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The micro mill revolution

A field study investigating the economic and social impacts for coffee producers when implementing a micro production strategy

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Abstract

This field study examines the economic and social opportunities and challenges brought to coffee producers when implementing a new form of coffee production strategy to their farms, called micro milling. Different stakeholders of the Costa Rican coffee business were interviewed to conduct this study, in total 18 interviews. The main purpose was to investigate whether micro milling could be one way to achieve economic and social sustainability for the producers, on a local level. The results present an improved situation both economically and socially for the producers and their families. The analysis that follows discusses why micro milling could be seen as a socially and economically sustainable way to produce coffee, even though conflicts surface, especially in the community.

Key words; coffee production, micro milling, social sustainability, social responsibility, economic sustainability, cultural value.

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1. Introduction

Costa Rica is a prosperous country from several points of view. The Fragile state Index defines Costa Rica as a Stable country, out of 178 countries Costa Rica is ranked 36th in matters of sustainability (The Fund for Peace 2015). Furthermore, Costa Rica is currently placed first on the Happy Index Score - worldwide. The score reflects life expectancy, level of experienced well-being and ecological footprint (Happy Planet Index, 2016). Analysts argue that the apparent happiness of Costa Rican people is also thanks to strong social factors, such as strong relationships with families, friends and neighbours, among other aspects (BBC, 2010).

Costa Rica has internationally been recognized for its environmental policies and their success in Environmental Sustainability (Bethke, 2013). The country has been seen as a world leader in environmental issues and has been ranked on top places on different indexes and rankings, such as the Environmental Performance Index (Cafe De Costa Rica, 2011).

Costa Rica is also quite successful in comparison to its neighbouring countries in terms of political stability, economic growth, health and well-being (World Bank, 2016). The literacy rate, the primary school net ratio and the attendance rate in school reaches levels of around 93-97%. The economics in the country is stable and growing, the GNI per capita is 9550 US dollars (Unicef, 2015) and the health system has reached 91,9% universal insurance coverage (Carpio & Bench, 2015).

Throughout history, coffee has played a vital role in the Costa Rican society, it has also been a cornerstone in the growth of the economy in the country. For this reason, coffee has been called “The Golden bean” (Exclusive Coffee, 2010; Cafe De Costa Rica, 2011). The first Arabica coffee bean was brought to Costa Rica in 1791, directly from Ethiopia. The production of coffee was strongly encouraged by the government and plots of land were offered for free to anyone who wanted to grow coffee plants. In 1821 Costa Rica was declared independent from Spain. The same year marked the first shipment of Costa Rican coffee to Europe.

The period that follows, between 1821 and 1950, is referred to as the Golden Age of Costa Rica, as the coffee production exploded. Coffee was the “motor crop” that built the economy and soon became the country’s main export merchandise. Modernization of the country began and infrastructure such as railroads, schools and hospitals were built. The economy grew and coffee formed the social identity of the country, it became a part of the culture (Mena, 2016).

The Costa Rican coffee production consisted (still does) of a very large number of small scale producers, selling their crop to processors and exporters. During this great expansion of the industry, some exporters became very powerful and an oligarchy of wealthy coffee corporations took shape. Eventually these oligarchs started abusing their power and the small scale coffee producers were the ones being punished. In order to maximise the profit, exporters paid the producers less and less to the point where it wasn't economically sustainable for the producers. The social standards for producers therefore decreased as well. In 1933, el Instituto Del Café, ICAFE, was founded to protect the producers from large exporting businesses. ICAFE is a partly government controlled institution that regulates all businesses and stakeholders in the coffee industry of the country. In the 1950's Costa Rica saw its first "coffee revolution" - the appearance of cooperatives. These producer controlled organizations became a unanimous voice for their members empowering them towards the powerful buyers and exporters and soon there were between 52 and 55 cooperatives around the country. This provided security for the producers who had no control over the pricing of their crop (Mena, 2016).

As the demand for coffee on the international market grew, producers and exporters were trying to maximise the quantity produced in order to keep up with the demand and earn money. At the turn of the millennium the price for coffee on the world market saw a huge plunge, hitting the Costa Rican export industry hard. Being powerless towards the market price of coffee, the producers were the ones that suffered.

1.1 The micro mill production

This last price crisis during the millennium shift, has led to a second revolution in the Costa Rican coffee industry, the so-called "micro mill revolution". Producers want the control of their product back and are investing in equipment enabling them to process their own cherries and sell the coffee directly to buyers without the processing and exporting middlemen and cooperatives. Focusing on quality instead of quantity, these micro millers are able to sell their coffee at a higher price. Not being dependent on exporters and other middlemen allows them to have control over their product and puts them in a stronger position towards buyers. With a growing demand for exclusive and unique products on the world market, the number of micro mill coffee producers has gone from none to 150 in only 15 years (Mena, 2016). The term micro milling refers to a farmer processing his/her own coffee instead of selling it to the large cooperatives. This allows the producer to ensure the good quality of their product and gives the farmer a stronger position in the chain. Hence these coffees become traceable and more attractive to customers seeking a unique and quality cup (Exclusive Coffees, 2010).

