efico, Suiker Export, Rucquoy Frères, Phoenix Trading and Supremo together account for 120,000 to 170,000 tonnes annually (PortNews, 2010), corresponding to 70-80% of the coffee imported into Belgium. In the mainstream market, the negotiation process between exporters and importers is mainly based on price and variety (Colombian Milds). Contracts usually oblige exporters to send pre-shipment samples to be approved. Given the (big) dimension of the business and the fact that this is a mere market transaction, a close relationship with actors and processes in Colombia is not aimed at in these cases. In contrast, the negotiation process in the specialty segment involves a closer relationship between exporters and (small) importers, where in addition to price and quality, trust and accuracy are important elements in business transactions. However, this specialty segment, which includes the certified coffees, is only about 10% of all coffee imports in Belgium.

Roasting is a traditional industry in Belgium. A typical coffee blend in Belgium consists of 75% of different *Arabicas* and 25% of *Robusta* (CBI, 2010). Roasters have developed high tech systems to create a great variety of roasting profiles. There are roasters with own brands that perform both roasting and marketing activities, and also companies that roast coffee for others with different brands. For the former, the value added is higher as branding, marketing and distribution are high value generating activities<sup>7</sup>. Similar to the case of importers, roaster companies may have up to 60% foreign clients all over Europe.

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[4] This the registered number of coffee growers by FNC until September 2009.

[5] Interview with FNC.

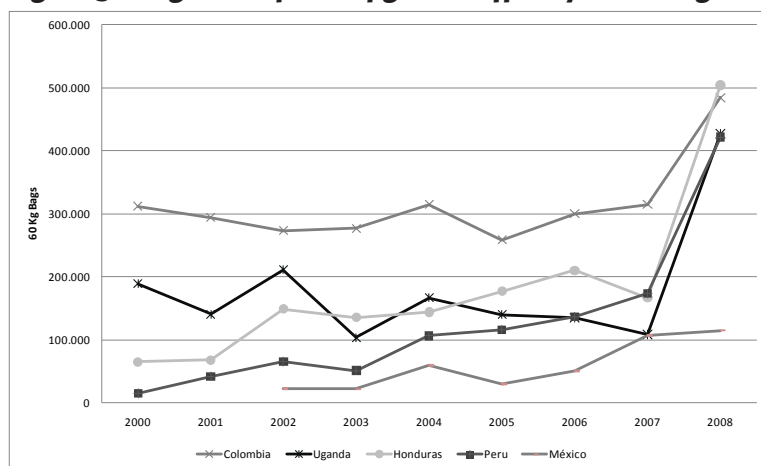
[6] These companies belong to the Union Professionnelle du Commerce Anversois d'Importation de Café -UPCAIC.

[7] Interview with roaster.

Despite the existence of more than 80 coffee roasters in the Belgium industry, a few big manufacturing multinationals have the majority market share. Following the same trend of other countries in Europe, the top four players have an approximate participation of 75% in the sector (Intracen, 2010). Sara Lee/DE (Jacqmotte and Zwarte Kat) and Kraft Foods (Café Hag and Jacobs Carte Noir) are the leading companies in the Belgian market. Sara Lee/DE alone has about 38% of market share<sup>8</sup>.

An important strategy for roasters is to maintain blends as uniform as possible. In the past, they used to keep the composition fixed; however, due to the growing availability of high quality coffees from different origins, they have become more flexible to substitute coffees in the original blends. Figure 3 gives a clear impression of the changes in the supply of coffee. In 2000 Colombia was the biggest supplier of Arabica in Belgium. During the next decade imports from Honduras have been growing gradually until reaching a higher volume than those from Colombia in 2008. Imports from Peru have presented the same pattern, while Mexico increased in less proportion. Robusta from Uganda showed a slightly declining trend till 2007, which suddenly changed in 2008. These tendencies are consequences of competitive prices offered by these origins combined with good material quality. Also, by new technology the bitterness of the cheap Robusta coffees has been reduced, which leads to their increasing use in blends.

**Figure 3. Belgium imports of green coffee by main origins 2000-2008**



Source: ECF (2010)

Another important element is the roasting intensity, which has to preserve the same taste and colour for the corresponding brand. Roasters have developed measurement systems and traceability criteria to assure the fulfilment of these conditions. The existence of a large number of small roasters opens up possibilities for the growth of the specialty segment since their competitiveness strategies are based on differentiation for niche markets. This may also become an opportunity for producers to explore these markets with coffees from specific origins.

Roasted and ground coffee is distributed by big retailers and the catering channel: coffee bars, restaurants, hotels and vending machines (CBI, 2010). The share of the two is 70% to 80% for retail sales and 20% to 30% for catering<sup>9</sup>. Recently retailers had introduced own

[8] This point is taken from an interview with an independent consultant. Although the corresponding year is unknown, the figure is a useful approximation. In July 2012 DE was detached from Sara Lee and registered at the Dutch stock exchange as an independent company DE Master Blenders 1753. This ended in October 2013 when the company was purchased by a private investment group and withdrawn from the stocks exchange.

[9] Figures obtained from interviews and CBI (2010).

brands competing in the mainstream segment directly with roasters. Supermarkets mostly sell standard to low quality coffees at very competitive prices. Additionally, they include symbolic attributes, particularly certificates to enhance the quality of the product. Retailers have mainly used packaging, traceability and labels that add value to final prices of coffee (Brandchannel, 2010).

Consumption is the final activity in the coffee value chain. According to ICO (2010), Belgium had a share of 1.4% of world coffee consumption and 2.4% of the EU in 2009. Figures on consumption per capita in Belgium vary significantly depending on the source. While ECF (2009) reports per capita consumption of 8.81kg, 6.29kg and 3.68kg for 2006, 2007 and 2008 correspondingly, other sources indicate that consumption per-capita has been around 7.0kg per year (CBI, 2010; Earthtrends, 2010; Worldmapper, 2010). Yearly fluctuations are not logical and may be caused by the estimation of coffee consumption, which is based on import and export figures. Changes in imports of green coffee not necessarily reflect changes in consumption patterns, considering that Belgium not only serves its domestic market but also has considerable re-exports of green and roasted coffees to other countries. Most coffee traded and consumed is standard coffee, which on average accounts for 90% of the market (Pelupessy, 2007; CBI, 2010). The consumption of certified coffees continues to grow in Belgium. Fair Trade was the top label in the market by 2003 (Giovannucci and Koekoek, 2003), however since 2005 the less demanding UTZ has gained a great share and is particularly incorporated in brands of big roasters such as Sara Lee/DE and Rombouts.

Coffee consumption in specialized places with in-person services is also growing in Belgium. Coffee bars are characterized by offering high quality blends and single origin coffees with some sort of 'exotic' connotation. These places also offer the ambiance for coffee consumption where interactions with other people are part of the experience. Relationships between coffee bars and roasters are frequently close because of the particular coffees and roasting profiles required. However, coffee bars are generally open to the search of new coffees from (small) roasters in Belgium and abroad. The Specialty Coffee Association of Europe (SCAE) is playing a significant role to strengthen the specialty segment and most of coffee industry actors have joined this organization.

Leading multinationals are innovating the ways for coffee consumption. The creation of Senseo coffee pads machine by Philips and Sara Lee/DE, for instance, had gained recognition among consumers producing changes of in-home consumption patterns.<sup>10</sup> It is an innovative system that standardizes quantities, use and taste of the brew. Consumers have the possibility to try different coffees daily, including single origins or flavoured coffees. The Senseo coffee pads system was considered novel and convenient for at home consumption, which still represents 70% to 80% of the total coffee for final use in the domestic market. Earlier Illy did the same for restaurants and bars by proposing specialized coffee machines.