By adapting this production structure, producers can earn more money of their product since the quality can be ensured in a totally different manner. This also gives producers incentives to work harder to produce a quality coffee since they are representing their own brand (Huffington Post, 2014, April 4). Producers are able to compete on the specialty markets since they are differentiating themselves and are creating a unique brand of single-origin¹ coffee. The geographical differentiation is a big part of the way micro mill farms distinguish themselves. Quality aspects such as altitude of the farms, varieties of plants and processing techniques are also an important part of how micro milled coffee satisfies the demands of the customers.

1.2 Problematization

Most of the coffee worldwide is bought and sold between many intermediaries from the producer to the final consumer, and most of the coffee is produced in low income and rural areas. The market price of coffee is constantly changing, which makes the income uncertain for each individual coffee producer, especially during coffee price crisis (Fair Trade, 2011). It is not only well known that coffee producers are living under poor economic and social conditions, there are many facts proving this. Less than 95% of the world's coffee producers are smallholder family owners, nearly half of all these families are living under the poverty line - which currently is a number of 20 million individuals living under the poverty line, and they all work within coffee production (Techno Serve, 2016). These poor economic conditions affect the social conditions as well. Many producers struggle with affording health care and education to their families and are often forced to make their children work at the farm instead of going to school, to contribute to the family income (Borgen Project, 2013). The working environment are often poor as well; working hours exceed legal limits, working in intense heat with no drinking water, forced labour and general bad working conditions (World Vision action, 2014). However, as said, both general health, school attendance and insurance coverage reaches high levels in Costa Rica, but it should still not be disregarded that social conditions might be problematic for Costa Rican producers as well. Currently, coffee is the world's second largest traded commodity and it is one of the most popular beverages worldwide (Investor Guide, 2016; Techno Serve, 2016). Because of its relevance on the global market it is of crucial importance that coffee production is produced and consumed in a sustainable way.

The last decade the demand for unique products made in small scale has seen a huge rise. An example, and the most noticeable global trend of this, is the increased demand for micro brewed beer. Another example is the phenomenon happening in Costa Rica since 15 years back, and is called the “Micro Mill Revolution”. The term refers to the rapid increase of small-scale

¹ Coffee beans are exclusively from one region or one producer, giving the coffee a traceable and unique character.

production of coffee. There is some information to be found about the idea and principles of this procedure, but a big blank when it comes to research on the matter. From what can be read on the subject, micro milling empowers the producer and allows increased economic gain and improved quality of the coffee. However there is no research examining how the producers themselves perceive the situation and whether this improves their standards of living. We found it interesting to investigate to what extent micro mill production is a way to achieve sustainability, from both an economical and social perspective. Especially since the global trend clearly displays the increased demand for micro enterprises within other markets as well, this study might provide knowledge to those markets as well.

It is problematic to measure social sustainability. Not only does the concept contain a vague definition, there are also no units of measurements and no precise limits to what counts as socially sustainable and what doesn't. Economic sustainability is easier to measure, it has an absolute measure to what could be considered sustainable. Authors describe the concept social sustainability and its core aspects in different and diffuse ways. Additionally, authors describe that the concept is to such high extent context-based that a clear definition might not ever be found, which also is problematic when studying sustainability (Weingartner & Moberg, 2014). Therefore, we believe, the best overall guideline to answer whether micro milling is socially sustainable is described by Weingartner and Moberg (2014) in their thought that social sustainability is a way to improve quality of people's life. Our field study strives to develop the diffuse definitions and theories of social sustainability, and contribute to the research on how social sustainability could be defined in a local context.

1.3 Purpose

The purpose of this study is to investigate the possibilities and challenges from an economic and social perspective the implementation of the micro mill strategy brings the coffee producers, and to what extent micro milling is a way to achieve economic and social sustainability. Empirically, this is done by conducting a field study on a local level.

1.4 Research questions

The first research question is the main one, by answering the two sub questions the main research question will be answered as well.

- Is micro milling a way to achieve economic and social sustainability in the coffee production business?
 - What economic opportunities and challenges are faced by coffee producers when implementing micro mill production?
 - What social opportunities and challenges are faced by coffee producers when implementing micro mill production?

1.5 Disposition

The overall structure of the report is divided into six sections. The second chapter describes our theoretical framework, which is of importance in order to understand the result and analysis of our field study. The theories and theoretical framework raised is based on previous research and will lay the foundation when answering the research questions. The third chapter describes how we conducted our field study in terms of research method, selection and sampling of interviewees, limitations along with the analytical tools. The fourth chapter, the results, presents the data collected during the interviews with the stakeholders of the coffee business in Costa Rica. It focuses on the social perspective perceived by the producers, but also describes the economic changes micro milling has brought to producers. The fifth chapter consists of the analysis, which discusses what opportunities and challenges micro millers are faced both economically and socially. Further, it discusses the theories in the theoretical framework and their ability to be related to the context of this field study. The chapter also discusses if micro milling could be considered as socially and economically sustainable or not. The chapter that follows is the conclusion of the study that presents our contribution to the subject of sustainability, especially the social perspective. It also concludes our study and describes why micro milling, in its local context, could be seen as guidance and a way in the right direction to achieve economic and social sustainability rather than be categorized as a fully sustainable strategy.

2. Previous research and theoretical framework

In order to understand the results and analysis of our field study, a basic knowledge of different subjects are important to possess before reading any further. This chapter contains theories and explanations of the concepts: sustainability, cooperatives, geographical differentiation, specialty markets and Internet and social medias.

2.1 Sustainable development

“Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs.”

(WCED, 1987)

The quote above, from the well-known Brundtland commission, sets an identification and specific definition of what sustainable development is and what it strives towards. There are three pillars of sustainability and sustainable development; economic, environmental and social. These three should be balanced to achieve sustainability (Atkinson, Dietz, Neumayer & Agarwala, 2014).

2.1.1 Economic sustainability

Economic sustainability is to achieve economic growth without depleting on future generations financial, environmental or social possibilities. Economic sustainability is also a way to end poverty, the benefits of continuing economic growth will reach all people (Hopwood, Mellor & O'Brien, 2005). Sustainable economic development promotes well-being, security and survival on the planet (Sneddona, Howarth & Norgaard, 2006).

Economic sustainability is to have a viable and reliable economic ground in local economies as well as global ones, in other words - how the business can stay in the business while being socially sound and environmentally responsible (Sustainable Communities, 2016). This is not only short-term, to be economically sustainable you have to be viable in the long run (Doane & MacGillivray, 2001). This means that if an action is economically profitable in the short run, but the action acts against the social or environmental aspects, it is not economically sustainable, since neglecting the social and environmental issues may become a long term barrier for the business. In a sustainable economy, only the companies with viable economic growth who put social and environmental aspects at the core of their business - would and should survive (Doane & MacGillivray, 2001).

Organizations can contribute to economic sustainability in local societies in different ways.
Make profit - If an organization is profitable it benefits the local economy and ensures the business ability to stay.

Investment in the business - Invest both in training of personnel and in new machineries. Generates economic spin off effects, in the long run.

Fair wages and employment - Higher salaries leads to better economy and well-being in local communities overall.

Develop strong communities - By investing in communities, the employers and members of the community are more likely to engage themselves in economic participation (Doane & MacGillivray, 2001).

2.1.2 Social sustainability

The concept of social sustainability contains the most vague definition of the three pillars in sustainability, and it is not prioritized in the same extent as the economic and environmental pillars (Murphy, 2012). The literature of social sustainability is interpreted in different ways and often contains differences and variations in definition of what social sustainability is and what the concept strives to achieve (Weingaertner & Moberg, 2014). Social sustainability, is to such high extent context-based, that some even argue that an exact definition of social sustainability may not ever be possible to find (Weingaertner & Moberg, 2014; Vallance, Perkins & Dixon, 2011). Social sustainability could therefore be seen as a practical tool adaptable to each situation and

investigation rather than having a general definition (Weingaertner & Moberg). The only common belief and the overall guideline is that social sustainability is a way to maintain or improve quality of people's life (Weingaertner & Moberg, 2014).

Weingartner and Moberg (2014) describe core concepts and key themes to point out the different points of views on social sustainability and how social sustainability could be addressed in different contexts. These social issues include; cultural value, economic stability and growth, access to services (such as employment, education and local services in general), health and well-being, socially and culturally diverse groups possibility to cohabit, equal opportunity in society, social capital and networks, fair salaries and distribution of income, safety and security, local democracy and participation, connectivity and movement in the society, sense of place and belonging, Corporate Social Responsibility, human rights, fair operating practises, gender equality, involvement in infrastructure, forced labour/ child labour, working environment (such as working hours), physical and mental health. These issues are defined from the aspects of urban development and from the context of a company or product (Weingaertner & Moberg, 2014).

Social sustainability also includes issues like satisfaction of basic material needs, hunger, poverty, reducing climate change and protecting the environment, assisting and helping vulnerable groups which have been affected by climate change, commitment to reduce consumption instead of relying on technical improvements (Murphy, 2012). Vallance, Perkins and Dixon (2011) describe three other aspects when working with social sustainability. These three aspects often collide with each other and make social sustainability even harder to define.

- What people need in reference to development, versus what is good for the environment.
- What people need versus what people want.
- What is good for the environment versus what people want.