In spite of the high concentrations of the import and retailer markets, the global governance force remains located in the roaster segment of the chain. The manipulation of material quality attributes obtained by blending, roasting and packaging the coffees, as well as the symbolic ones given by branding, make the top four players with 75% market share the lead firms of the chain. Additionally their coordination and control capabilities may make them highly influential in global upgrading processes.

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[10] Later on Nestlé had even more success with their own coffee-machines, mini coffee-cups with differentiated produce which was complemented by a detailed consumers' preferences registration system.



### 3.2. Income distribution

The income distribution was calculated using data of calendar year 2008. For calculations a single origin was assumed due to the impossibility to know the precise percentage of Colombian coffee used in blends. This information remains as business secrets of roasters (Pelupessy, 2007). For data collection and calculation methodology details, see Appendix 1 and 2.

**Table 3.1. Computation of prices by value chain actor**

Description	US cent/lb (in terms of roasted coffee)	% in retail price	Description	UScent/lb (in terms of roasted coffee)	% in retail price
<b>Retail price</b>	<b>546.09</b>	<b>100%</b>	<b>Exporter F.O.B. price</b>	<b>163.10</b>	<b>29.87%</b>
VAT	32.77	6.0%	Purchase parchment coffee	142.22	26.04%
Excise duty	16.72	3.1%	Operational and other cost	8.84	1.62%
<b>Retail price after taxes</b>	<b>496.60</b>	<b>90.9%</b>	Milling cost	4.04	0.74%
Purchase roasted coffee	391.11	71.6%	Coffee contribution	6.90	1.26%
Operational expenses, other costs and taxes	93.64	17.1%	Exporter net profit	1.10	0.20%
Net profit	11.85	2.2%	<b>Cooperatives price</b>	<b>142.22</b>	<b>26.04%</b>
<b>Roaster price</b>	<b>391.11</b>	<b>71.6%</b>	Purchase parchment coffee	136.78	25.05%
Purchase green coffee	201.29	36.9%	Marketing costs	5.44	1.00%
Operational and other costs	171.81	31.5%	<b>Producers Price</b>	<b>136.78</b>	<b>25.05%</b>
Net profit	18.02	3.3%	Production cost	129.76	23.76%
<b>Importer Price</b>	<b>201.29</b>	<b>36.9%</b>	Net profit	7.01	1.29%
F.O.B. price	163.10	29.9%			
Cost of Freight	5.75	1.1%			
Operational and other costs	28.41	5.2%			
Net profit	4.03	0.7%			

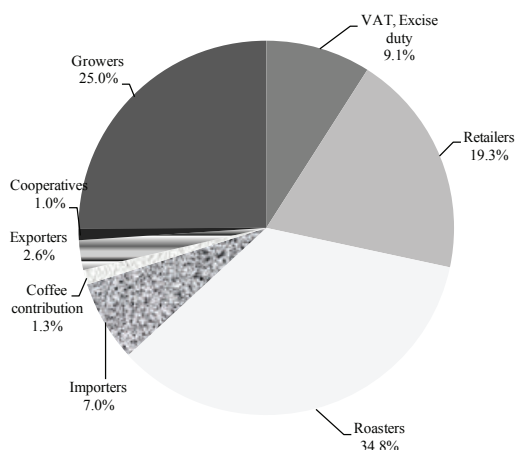
Source: Appendix 2

Price differences by segment as approximation to the respective value generation presented in Table 3.1 show an unequal distribution among actors along the chain. According to the F.O.B. price<sup>11</sup> as percentage of the retail price (29.87%), less than a third part of the total value is generated in Colombia despite its favorable export prices. This percentage is distributed among growers, cooperatives and exporters. Cultivators receive the greatest share, which is consistent with domestic policies of FNC that aim at transferring most of the F.O.B. price to them.

In the Belgian part of the chain the greatest share of value is appropriated by roasters (34.8%) followed by retailers (19.3%). Both have more than half of the total generated value as presented in Figure 4.

[11] F.O.B. or Free on Board is the price at port of shipment when the goods have passed the ship's rail.

**Figure 4. Price differences per chain actor as % of retail price**



**Table 3.2. Distribution of net profits, costs and taxes**

Country	Chain Actor	Profits Distribution		Costs Distribution		Taxes	
		UScents/lb	%	UScents/lb	%	UScents/lb	%
Belgium	Retailer	11.85	28.2%	93.64	20.9%	49.49	88%
	Roaster	18.02	42.9%	171.81	38.4%		
	Importer	4.03	9.6%	34.16	7.6%		
Colombia	Exporter	1.10	2.6%	12.88	2.9%	6.90	12%
	Coops	0	0.0%	5.44	1.2%		
	Producer	7.01	16.7%	129.76	29.0%		
<b>Total</b>		<b>42.01</b>	<b>100%</b>	<b>448.70</b>	<b>100.0%</b>	<b>56.39</b>	<b>100.0%</b>

In table 3.2 the retail price is divided into net profits, costs assumed by each agent and taxes<sup>12</sup>. The distribution shows that definitively roasters are those extracting the greatest share of the total surplus generated along the chain, in this case, 42.9%. Profits generated by roasters, retailers and importers together represent 80.7%, which illustrates a more unequal distribution compared to the price differences of figure 4. Cultivation and manufacture present the highest shares in term of costs, although the costs structure varies between them. Most of the cultivation costs are constituted by agricultural inputs and labor while roasters spend much in marketing, advertising and financial costs. Finally, the column on taxes shows that rent appropriation by the state is taking place predominantly in the importing developed country. In Colombia, the coffee contribution is earmarked to be reinvested in activities to serve the coffee sector exclusively.

The income distribution in the Colombia-Belgium chain adds evidence of the powerful position of the governance structure or lead firms in the global value chain. Talbot (1997) found that after 1989 transnational coffee companies have been retaining a higher share of the total surplus generated by the chain due to their capacity to hold the prices of green coffee down while maintaining consumer's prices high. Since then, other studies have also presented evidence that the income distribution between producing and consuming countries had shown a highly unequal development during the last two decades (Daviron and Ponte, 2005; Pelulessy, 2007). Roasters have been able to coordinate upstream activities by deciding about

[12] There are other taxes paid by the companies in both Colombia and Belgium, however, taking VAT, Excise duty and Coffee contribution we aim at illustrating an approximate picture of what states may receive.

specifications of coffee, origins, certifications and also conditions of logistics and production processes (Pelupessy, 2007). One of the decisions that allowed them to hold more coordination power was the switch of inventory management to importers (Daviron and Ponte, 2005), as was the case in Belgium. The Belgian Coffee Federation (BCF), conformed by three important associations (Union Royale des Torréfacteurs de Café (UTC), Union Professionnelle du Commerce Anversois d'Importation de Café (UPCAIC) and Fédération Royale des Gestionnaires de Flux de Marchandises – Département Café), have been crucial to provide roasters with more information and control of the supply chain.

The income generation by coffee bars gives also remarkable results. In 2008 the average price of roasted coffee used in coffee bars was 1070 US cent/lb<sup>13</sup>. From one lb of roasted coffee it is possible to prepare 54 espressos, which give a cost per cup of 19.8 US cent. The minimum final price of the espresso was 205 US cent in 2008 giving a difference of 185.2 US cent (90%) between the cost of roasted coffee per cup of espresso and its final price which also includes fixed costs, labour and administrative costs, rents and taxes. Despite these additional costs, the profit margin of coffee bars will be much higher than other chain actors. Even when a high premium for quality is paid to coffee growers, the asymmetric distribution is maintained. This also implies that the use of higher material quality attributes may be a marketing argument, but in-person services as the place, ambience and service attention are the elements that add considerably more value to coffee consumed in coffee bars.

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[13] The cost of high quality coffees varied between 869 US cent/lb and 1271 US cent/lb in 2008.