These aspects of social sustainability could in one way or another collide with each other. Actions within one aspect could affect another. Public transport is one example of the possible collisions between both social development and being environmentally friendly. Public transport exists to give a certain amount of mobility to all people, which is a social aspect of development. But widespread public transport requires expensive infrastructure, facilities and efficient transport modes. In order for this to be possible it is required to have high demand routes, to be able to bare the high costs. This leads to exclusion of some low-income areas and marginalized groups, which acts against social development. Same applies to the other aspects, they have the possibility to collide and actions could act against different aspects of social sustainability (Vallance et al,

2011). Another term within social sustainability is social responsibility, which is defined by Barros Pereira (2014) as:

“Social Responsibility is the level of obligations an organization has to take actions to protect and improve the well-being of society as it seeks to achieve its own interests”

Social responsibility has made more companies within the private sector take action towards social sustainability and at the same time care for its own interests as businesses. It is a way for organizations to help society overcome social problems and be able to become socially sustainable. It is a general belief that micro-enterprises have difficulties to take social responsibility when considering the lack of economic resources and technical staff. But research has shown that micro enterprises are able to contribute to social responsibility and social sustainability through different actions, such as collaboration through partnership with other organizations; companies, universities, etc. (Barros Pereira, 2014).

2.2 Cooperatives - a way to protect small scale businesses

Cooperatives are organisations owned and controlled by its own members (Österberg & Nilsson, 2009). The aim of such organisations is to serve the best interests of its members with necessities such as marketing, technical assistance, market information, economies of scale and bargaining power towards large scale buyers (Wollni & Fischer, 2014). For small-scale producers in general, the connection between them and the market has become a crucial part of allowing growth and prosperity for the producers (Fischer & Qaim, 2011). Often located in remote areas, small-scale producers will suffer from high costs of transportation and transaction, reducing their willingness to participate in different markets. Cooperatives can be an excellent way of providing this connection for smallholder producers who don't have the means to market themselves to an extent that is viable (Fischer & Qaim, 2011).

In order for the purpose of a cooperative to be fulfilled, every member needs to pull his weight to the organisation. However it is not uncommon that “free rider” behaviours within the cooperative prevent the organisation from fully functioning and benefiting every member (Österberg & Nilsson, 2009). The business processes of the cooperatives grow more and more complex, and with international activities, it causes the members to not fully understand the processes and being alienated from them. When not fully understanding what is going on within the organisation, and being just one voice among hundred members or more, producers might start looking out for their own best instead of contributing fully to the best of the organisation (Österberg & Nilsson, 2009).

2.3 Geographical differentiation - adding value to the regional brand

Going back in time, the geographical origin of wine has long been a tool of product differentiation and branding in countries such as France and Italy. In recent years, trends have shown an upswing in the demand for single-origin coffees. Countries are trying to establish so called appellations for coffee, much like the wine districts and appellations in France and Italy in order to build a reputation and a strong brand (Teuber, 2010). There are examples of coffee producers that have established a brand name related to its origin such as the Jamaican Blue Mountain coffee, the most expensive coffee on the market. With the exception of a few coffees such as the Jamaican Blue Mountain, most of these coffee appellations are still informal, meaning that there is no legal protection of the brand (Teuber, 2010). By differentiating a product based on its region, it gives the ability to reach specialty and exclusive markets.

2.4 Specialty markets - avoiding unstable world market prices

The coffee market saw a huge plunge in prices at the turn of the millennium, caused by oversupply on the global market. This drop in prices caused both financial and social damage for coffee producers around the world. Bacon (2005), states that specialty markets for coffee are considered to be a promising alternative to the traditional coffee markets. To be able to participate in a specialty market, producers need to adopt quality standards or special production techniques that will differentiate their product (Wollni & Zeller, 2007). Examples of these specialty coffees are fair-trade, organic and shade grown coffee. This increase in specialty coffees on the market is also a response to a growing consumer demand for specialty coffee, where customers all over the world have an increased interest in quality and origin of their coffee. The coffee market is no longer as undifferentiated as it used to be and consumers are willing to pay a higher price to obtain unique and quality products (Teuber, 2010).

2.5 Internet and social media linked to economic growth and globalisation

The global emergence of the Internet and social medias has made it vital to implement communication and information systems to businesses in order to achieve economic and social development. Availability and use of information and communication systems might be linked to living standards and economic growth of developing countries (Jain, Kumar, Singla, 2015).

The Internet could be used as a tool for an organisation to identify and find new buyers in the complex and uncertain international markets. It also contributes access to information, such as trends and research. Being updated with information, research and trends minimizes risks for lack of knowledge about new international market strategies. By having access to information, you are

more likely to find a strategic orientation (Mathews, Bianchi, Perks, Healy & Wickramasekera, 2015). Using the Internet, and the marketing possibilities it contributes, can encourage willingness from people all over the world to learn more and become interested in a topic. It also encourages people to adapt to other cultures. Research, on small-scale business (counted as employees between 1-2000 persons) has shown that the Internet's marketing capabilities have a positive impact on development within networking, as well. The same research also finds a positive correlation between a strategic international orientation and economic growth. In other words, the Internet's strategic orientation and networking and marketing capabilities drives a business forward on the international market (Mathews, et al. 2015).