#### **4. THE ROLE OF THE NATIONAL FEDERATION OF COFFEE GROWERS**

In global value chains actors participate in the transformation process of a commodity generating value at every stage. The potential for rents generation depends not only on the technical processes developed in each node but also on the linkages of the network of actors and the character of their interrelations which is also affected by the institutional framework around the chain. Actors who are part of the institutional framework are non-value generators but nevertheless may exercise great influence on the value generating participants. The FNC is important because it executes processing and commercialization functions with value generation and also plays a regulating role that otherwise would be done by the government. This double role affects the rules of the game for income distribution along the chain.

The FNC was created in 1927 to solve domestic commercialization problems that were critical at that time. Gradually, a national governance structure was developed for the coffee sector incorporating arrangements at economic, social, political, scientific and institutional levels (Silva, 2004). This organization gathers 312.000 coffee growers (about 60% of the total) whose membership depends on having a minimum of 0.5 hectares planted with coffee and 1,500 trees<sup>14</sup>. Coffee growers elect their representatives in 356 municipalities and 15 departments. Each municipal or departmental committee includes 6 members elected for 4 years. The Coffee Growers National Congress is the highest authority of the Federation. It appoints delegates of each department to participate in the National Coffee Committee, which also has 4 members assigned by the government. This committee is responsible for managing the National Coffee Fund (NCF) and designing national and international coffee policies of the country.

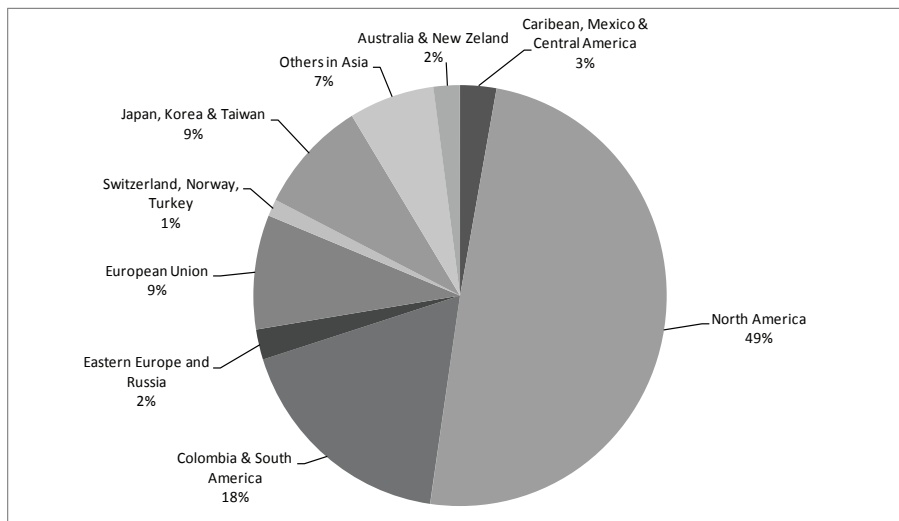
##### **4.1. FNC as domestic lead firm**

The FNC is the major exporter in Colombia with average participation of 32% in total exports from 2000 to 2009. The logistic operations of the FNC with more than 500 collecting outlets located in a number of coffee municipalities, allow the continuous supply of parchment coffee to ALMACAFE through 35 cooperatives. The dominant position in the domestic market is the result of the leadership in the policies of both producers and government. For instance, the strategy adopted by Colombia to improve material quality in the 30's as well as the differentiation strategies implemented in the 60's and 70's were all conducted by the FNC. During the implementation of the differentiation strategy the FNC strengthened the relationship with roasters of important consuming countries such as the US. Due to heterogeneous coffee markets, tariffs and consumption decreases during the Second World War, it was more difficult to reach final consumers in Europe (Reina et al., 2007). This historical development in the US and Europe influenced also the relationships at the present. While in the US the FNC achieved great recognition for "100% Colombian Coffee" of roasters and consumers in the period 1959 – 2001, in the EU this coffee continued to be used mainly as tastemaker for blends (Reina et al., 2007; Pelupessy, 2007). Figure 5 illustrates that 49% of the brands with the trademark "100% Colombian Coffee" are sold in North America while in the EU this percentage barely reaches 9%. The North American share implies a higher bidirectional loyalty with the roasters that use this trademark (Reina et al., 2007).

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[14] These coffee growers are those who are members and can participate in election processes. However, all coffee growers have to pay the coffee tax and therefore receive the benefits of this contribution from FNC.

**Figure 5. Distribution of 100% Colombian Coffee brands by region**



Source: Cafe de Colombia (2011)

In addition to the regular export function, the FNC launched in 2002 a strategy to enhance the share of coffees with more value added (see figure 1). In other words, it stimulated the use of symbolic and in-person services quality attributes in order to reach more stages in the value chain. Procafecol is the company that commercializes Juan Valdez® coffee in domestic and international markets. It comprises also the distribution of roasted and ground coffee to other bars and supermarkets. The NCF is the biggest shareholder, but there are also 22,010 coffee growers who participate individually. In 2009 Procafecol owned 117 Juan Valdez coffee bars in Colombia and 30 abroad. Profits are invested by the NCF in social programs in coffee regions.

The FNC is the lead firm in the domestic market with great influence on growers' prices. This leading role provides producers with benefits that in free market conditions would be appropriated by private agents. At global level big multinational roasters and traders affect the prices and quality and delivery requirements. The bargaining power of the FNC has contributed to the high international price quotations of Colombian Milds.

#### 4.2. FNC as market regulator

The FNC is in principle a non-profit organization that also executes some functions that generally correspond to the government. In 1940 this scheme was formalized with the creation of the NCF, which is a public treasury account that collects the coffee tax as agreed by the FNC every ten years. Currently this is 6 US cents/lb of exportable coffee, retained by exporters but charged to the growers.

The FNC regulates the domestic prices with the *purchase guarantee*, which is the main policy instrument to assure producers that their coffee will be bought at a reasonable price. The Federation sets a daily price related to the NYSE quotation, to buy coffee through cooperatives in all coffee regions. Their presence in most of the coffee municipalities guarantees that private processors/exporters pay the FNC price or higher. In regions without cooperatives private agents' prices can be up to 40% below the regulated one (Reina et al., 2007).

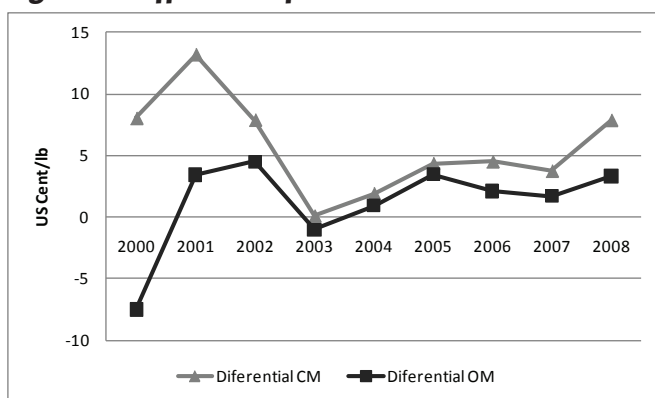
The coffee tax finances several assistance services and programs; 16% of the coffee contribution is transferred to Departmental and Municipal committees for infrastructure provision, education, etc. Between 1970 and 2002 the FNC executed projects that benefited about 2.6 million people in coffee regions. In 2009 more than 60% of the FNC investments

went to competitiveness enhancement. Infrastructure included the construction of roads, water treatments, classrooms, housing, basic sanitation and housing electrification (Silva, 2004). Other projects involved food aid, rural education and social security. The remaining NCF resources were invested in research to improve production technologies, assistance and training to growers, marketing and advertising of Colombian coffee around the world.