3. Methodology and data

The following chapter describes how we conducted our field study in terms of research method, selection and sampling of interviews, limitations along with the analytical tools used when answering our research questions. With support of methodology theories the chapter also describes why we have chosen to conduct our study in a certain way.

3.1 Research method

To get knowledge and fundamental understanding of the subjects our study lays its foundation on, a study of literature was conducted. Secondary data in form of previous research, theories and articles were studied in order to gain the sufficient knowledge (Esaiasson, Gilljam., Oscarsson & Wängnerud, L, 2012, p.30). Throughout our literature study the databases Google scholar, Business source premier and LIBRIS were used to collect data.

In order to collect data and fully understand the impacts of implementing the micro mill production strategy, semi-structured interviews have been conducted. All through the interview process; planning, constructing interview guides and performing the interviews, Kvale and Brinkmann's (2009) 'Den kvalitativa forskningsintervjun', has served as a guide. The semi-structured interviews were chosen in order to be able to fully capture the perceptions and opinions of the interviewees. The qualitative interview method was chosen in order to obtain descriptions from the interviewees, of their perception on the subject, in order to understand the world from their point of view (Kvale & Brinkmann, 2009, p. 13), giving them the opportunity to a certain extent to speak freely on the subject.

The interviews lasted from around one hour up to five hours, and therefore gave a deep and full image of the perceptions of the interviewees. This allowed us to capture the thoughts and opinions of the interviewees and giving us a solid ground for analysis which is a challenging but key aspect when conducting qualitative interviews (Esaiasson, Gilljam., Oscarsson &

Wängnerud, L, 2012, p. 259). The interviews took place in the interviewees' environment in order for them to feel as comfortable as possible. We put a lot of thought into the way we wanted to appear in the eyes of the interviewees. Depending on the person being interviewed we dressed and acted accordingly in order to be taken seriously while still putting the respondent in a comfortable situation. For every interview a tape recorder was used after permission was given, in order for us to hear the interviews again and capture as much information as possible. The information received was then interpreted, analysed and put in relation to our theories in order to draw conclusions in line with the purpose of the study. We used a comparative method when analysing our results, and our theories served as analytical tools in order to strengthen the validity of the analysis (Esaïasson et al, 2012).

The interview guide was created ahead of time but during the whole process of interviewing it was adjusted as new information and understanding on the subject was acquired. These changes were minor and were made in order to improve the validity of the data. Adjusting the interview guide is considered a natural part of the research process (Kvale & Brinkmann, 2009, p. 128). The interview guide consisted of four main parts, economic sustainability, social sustainability, the micro mill process and future possibilities. Each question part varied depending on which stakeholder was being interviewed (all described further below).

As a part of the respondents did not speak English, and our Spanish is only sufficient for everyday conversations, an interpreter was used when needed. As the interview process lasted for several weeks it was hard to find an interpreter that was able to help us for the whole period. Therefore we had three different interpreters; an American citizen living in the region, a local high school student and a citizen of San Marcos, none of who work in the coffee industry. All interpreters were asked to solely translate directly the answers of the interviewees without altering the responses. When the interviewee had certain knowledge in English, we tried to combine speaking English and Spanish in order to maximise the validity of the data and minimize the information being lost in translation.

When choosing the number of interviewees, we used the advice Kvale and Brinkmann (2009) had, to simply interview as many as needed in order to get the information you need. After 12 interviews with producers the information we received started repeating itself and we chose to hold at 12 producers as we deemed the information sufficient for the purpose of the study. There are around 50 micro mill producers in the region, therefore our sample of 12 producers represents almost 25% of the micro producers of the region of Los Santos.

3.2 Selection

In order to get the broadest possible knowledge on the subject, different stakeholders in the Costa Rican coffee industry were interviewed, in total 18 interviews.

- *Institutions (1 interview)*

ICAFFE, the institute for regulations in coffee, is partly a government-controlled organization that regulates every person involved in the coffee industry in Costa Rica. An interview with Warner Villegas at ICAFFE was conducted in order to get the broader perspective on the industry and its stakeholders.

- *Exporters (1 interview)*

Exclusive Coffees is the biggest exporter of micro mill produced coffee in Costa Rica. 70% of the micro mill producers are in partnership with the organization. Francesco Mena who is the founder and owner of the company was interviewed to get an overlook view of the micro mill industry in particular.

- *Buyers (1 interview)*

Jeff Dugan, responsible for sourcing at Portola coffee, gave us the perspective of an international buyer and someone who is in business with the micro mill producers.