Despite its contributions the great economic power of the FNC had been criticized, particularly at the end of the last century. Under the ICA regime, the NCF achieved great liquidity and surpluses were invested in short-term financial assets, mutual funds, and shares in national and international companies. According to Junguito and Pizano (1997) capital investments grew at an annual rate of 22.9% between 1975 and 1996. The participation of the coffee fund in private companies and banks was justified by the need for strengthening the position of the coffee sector in areas as transport, financial intermediation, insurance, forestry and agro-industry. However, the investments extended also to companies that were not necessarily connected with coffee activities (Junguito and Pizano, 1997; Forero 2010). The central issue of the debate was precisely that large producers and exporters closely related to the FNC leadership could have obtained private advantages of such financial decisions (Forero, 2010). After the coffee crisis, the NCF faced liquidity shortages that forced to end its participation in all companies not connected with coffee production and marketing.

During the 90's most producing countries closed regulating institutions that were generally governmental bodies (Daviron and Ponte, 2005). The Federation was one of the few that survived, mainly because it was not a government institute. On the contrary, this organization was created and developed with participatory principles giving it great legitimacy (Reina et al., 2007). One of the main contributions of the FNC to the sector is their role to link coffee policies to macroeconomic decision making. For international coffee prices the FNC applied policies to maintain them above those from other origins. Figure 6 shows the differences between NYSE quotations and prices paid for Colombian Milds (CM) and Other Milds (OM) from 2000 to 2008. During this period the differential for CM was always positive with values between 1 and 13 US cent/lb, indicating that continuously CM are the better positioned in the market.

**Figure 6: Differential for Colombian Milds and Other Milds 2000-2008**



Source: ICO (2010)

The economic importance of coffee for Colombia was predominant during the 19<sup>th</sup> century when it was the major export product. Even today coffee has been denominated as “strategic social capital” for Colombian rural development since it affects the lives of more than two million persons<sup>15</sup>. Supporting the coffee growers assures the state’s presence and

[15] Two millions is an approximation of 527000 coffee growers with their families.

sovereignty in rural areas, which is crucial in a country with a historical armed conflict. Similarly, access to resources is positive for the wellbeing of coffee growers and their families, avoiding migration to urban centres with probably worse living conditions. The lead firm role and institutional framework provided by the FNC have been essential for the sustainability of coffee cultivation and the domestic nodes of the chain, to make these socially and economically viable.

## 5. COFFEE GROWERS LIVELIHOODS AND UPGRADING OPPORTUNITIES IN THE GLOBAL CHAIN

Cundinamarca is located in the central region of Colombia near the capital Bogotá. Coffee is cultivated by about 39,000 smallholders in 65 municipalities of this region accounting for a total area of 49,000 hectares<sup>16</sup> (FNC, 2011b). From the main coffee municipalities in Cundinamarca we selected Sasaima to explore how coffee growers comprise their assets portfolio and therefore how they could be affected by participating in strategies of material or symbolic quality attributes to upgrade the value chain.

Coffee production in this region is performed mainly by smallholders, involving family labour in cultivation, harvest and post harvest activities to obtain dry parchment coffee. Coffee cherries are taken to post-harvest depositories on the farms, where the beans are separated from the skin and pulp; and are subsequently washed and dried by sunlight for 15 days. Drying is a determinant process to preserve the quality of the beans and therefore important for growers to receive 'good prices' (Giovannucci et al. 2002). There is a main harvest between February and May and a secondary one from October to December. The income received by small coffee growers in these months have to be distributed over the year and is often not enough to satisfy their basic needs<sup>17</sup>. Hence, they also grow fruit trees with oranges, plantains and avocados for sale. Some of them have poultry, cattle, beans, maize and cassava for self-consumption.

### 5.1. Coffee grower's assets portfolio

The asset portfolio for coffee growers in Sasaima is composed first by **natural capital** in the form of land, trees and water. There are about 600 coffee growers with plots of less than one hectare land and a maximum of 3000 to 4000 coffee trees.<sup>18</sup> There is an inverse relationship between farm size and share of planted area with coffee, implying that smaller farms have higher percentages of coffee land<sup>19</sup>. This is an indication that small coffee growers have a high(er) dependence on coffee to sustain their families. Water is available mainly through rivers and rural water works. Some growers collect rainwater for the pulping process. Yet, a number of growers have difficulties to obtain clean water with negative consequences on coffee beans quality<sup>20</sup>. The soils are generally appropriate for coffee cultivation in the region. There is great biodiversity with coffee plots typically surrounded by different types of shadow trees, mainly orange and plantain. A study demonstrated the positive impact of poly-culture shade coffee on birds variety in this area (La Rota, 2011). Despite its natural conditions, the region is still lacking certifications of environmental care<sup>21</sup>, but it will be a factor to consider for livelihoods strategies as more sustainable use of natural resources has a positive impact upon the stocks of natural capitals (DFID, 1999).

A second category of assets is **human capital** that apart from its intrinsic value, is necessary to make use of the other types of assets. With an average of four members coffee households are generally small; 71% have masculine heads with low levels of education (14% illiterate and 71% with complete or incomplete primary school<sup>22</sup>). 64% of households are covered by the subsidized health regime, which covers poor families. Small coffee growers dedicate most

[16] See appendix 1.

[17] Interviews with coffee growers.

[18] Information from FCN delegate in Sasaima.

[19] Forero (2010) estimated that small farms have 78% of their area planted with coffee.

[20] Interview with employee of Sasaima's FNC cooperative outlet.

[21] Information from departmental coffee growers committee.

[22] Sasaima Development Plan 2008 – 2011.



of their time to work their own crops. There are two pronounced seasonal labour peaks in the principal and secondary harvest periods which makes small coffee growers in this region self sufficient in terms of labour. Most of the labour power is supplied by the household head (male or female) with contributions of wife and children in seasonal peaks (harvest). In periods of non-school attendance, children perform additional activities such as maintenance practices. Since the household's available labour force is not completely occupied in their own coffee plots, it can be used for other crops and farms or non-agricultural activities. Some coffee grower's wives or female household's heads also earn income by selling labour power to non-agricultural activities such as housework on larger farms.

Coffee sales, loans and subsidies compose the main **financial capital** for coffee growers. In particular, the FNC plays a key role to subsidize the pulping equipment and occasionally drying facilities such as patios<sup>23</sup>. The NCF also provides coffee growers with credits for crop renewal with a grace period of three years.<sup>24</sup> This renovation process takes place in batches and depends on the ability of farmers to generate income with other activities, crops or savings. Credits are used to buy fertilizers and other cultivation inputs but they are also good to cover households' financial needs.

Regarding **physical capital**, coffee growers own nursery beds to grow the germinators as well as pulping and drying infrastructure. This infrastructure is generally the most significant barrier they face as the investment costs are relatively too high for them. The NCF support is fundamental to access this infrastructure. Physical capital at household level consists of tools, housing and transport means including animals. At community level, physical capital includes the public infrastructure that appears to be crucial, such as roads, schools, community aqueducts and so on. The condition of most housing in the region corresponds to low socioeconomic levels according to the identification and classification system for potential beneficiaries of social programs (Sisben). Most of the households have access to electric energy (91.3%), 41.3% have water from public or communal sources and 52.8% from rivers or streams, 79.6% use wood to cook and 25% of the houses has no sanitary facilities<sup>25</sup>. The rural zone is provided with roads to transport the products to the urban area by car. In some cases and due to the mountainous terrains, coffee growers use animals to transport coffee. In rain seasons, transports may become a barrier as roads deteriorate because of landslides.

The investment in social projects, to strengthen human and physical capital, is performed through the departmental committee of the FNC. Before the coffee crisis in the 1990s the FNC itself run the projects. However, after this period the strategy has been to fund projects in association with other organizations, private companies and local governments. In consequence, the implementation of particular projects (e.g. public and community infrastructure) depends to a large extent on the influence, negotiation capacity and political power that municipal and departmental coffee committees may have in the region.