- *Authorities (1 interview)*

Bernardo Barboza, Mayor of the Tarrazu region.

- *Cooperatives (2 interviews)*

Ricardo Hernandez N., coffee manager at Coopetarrazu, the largest cooperative in Los Santos and in Costa Rica. Roberto Mata Naranjo, general manager at Copedota, the second largest cooperative in the region.

- *Producers (12 interviews)*

A total of 12 interviewees representing three villages of the Los Santos area, San Marcos, San Pablo and Santa Maria.

3.3 Sampling

In the process of sampling, three different methods were used: purposive sampling, quota sampling and snowball sampling.

Purposive sampling

The purposive sampling method was our initial method and used to select the respondents we deemed important to the study. These respondents are described as the “central sources” and are the people we beforehand judged as key in the area we are studying (Esaiasson et al, 2012, p. 258). This sampling method was used for all the stakeholders (not all of the producers) and we established a varied and broad range of respondents. However, we did not consider our selection of respondents as complete until the last interview when we considered our data as sufficient and complete.

Snowball sampling

We managed to get in contact with a couple of the producers before arriving on site, but it was not enough for our data collection to be complete. Hence, the sampling method that seemed the most fit to our needs and limitations, was snowball sampling. This method is described as starting with the initial set of respondents, and asking them to direct you toward a new respondent and so forth (Esaiasson et al, 2012, p. 258). As the network of micro mill producers in the Los Santos region is fairly small, finding new respondents with this method was a successful process. It is however important to consider the risks that snowball sampling might bring. Respondents might direct you towards only friends and people with the same mind-set and opinions, which might reduce the width of respondents and jeopardise the validity of the results.

Quota sampling

Quota sampling is defined as selecting respondents in order for certain characteristics to be present in the sample of respondents (Esaiasson et al, 2012, p. 258). In our case we wanted representatives from the three regions of Los Santos: Santa Maria, San Marcos and San Pablo. The geographical aspect is important in order for the result to be more accurate and representative of the population. We also aimed to interview producers with different amount of years in experience in the micro mill business, in order to get perspectives from the different stages of establishing the business. We ended up with three time frames;

<u>Years of micro mill experience</u>	<u>Number of producers interviewed</u>
0-4	4
5-8	5
More than 9	3

3.4 Limitations

The atmosphere during interviews and contact with the respondents was generally friendly and people were willing to help. However, our time of research partially collided with the end of the harvest season for coffee cherries, and many of the producers were busy working during this period. This limited the possibilities for scheduling interviews and some interviews had to be held shorter than desired and some cancelled. Some of the farms we visited are very remote and hard to access even if you know the way. Sometimes the farms were located at altitudes of 2000 masl, only accessible by small dirt roads we had to hire drivers to get around. Many of the producers were kind enough to offer a ride back that saved us both time and money. Costa Rica is an expensive country to live and travel in, and our restricted budget and time frame undeniably limited us in this study.

Due to our limited time frame we had to limit ourselves to two of the three pillars of sustainability; economic and social sustainability. Costa Rica is a country with high environmental standards in general, therefore we chose to highlight the two other aspects in this study.

We had to limit ourselves to a specific area when conducting the study, so we chose the zone of Los Santos. The reason we selected this area is that Los Santos is the leading region in the country when it comes to micro milling. The first micro mills were established here and it's still the region in Costa Rica with the highest number of micro mills. We considered this area to be the most fit for our study in aspects such as finding respondents and knowledge on the subject. Some interviews were held in San Jose, the capital city of Costa Rica, since ICAFE and Exclusive Coffee are located there.

Being out of our element during the whole process of this study, from data collection to writing the essay, was a challenge in itself. Being on the road travelling makes it harder to find concentration and focus to work. The communication with our supervisor at the University was also limited during this time since all communication had to be done via email. We had to be very independent with the work we did.

3.5 Validity and reliability

It is of high importance to assess the reliability and validity of the data before drawing any conclusions. Kvale and Brinkmann (2009, p. 269) describe reliability as whether the study could be reproduced by different people at a different time and still receive the same results. Thus the way we conducted the interviews is of crucial importance. In order to get more reliable results

and honest responses, we minimized the amount of leading questions allowing the respondent to truly speak his/her mind before interfering in the conversation even if the respondent was hesitating or did not fully understand the question. Although the possibility of our influence on the respondents answers has to be considered. Validity is described as whether the study investigates what is meant to be investigated (Kvale & Brinkmann, 2009, p. 264). The aim of this study is to analyse the impacts for producers implementing the micro mill strategy, from an economically and socially sustainable point of view. The sampling method we used embodies all of the relevant stakeholders in the area of study. The interview guide was created with the purpose of the study as a foundation and covers the important areas of research. This, along with a well-prepared data collection process, allows us to regard this study as valid.