Finally, in terms of **socio-cultural capital**, as a result of the land division process that occurred in this region during the early XX century (Bejarano, 1987), it is common to find family ties among coffee growers households. Smallholding became predominant in Cundimarca when large farms or haciendas were abandoned as productive units after the civil wars of the

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[23] In 2009 only 2% of the total investment made by the NCF in the region was oriented to support the construction of drying facilities.

[24] At the time of the study the ongoing renovation plan had only one year of implementation, so it was not possible to establish a conclusion based on evidence that coffee growers earn enough income to pay back the credit.

[25] The source of this information is a Coffee Growers Living Conditions Survey of 2005 performed by the FNC.

19<sup>th</sup> century. The *haciendas* suffered a process of gradual division via inheritance, sale and other mechanisms, while the rapid expansion of Bogota may also have played a role. This consolidated a peasant economy in this region as the main local production system until now. Kinship and neighbours were found to be important in the collaboration systems among growers, not only to perform cultivation activities but also to share the machinery and infrastructure for the pulping process.

Although these networks work as a support among relatives and neighbours, which is positive for livelihoods strategies, the major support comes from the FNC particularly for funding and access to markets. The assistance service provided by the federation is an indisputable and direct link between the organization and coffee growers<sup>26</sup>. Through this service the FNC not only offers technical assistance and technology transfer from CENICAFE<sup>27</sup> to all farms, but also develop a number of social programs that provide access to housing, education, health, etc. and generate stronger bonds between the organization and the growers. According to the federation 71.4% of the coffee growers in Cundinamarca participated in group activities promoted by the FNC in 2009 (FNC, 2011b) and about 60% of the coffee growers had been issued a membership chip card. Although social capital cannot be easily measured, this participation is a good indication of the organizing capacity and legitimacy that the FNC holds in the region.

The way in which coffee growers take advantage of their capitals varies in every region according to the local history, social evolution, external pressures, and other factors. This in turn constitutes practices that enable forms of action and empower people in a way that access to capitals alone would not make possible (Bebbington, 1999). In Sasaima there are two particular elements that negatively affect the coffee production culture. First, the proximity to Bogotá, an urban centre with roughly eight million people, has enormous influence on the use of land of surrounding populations, generating permanent transitions from agriculture to other activities. This situation weakens the deep-rooted sense of ruralism of peasants that together with the low recognition as a coffee producer region challenges their cultural identity. Bogotá exercises pressures on young people to become urban, undermining the meaning and the value of agriculture as a means of living. Second, coffee growers in this region do not respond to the image of Juan Valdez, a globally recognized symbol of Colombian coffee, who entirely reflects a typical coffee grower of the most productive and profitable central-west part of the country. Coffee smallholders of Cundinamarca have no strong affinity with this symbol. Although it has indeed contributed to generate value for Colombian coffee in global and local markets, at a first sight there are no other evident identities to be rescued from Cundinamarca for which coffee can be differentiated. A more favourable situation is given by the San Andrés de Pisimbalá district in Cauca, where an indigenous coffee production system still predominates, based on the application of traditional technologies, production, organization and corresponding ceremonials (Jurado et al., 2008). However, taking into account the great biodiversity of the region Cundinamarca, the particular use of shadow trees and the social bonds already present, it may be possible to work on a differentiation strategy at regional level that link the product to the territory, which also may contribute to counteract the blurred sense of membership of rural households with their communities.

The review of coffee growers' asset portfolio in Sasaima suggests that natural capital is at the basis of their livelihoods construction considering that land conditions, climate

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[26] All FNC members receive the assistance service.

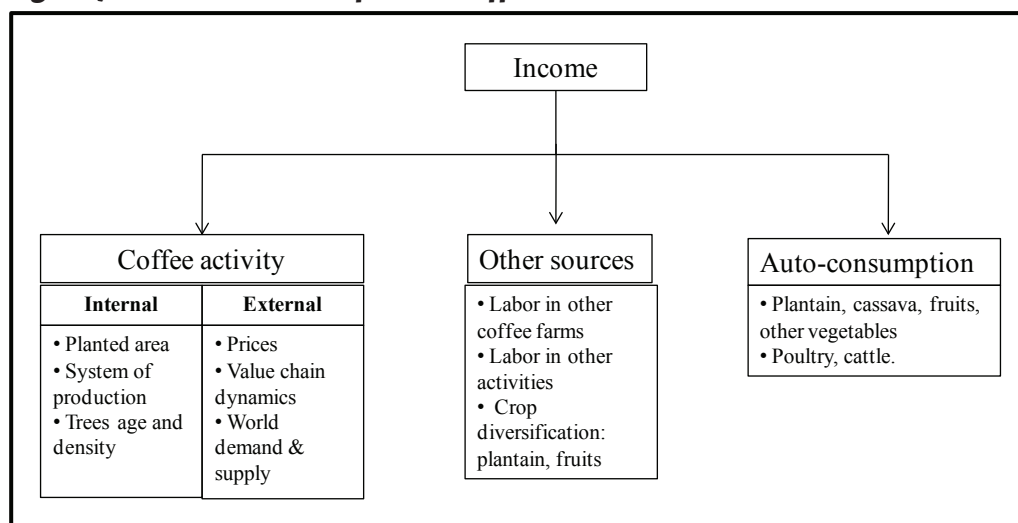
[27] CENICAFE is a FNC' research institute which focus is to strengthen the sustainability of coffee production in Colombia.

and location are proper for coffee production. In addition, there has been a historical transfer process of land and knowledge that suggest that local peasants may continue to find this activity as meaningful for their lives, despite the urban pressure. The FNC has played a key role in strengthening growers' asset portfolio by developing strategies to improve production practices and provide possibilities to access global markets. More importantly, the FNC has contributed to reinforce social capital by providing possibilities of participation and space for social organization. It is necessary to note though that the level of education of coffee growers is still low, generating barriers to engage in debates that can be of significant importance to claim their rights or access to resources. Up to now they have to rely on federation representatives for this.

## 5.2. Income generation in Sasaima

Most income of growers' families comes from coffee production and fluctuates depending on internal factors such as planted area, system of production and yields per hectare; it also is affected by external factors like weather, international coffee prices and coffee value chain dynamics. Families sell surplus labour (mainly from the household head and his wife) to other farms and non-agricultural activities. However, the capacity to generate this additional income depends on agricultural and non-agricultural labour demand as well as the availability and quality of households' human capital to meet its requirements. A third part of the income is generated by other agricultural crops mainly grown for self-consumption. Figure 7 summarizes the main sources of income for coffee growers in Sasaima.

**Figure 7: Income Sources of Small Coffee Growers**



Considering an average planted area of 1 hectare<sup>28</sup>, the estimated average income generated through coffee production is presented in table 5.1<sup>29</sup>. Total income is equal to annual production (Kg) multiplied by the average price paid to coffee growers by the FNC in 2008. Production costs<sup>30</sup> include fungicides, fertilizers, non-labour harvest costs, inputs for coffee cherry processing and other indirect costs. Labour costs are calculated as value of per day's wages times worked days. For the details of production costs calculation see Appendix 3.

[28] Based on National Coffee Survey (1997), García (2003) estimated the average planted area in Cundinamarca at 1 hectare.

[29] Following the data used in the value chain analysis prices and costs correspond to 2008.

[30] Information related to production costs was provided by the FNC – Technical Unit.

Description	Estimation for	Estimation for
	modern systems (FNC)	Sasaima 2008
Planted area (hectares)	1	1
Estimated production (Kg/Hectare)	1150	887
Price Kg 2008 (US dollars 2008)	2	2.09
Total income (US dollars)*	2,305	1,852
Production cost (US dollars)**	2,184	1,743
Net profit	121	109
Net profit + labour cost	973	789
Income per day (US dollars)	2.67	2.16
Rural poverty line 2008 (US\$ a day)	3.32	3.32

\*Average parchment coffee price set by FNC in 2008. \*\*Production costs calculated for 1 hectare of planted area according to FNC parameters. Source: FNC, DNP and authors calculations.

Estimations in column 1 correspond to an average farm under a modern system of production, standard quality coffee (no premiums) and minimum average price paid by the FNC in 2008. The annual net profit was calculated at US\$121. Adding the labour cost, which is the contribution of the farmer and family, makes the final income or value added US\$973 per year. In column 2 and based on the available information we calculated the income for coffee growers in Sasaima who received premiums for material quality 2 points above the average<sup>31</sup>. The yield in this region was calculated at 887 Kg/ha. This yield per hectare is lower due to the significant presence of traditional systems of production (Cundinamarca 40%, Sasaima 34%) that gives lower yields (and also lower production costs). In this case, coffee growers generated an income per day of \$2.16 in 2008, evidently below the poverty line set for this year<sup>32</sup>. This result implies that under these conditions of productivity and planted plot size, coffee growers needed at least a 50% higher parchment coffee price to reach the poverty line.

Table 5.2 presents the effect of several scenarios of premiums in growers' income. These calculations considered both premiums for material quality at different proportions granted by the FNC and also premiums for symbolic attributes. In this case we take the UTZ certification, which is the only one present in Sasaima. The results show significant increases in income when growers receive material, symbolic or both quality attributes. In the best case, daily income increased 35% to 50%; when adding premiums for both quality and UTZ certificates the rise could have been up to 50%. Nevertheless coffee growers in Sasaima could still not reach the poverty line, even when the two premiums are accumulated.

[31] Source: information from cooperative.

[32] The poverty line is defined by the National Planning Department for rural and urban areas (DNP, 2011).

**Table 5.2: Premiums for quality scenarios related to coffee grower's income**

% of quality beans	Premium COP/Kg	Premium US\$/Kg	Base price (Kg) + premium	Total income	Net Profit	Net profit + Labour	Income per day MQA*	Income per day SQA**
76	53	0.03	2.03	1,802	59	911	2.49	2.79
77	108	0.05	2.06	1,827	83	935	2.56	2.86
78	164	0.08	2.09	1,852	109	961	2.63	2.93
79	221	0.11	2.12	1,878	134	986	2.70	3.00
80	280	0.14	2.15	1,905	161	1,013	2.78	3.07
81	340	0.17	2.18	1,932	188	1,040	2.85	3.15
82	402	0.20	2.21	1,960	216	1,068	2.93	3.22
UTZ	240	0.12	2.13	1,886	143	995		2.73

Source: data on premiums (FNC, 2010) and authors' calculations. \*Material Quality Attributes. \*\*Symbolic Quality Attributes, which includes the sum of material and symbolic quality attributes.

To the present information on income one should also add the income gained for work outside the farm. To calculate it we used the information of the National Income and Expenditure Survey 2006–2007 (DANE, 2011). According to this survey, the equivalent income of a rural household who works exclusively in agricultural activities (with daily-wage remuneration) was US\$ 1532 in 2008<sup>33</sup> or US\$ 4.1 a day. This income moves these households above the poverty line. To calculate the labour income for coffee growers it is necessary to consider that despite their labour availability, there are market constraints that may limit the absorption of this labour. In consequence, income may vary according to the number of working days sold by the households. Assuming that a crop requires 292 workdays (Lozano, 2007), the remaining available labour per household per year expressed in workdays is 188<sup>34</sup>. Table 5.3 shows the scenarios of income according to the occupation of surplus labour.

**Table 5.3: Total income of coffee growers**

% of occupation of labour in other activities	Work-days	Total income for work-days	Total income for coffee activity 2008	Total household income 2008	Daily Income 2008
100%	188	1200.1	789	1989.1	5.4
70%	131.6	840.1	789	1629.1	4.5
50%	94	600.1	789	1389.1	3.8
30%	39.48	252.0	789	1041.0	2.9
10%	18.8	120.0	789	909.0	2.5

According to these calculations, coffee growers in Sasaima who used between 50% and 100% of their available labour for additional income were able to generate a daily income above the poverty line. However, due to the conditions of the rural labour market in the region and considering that these families have as a main activity coffee production, we may assume that most growers are not able to sell more than 50% of their surplus labour and therefore may face difficulties to obtain income above the poverty line<sup>35</sup>. In any case, as coffee growers depend to some extent on labour demands, they remain within a vulnerability zone where their position may switch below or above the poverty line from one period to another depending on coffee activities outcome and additional labour income. As a matter of fact, the ability of using all the

[33] Estimation based on minimum salary rate increase for 2008 and exchange rate.

[34] The total supply of labour per coffee grower household per year is 480 working days, counting the labour force of the household head and his wife.

[35] The labor market provides occupation for 30.9% of the population, mainly in the rural sector (Parra, 2008).

assets at their disposal would influence the outcome in terms of income. Women household heads face more constraints to diversify income as they have less labour available to work on other activities rather than coffee growing and household care.

From this analysis we observe that small coffee growers face structural difficulties to raise their income and improve the assets portfolio. First, the endowments of land are not sufficient for most of them. At the present conditions of prices, costs and production systems, they would need a farm size of 3 hectares and a planted area of 2.5 hectares to reach the income level of a minimum salary in Colombia. On the other hand, most of the employment is on their own farms with low possibilities of labour absorption by larger farms or other activities. The level of education of the household head and family members is often too low to participate in off-farm activities different from agriculture. More than 30% of the rural population in Sasaima suffer a basic needs deficit (Parra, 2008). Under these conditions it will be necessary to improve the position of coffee smallholders in the value chain.

### **5-3- Upgrading opportunities**

One may suggest that growers in Sasaima continue to improve on material quality, considering that some of them still face problems related to the poor conditions of water and drying facilities that affect coffee attributes as aroma and flavour. However, the quality of coffee in this region is already high because in most cases it had been possible to overcome these problems with investment and assistance from the FNC. A second option to raise the income of growers is promoting more certification schemes based on the natural conditions of the region. However, as we analysed in sections 3 and 5 it is possible to argue that benefits of higher prices paid by consumers may not reach producers or not reach them well enough to improve their current conditions of poverty. The benefits of such a strategy are mainly given in terms of access to markets particularly in Europe where environmental certificates are increasingly demanded. This in turn, may contribute to reduce the vulnerability of small coffee growers, particularly in periods of low coffee prices. Often smallholders do not know where and how their produce is sold in other countries. They sell parchment coffee to the FNC because there is a minimum price guaranteed, but beyond this transaction they ignore the next nodes of the chain and the possibilities to increase income of an activity they have already managed and valued.

However, taking into account the growing trend in final consumption markets for the search of products linked to particular origins, we suggest that growers in Sasaima could consider the possibility to create their own origin coffee and link its “terroir” to specific markets in Europe. They could make use of their socio-cultural capital to enhance the assets to gain a better position within the chain. In fact, the enhancement of certain forms of identity comprises an important input for livelihoods construction as it enables different forms of action (Bebbington, 1999).