4. Context of the study area

4.1 Los Santos, Costa Rica

Costa Rica consists of seven administrative provinces; San José, Alajuela, Heredia, Cartago, Guanacaste, Puntarenas, and Limon. These provinces are divided into cantons, while the cantons are further divided into territories. These territories are headed by several municipalities (Costa Rica Information). Los Santos, on the other hand, is an unofficial region. Los Santos mainly consists of the cantons Tarrazu, Dota, Leon Cortes but also parts of Acosta, Aserri and Desamparados. The area Los Santos, “The Saints”, has gotten its name thanks to the small towns within the area, which are named after saints. (Cafe De Costa Rica, 2011). In the coffee industry, in practice, all coffee labelled “Tarrazu” actually comes from the whole Los Santos area and not just the Tarrazu canton (Mena, 2016; Mata, 2016; Montero, 2016).

In 2014, in the Costa Rican Cup Of Excellence competition 72% per cent of the finalist coffee producers came from the Los Santos area (Barquero, 2014). Both the canton Tarrazu and The Los Santos area is well known internationally for its ability to produce high quality coffee, and even more than 60% of the coffee produced in Costa Rica is defined as specialty coffee (Exclusive Coffee, 2010; Cafe Imports). Tarrazu has the highest altitudes and best soil of all the provinces in the country, these aspects often equals good quality (Cafe Imports).

4.2 Coffee production in Costa Rica

As of today, there are about 52,000 producers in Costa Rica harvesting crop from 103,000 hectares of land (Mena, 2016). The absolute majority of coffee producers in Costa Rica are small-scale producers. 92% of the producers possess a farm smaller than 5 hectares, and these producers account for 44% of the land used for coffee growing. In contrast to this, only 2% of producers

own land larger than 20 hectares and account for 35% of the total area (ICAFFE, 2016). All coffee activities are controlled by the government through the Instituto del Café, ICAFFE. ICAFFE regulates everything from the prices received by the producers, rules and laws of production, processing methods and profits earned by the different stakeholders along the supply chain. ICAFFE can also sanction violations of these laws by penalty fees or withdrawal of licenses (Adams & Ghaly, 2006).

4.3 Micro milling

In conventional coffee production, after harvesting cherries, the producers sell them to a processing mill called a beneficio, which could be either a cooperative or a multinational company. There, the coffee will be processed and further sold on international markets. Processing cherries means removing shells and pulp, turning coffee cherries into green coffee, ready to be sold and roasted. The term green coffee refers to coffee beans that have been processed and are ready to be roasted, this is generally the way coffee is exported. At the conventional beneficios, beans of many different producers are homogenized into one blend that is sold to the market (Huffington Post, 2014). There are about 100 beneficios in the country. These beneficios can be operated as privately owned companies (31%), international corporations (30%) or as farmer cooperatives (39%). The producers will deliver their crop within 24 hours after harvest and will then be paid an initial advance on their coffee. The beneficio will then process and sell the coffee according to market prices. The producer then receives the final payment for his/her crop nearly a year after harvest. This final payment is entirely dependent on fluctuant market prices of coffee (ICAFFE, 2016).

Starting a micro mill on the other hand, means doing all the processing yourself. Making a business out of your coffee production and becoming an entrepreneur. The micro mill producers have full responsibility and control over the coffee, and perform all stages of the coffee production, before selling the green coffee. It includes more work stages in the production, more responsibility for the coffee, more administration and they have to find buyers and/or exporters on their own. A micro mill producer can decide whether to sell directly to buyers or via an exporter, even though the exporter works as an intermediary this way still limits the number of intermediaries in opposition to conventional production and selling. The following figure, made by us as authors, provides a model of all the stages of micro mill production.

The micro mill model



- Model made by the authors (2016)

5. Results

5.1 Introduction to results

“The main reason (why producers decide to start micro milling) is to earn more money. Better quality gives better yields and the micro millers can avoid middlemen.”

Warner Villegas, Employee at ICAFE, March 2016

The principal reason why coffee producers decide to leave the conventional coffee production, to leave the cooperatives or transnational companies and instead start their own micro mill - is to make more money. Coffee producers, the municipality of Tarrazu, the exporter Exclusive Coffee, coffee buyers and the cooperatives CoopeDota and Coopetarrazu all claim that economy is the main reason. They all describe the coffee market crisis at the millennium shift as the trigger that made the coffee producers search for alternative ways to produce and sell coffee. Many producers saw the micro mill production as a possible solution to stay in the coffee business but still make sufficient money. Even though economy was the principal reason why the producers established micro mills, all producers state that the increased economy is no longer the main reason why they will continue their micro mill business, it is the positive social impacts that has proven to be the most important part. Today, there is no exact number of micro mills in the Los Santos area, but without a doubt, the number is increasing, and will continue to increase.