A successful origin promotion of East-African coffees in the US in the 1990s had been reported in Aroma Review (Wong, 1994). But also Café de Colombia was the first non-European product, which got the geographical indication (GI) protection of the EU (Bowen and Valenzuela, 2009). According to other experiences (Soto, 2006; Acampora and Fonte, 2008) there are four fundamental elements to consider for the adoption of development strategies based on local identity. The first element is the identification of specific differentiation characteristics: historic, cultural, environmental, and productive among others. It is necessary to highlight the natural and human assets involved in coffee production in a certain region, which in this case are given mainly by the biodiversity, tradition of coffee culture and the way of (family) participation of small coffee

growers in the manual harvesting process. Second, the legal framework to obtain a denomination of origin (DO) or GI for a region (Bowen, 2010) must be set in the country. In Colombia the institution that regulates commercial and industrial matters is the corresponding authority that grants such denomination, which up till now is valid only in a limited number of countries. Third, it is crucial to involve all coffee growers actively to embed production in the social and cultural framework of the region, to achieve the corresponding DO or GI (Bowen, 2010). It is necessary to socialize with them the meaning of this symbol and the requirements they need to meet in order to obtain it. More important is to maintain and strengthen the social cohesion and cultural identity of the communities involved, as well as to emphasize the importance of the collectivity in the process. There should also be a link between the territory and the taste and quality of the product where the latter emphasizes tradition and authenticity in its production (Bowen, 2010). The tequila case in Mexico had shown that a very extensive and culturally or biophysically heterogeneous GI region might not be successful (Bowen and Valenzuela, 2009). Fourth, the inclusion of international experts may help to judge the quality and may take into account the knowledge of final consumers, which might be needed for marketing the product. In this sense, the liaison with specific organizations in final markets is crucial. The European Specialty Coffee Association in this case is an important actor as it has chapters in every country that involve all actors of final nodes of the chain. The access to specialty markets and the recognition of DO and GI are long lasting processes, which may take five to 20 years (Berrocal, 2007). The role of the FNC continues to be crucial in order to facilitate the development of such a process, even more when this organization already has the experience of DO and GI for Colombian Coffee. These learned lessons should be adapted and transferred to departmental and municipal committees in the way that they can stimulate the process in the region. A stronger institutional and socio-political framework for the region should be developed to enhance authenticity, quality and equity among the local smallholders. The interesting thing is that in this case different from the outcome of a recent study on non-traditional exports smallholders (Challies and Murray, 2011), it is not state intervention, but rather that of the coffee growers association that will be necessary for the viability of implementing new quality standards in the region.

## 6. CONCLUSIONS AND RECOMMENDATIONS

To analyse how the participation of small coffee growers in different competitiveness strategies might affect their livelihood outcomes and upgrading opportunities, we have used a combination of value chain and livelihood approaches. The effects on income and socio-cultural assets as important indicators for wellbeing seem to be quite different for each strategy. Traditionally Colombia had concentrated on material quality, while later measures based on symbolic attributes were added and in the 2000s in-person services were introduced.

The global coffee chain from Colombia to Belgium provided insights into the organization of actors in the different nodes, their interactions in the transformation and trade processes, the income distribution, as well as the socio-political embeddedness. Special attention has been given to the interface between the global coffee chain dynamics and local livelihoods developments in Sasaima, Cundinamarca. The findings indicate that about 70% of the created value is appropriated in Belgium, while the remaining 30% accrues to Colombia as a result of the global governance by four powerful multinational roasting companies, the chain structure and institutional context. The Belgian government received also 90% of the tax income generated in the chain.

This unequal international income distribution evidences the powerful position of lead firms in the global chain. The possibility of smallholders to participate in the creation of quality attributes is greatly influenced by this governance structure. Multinational roasters in importing countries have been able to control and coordinate upstream activities by deciding about specifications of the coffee, origins, certifications and also conditions concerning logistics and processes, thereby restricting producers to focus on material quality standards.

Due to the specific institutional framework of the National Federation of Coffee Growers (FNC) in Colombia, a major part of the FOB export price could be transferred to the growers. The FNC operates as both domestic lead firm within and institutional regulator outside the chain. The domestic orientation and coordination by the Federation have given Colombian coffee historically the highest prices and the tastemaker's position in blends of international roasters. Unlike the other producing countries this domestic governance force survived the torrent of worldwide privatizations of the 1990s, preserving the economic and social support to coffee growers.

The study of Sasaima in the department of Cundinamarca shows that smallholders' income depends mainly on coffee production wherein land and labour are the main assets they rely on. The FNC has played a significant role in strengthening physical, financial and social-cultural capitals for livelihoods construction. In 2008 the household income generated in the chain was below the poverty line, showing that coffee growers' endowments with land were not enough at least under the studied conditions of productivity and prices. For those who gained premiums for material quality and symbolic UTZ certification, achievements in terms of income were better than average but still not enough to reach the poverty line. When adding different scenarios of income generated by surplus labour used out of the farm, coffee growers could have generated a daily income above the poverty line when 50% or more of the surplus labour could be employed. However, this scenario does not correspond with the real conditions of the rural labour market in the region. This means that these coffee growers face great challenges to generate enough income to satisfy the basic needs of their families. The upcoming urbanization and other disintegrating pressures from nearby metropolis Bogotá are also weakening the coffee



culture in the region. To increase the wellbeing of smallholders a further strengthening of their socio-cultural capital will also be needed.

Through this research we proposed some upgrading opportunities for coffee growers in Sasaima and eventually for Cundinamarca. First, there are some farmers still facing problems with quality due to weaknesses in the process of obtaining parchment coffee. In these cases it would be necessary to work on drying facilities and water sources to improve the material quality of their coffee and assure premiums for quality within the existent incentive scheme. Second, there is another opportunity for process upgrading in this region by adopting a more efficient production system with higher yields and disease resistant varieties. The technical support of the Federation is essential for growers to have access to credit to renovate their crops. The main challenge is to organize the crop renewal without losing most of the income from coffee cultivation during the transition period. Third, there are possibilities for product upgrading as the region is not much involved in provision of differentiated coffees, but has some natural and human characteristics that could be used to create an origin coffee. Fourth, considering that consumers in final markets are progressively more sensitive to products with specific identities and narratives from remote places, through the creation of a regional origin coffee Cundinamarca could link the territory to specific markets in Europe. In this way opportunities might be created to raise the income of small coffee growers in this region. The political and commercial actions of the FNC continue to be very important to find mechanisms that contribute to counterbalance the global power within the chain and achieve more equitable income distributions. More locally, the role of the departmental and municipal committees is crucial to strengthen the value of the “local culture” in a way that not only the region produces a physically high quality product but also one that generates cohesion and stronger bonds among rural communities.

The survival of coffee cultivation in a practically suburban area is remarkable, but to make it really sustainable support will be needed, especially of the socio-cultural capital of smallholders.

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## APPENDIX 1: METHODS OF DATA COLLECTION

The coffee value chain structure was first designed based on previous studies that map the main actors in producing and consuming countries (Talbot, 1997; Fitter and Kaplinsky, 2001; Daviron and Ponte, 2005; Pelupessy, 2007) and then constructed from the information collected through semi-structured interviews made to actors in both Colombia and Belgium<sup>36</sup>. The income distribution calculations were based on secondary data from the International Coffee Organization, the National Federation of Coffee Growers, Eurostat and previous studies on coffee value chains.

In order to perform the analysis on how small coffee growers comprise their asset portfolio, we selected the municipality of Sasaima in the department of Cundinamarca as this coffee region has been highly characterized by smallholder production since the early XX century (Bejarano, 1987). The province of Cundinamarca was also chosen because of the persistence of coffee cultivation despite the nearness of the Bogota capital city. Relative to its total area, Sasaima is among the top ten municipalities in Cundinamarca with more area dedicated to this crop (FNC, 2011a); it also counts with an outlet to collect coffee, an FCN office and the general organization for a coffee municipality in Colombia. We first made interviews to the Coffee Growers Cundinamarca Committee, then to the FNC staff in Sasaima. Then a group of coffee growers was selected to perform visits to the farms and semi-structured interviews considering variables such farm size and area dedicated to coffee crop<sup>37</sup>. With regard to income calculations for producers in Sasaima we used information provided by the FNC and secondary sources.

## APPENDIX 2: METHOD TO ESTIMATE THE INCOME DISTRIBUTION IN THE COLOMBIA BELGIUM GLOBAL COFFEE CHAIN

The data for estimation of income distribution in the Belgium part of the chain combined two methodologies using both figures of Eurostat (2009) and financial statements of companies in this market.

1. **Retail price** of 546.09 US cent/lb is taken from the ICO retail average prices that are consistent with prices found in supermarkets. Today, the range of prices vary from 7.16€/Kg to 10.76€/kg. Translating this into 2008 dollars the range is between 415.33 to 624.16 US cent/lb with an average very close to that reported by ICO. Retail price is the price paid by the consumer.
2. **Retail price before taxes** is found after subtracting 6% of VAT and excise duty of 0,25 €/kg<sup>38</sup> that correspond to 16.72 US cent/lb. **Retail price before taxes** is then 496.60 US cent/lb.
3. To find the price that retailers pay for roasted coffee or the **price of purchase roasted coffee**, we used Eurostat data on the “Processing Tea and Coffee” industry in Belgium and quantity sold for “Roasted coffee, not decaffeinated” segment. The turnover for “Roasted coffee, not decaffeinated” were estimated using its participation in the industry of “Processing Tea and Coffee” and subsequently the unit price for roasted coffee. This price corresponds to 6.59 €/kg or 439.57 US cent/lb, which is considered the price in which roaster sell coffee or the purchase

[36] We performed 11 interviews to importers, roasters, coffee bar owners, baristas and coffee consultants in Belgium; private exporters, FNC and producers in Colombia.

[37] We visited 8 farms in total.

[38] Source: European Coffee Report 2008.

price for retailers. Using the financial statements of the Delhaize group<sup>39</sup> which is one of the main retailers in Belgium a second calculation is done. The “cost of revenue”<sup>40</sup> was taken as an approximation of cost of raw material. In this case, the percentage is 69% that multiplied to retail price before taxes (496.60 US cent/lb), gives 342.66 US cent/lb. Combining both results, we find an average **price of purchase roasted coffee** of 391.11 US cent/lb. From the financial statements of Delhaize we took the percentage of operational and other costs as well as net profit to calculate these values per pound of coffee.

4. To calculate the price of purchase green coffee the same methodology was followed. From Eurostat we used the production value and turnover (estimated) for “Roasted coffee, not decaffeinated” segment. Eurostat defines production value as turnover plus or minus changes in stocks, minus the purchases of goods and services for resale, plus other operational income (excluding subsidies) plus capitalized production<sup>41</sup>. Since turnover and production value are known, these values were replaced to find the cost of goods and services for resale (assumed as value of raw material). Changes in inventory of 1.5% and other operational income of 1.5%<sup>42</sup> and capitalized production of zero were also assumed as percentage of turnover. Under these assumptions we found the relation between goods and services value and turnover of 2.77. This means that for every US cent of turnover, the value of goods and services will be 2.77 times lower. We therefore divided 439.57 US cent/lb between 2.77 to find the value that roaster paid for green coffee that corresponds to 158.18 US cent/lb. Now the calculation is done using the financial statements of Sara Lee and Kraft which are two main suppliers of roasted and grounded coffee in Belgium. The average of the costs of revenue for these three companies in 2008 was 56% that multiplied by 342.66 US cent/lb give a price of purchased green coffee of 191.89 US cent/lb. The average of the two results is 175.03 US cent/lb which is the final value for purchased green coffee. During the transformation process of green coffee into roasted coffee there are losses of 15%, for this reason the final value expressed in terms of roasted coffee is 201.29 US cent/lb. From the financial statements of Sara Lee and Krafts we took the percentage of operational and other costs as well as net profit to calculate these values per pound of coffee.
5. The price paid by the importer is the F.O.B. price, which in this case is 141.83 US cent/lb of green coffee<sup>43</sup> or 163.10 US cent/lb of roasted coffee. The average difference between F.O.B price<sup>44</sup> and C.I.F. price<sup>45</sup> is 5 US cent/lb<sup>46</sup>. Importer also assumes costs of warehousing, distribution, insurances for damage, costumes, etc. However, there is no financial information available on these companies; therefore we assumed an importer margin of 2%<sup>47</sup> minus the freight cost to find operational and financial costs of 24.70 US cent/lb.

[39] As Delhaize Group is NYSE listed, the financial information is public (financeyahoo, 2010).

[40] Defined as the costs of production including cost of raw material and other costs associated to production including labor

[41] Capitalized production refers to improvements in production processes or technologies.

[42] These assumptions are realistic when looking at these shares in financial statements of big manufacturers such as Sara Lee and Kraft.

[43] The source is Proexport (2010). Report on quantities and value of Colombian exports in F.O.B. prices.

[44] F.O.B. or Free on Board is the price at port of shipment when the goods have passed the ship’s rail.

[45] C.I.F. or Cost Insurance and Freight, is the price at port of destination before the payment of import duties.

[46] Source: interview with importer.

[47] Source: interviews with importers and SCAA (2010).

Now, the income distribution for actors in Colombia will be presented with the advantage of counting with real information on F.O.B prices, exports costs and producer's prices and costs.

1. In Colombia, the start point is the F.O.B price received by exporters of 141.83 US cent/lb. In Colombia milling is performed by several exporters that have integrated this activity in order to add more value. From the financial statements of a group of 12 exporters we calculated the percentage of operational costs and net profits<sup>48</sup> to find the **cooperative price** of 123.67 US cent/lb or 142.22 US cent/lb in terms of roasted coffee. The coffee contribution of 6 US cent/lb is discounted first to find these values.
2. The marketing costs of cooperatives were calculated at 4.73 US cent/lb from the difference of cooperatives prices and producer price which is known. This value corresponds to 3.3% of the F.O.B. price, similar to estimations made in other studies (Giovannuncci et al., 2002).
3. The **Producer price** in 2008 was set by the FNC at COP 492,656.63 per 125Kg of parchment coffee that translated into US cent/lb is 90.80. Multiplying this value for 1.31 that is the reported yield factor for 2008, the price paid to producer in terms of green coffee was 118.94 US cent/lb. **Producer price** in terms of roasted coffee price was found at 136.79 US cent/lb. Finally, production costs of parchment coffee in 2008 were calculated at 86.14 US cent/lb and were provided by the NCFG. This cost expressed in terms of green coffee is 112.84 US cent/lb. The net profit for producers is calculated at 6.10 US cent/lb or 7.01 in terms of roasted coffee. This value as percentage of retail price is 1.28%.

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[48] Racafé, Virmax, Coffee Export, Compañía Cafetera Agrícola de Sanander, Expocafé, Café Colsuaves, Surti Café, Laumayer y CIA, Planet Café, Gomez Mora, Sucafe, Teresita Exportadores.



### APPENDIX 3: CALCULATION OF PRODUCTION COSTS

General information			Value
Planted area (Hectares)			1.0
Number of trees in production			5,000
Estimated production (Kg/Ha)			1150
Exchange rate US dollars - COP 2008			1966.26
PRODUCTION COSTS			
Description	Total quantity per year	Unit value	2008
<b>Weed control</b>			<b>250,993</b>
Labor	11.5	18,030	207,342
Herbicides and tools	1.5	29,101	43,651
<b>Fertilization</b>			<b>1,028,644</b>
Labor	4	18,030	72,119
Fertilizers	16	59,783	956,525
<b>Plague control</b>			<b>629,143</b>
Labor	25	18,030	450,744
Fungicides	8	22,300	178,400
<b>Harvest*</b>			<b>1,601,326</b>
Labor			800,663
Other			800,663
<b>Processing</b>			<b>182,195</b>
Labor	8	18,030	144,238
Inputs		37,957	37,957
<b>Other costs</b>			<b>601,843</b>
<b>TOTAL (COP 2008)</b>			<b>4,294,145</b>
<b>TOTAL (US dollars 2008)</b>			<b>2,184</b>
<i>*The FNC calculates harvest costs as the costs per Kg times the Kg of cherries collected, with distribution of labour costs and other of 50% each.</i>			
<b>Total cost per ha</b>			2,184
<b>Production Kg PC</b>			1,150
<b>Cost US/Kg</b>			1.899
<b>Cost US cent/lb</b>			86.14
<b>Cost US cent/lb in terms of green coffee</b>			112.84



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