5.2 Economical perspective

5.2.1 Higher income outweighs higher costs

All twelve producers claimed without a doubt they were much better off economically now than before. This was also confirmed by all the other stakeholders of the business. The producers now have complete control over their product and can ensure a higher quality to the buyer. This enables them to reach new markets, the specialty and high quality markets, hence giving them a price that is far superior to what they received from the cooperatives, even though this way of working brings high start-up costs and investment costs the outcome is unanimously claimed to be a higher profit. All producers receive up to twice the price of their coffee, and in exceptional cases even more. However many of the producers pointed out the difficulties they faced in the early years of micro milling. The lack of experience in processing coffee made it difficult to produce to the full capacity and many producers stated that the production decreased drastically the first years. All the producers that were three years or more into the business had achieved economic stability and claimed to be in a much better economic situation now. The producers that were less than three years into the project admitted the economic situation was difficult but they

were certain it would pay off in the near future, as they knew the economy has increased for all the other micros. The start-up costs and necessary investments consisted of a set of machines and tools such as the mill, drying beds and patios, drying machines and sorting machines, in order to be able to perform all the processes the cooperatives formerly did for them. The majority of producers were forced to take a loan from a bank. However, as they stated, it was a risk worth taking in order for them to work with coffee in a way that is economically reliable. Only one of the producers claimed to have received support from ICAFE when deciding to start a micro mill. ICAFE confirms that micro mill producers will make more money, and will be better off, but according to all but one of the producers ICAFE has not supported them, in any way. The more recent micro mills told us that the availability of second hand and used machinery has increased and that it had become easier now to invest in the machines they need.

When it comes to the costs of production, it has increased for all producers, as the production now consists of more processes. Enrique Navarro at the micro mill of Monte Copey claims his costs of production have doubled, and he pointed out another challenge as well;

“The first harvest after starting our micro mill, we went from 400 fanegas to only 80. This was because we had no experience in processing the coffee, it was very difficult”.

- Enrique Navarro, Owner of Monte Copey, April 2016

This drastic decrease in production also lead to a diminished income and economic difficulties. However as Enrique later points out, the passion for coffee gives incentives to learn and now he produces more coffee than ever and with a higher quality than ever. Another important aspect that increases the costs for the producer is the cost of labour for the pickers they employ during harvest. When trying to reach the specialty markets of coffee it is important that cherries are picked 100% ripe, which means the work for pickers is more difficult and therefore requires a higher salary. The producers stated that they now pay their pickers between 30% and 50% more than before. However this is a necessity in order to motivate pickers to collect only the best cherries, leading to higher quality coffee.

5.2.2 Reinvesting profit

Many of the producers stressed the point that micro milling has given them the opportunity and ability to invest in their farms in a way that was not possible before. Diego Hidalgo, owner of the micro mill La Bandera, said this during our interview: *“Now I can give my workers a bonus at the end of the harvest. I couldn’t do that before, and it feels amazing”*. He also spoke about improving the roads to his farm, investing in a bigger truck, buying more land etc... All these

opportunities he claims are brought on by the micro milling business. Many producers told us about their new gained ability to cherish their farms and homes thanks to a higher income, one said, “the farm now looks like a beautiful garden”. During the interviews, we witnessed beautiful and well-kept farms and coffee plantations. The overall impression was organised, thriving and blooming. Enrique Navarro: *“In earlier years when we gave coffee to the cooperative, we could not afford fertilizer and could not take care of the farm”*.

5.2.3 Economics in the long term

“Traditional coffee producers will have problems in the future, I think the only way to be economically sustainable is micro milling”

- Luis Castro Vargas at Juanachute micro mill, April 2016

Most of the producers were very positive about the future speaking in economic terms. They were convinced that micro milling is the way to go in order to thrive in the coffee producing business. There was a common belief that the market for specialty coffee will keep growing in the future and that there will be room for even more micro mill producers. Only two of the respondents expressed insecurity about the future of the demand for specialty coffee.

“As I see it, the only way to be sustainable economically, socially and environmentally, is to achieve quality”.

- Jeff Dugan, sourcing at Portola Roasters, April 2016

Dugan, who has been working with specialty coffee for many years, and who now is head of sourcing at Portola Roasters in California, believes that the key to being economically sustainable is quality. He claims that as long as you maintain higher quality than other producers, your coffee will always find the market at a good price. This opinion was shared by others such as Bernardo Barboza, mayor of the Tarrazu region, who claimed that the responsibility of producing quality lies entirely on the micro mill producer and that the security of the cooperatives was no longer available for micro millers. He therefore stated that as long as a micro miller produces good quality, the economic gain will be sustainable.

“I started it (micro mill production), so yes I think it’s good, if you produce quality you will make more money for sure. And that’s why people do it”.

- Roberto Naranjo, manager at Coopedota, April 2016

Naranjo, manager of Coopedota, claims the micro mill revolution started at Coopedota when they started differentiating coffees and paying their producers more for higher quality coffee cherries. This he claims sparked the idea that gave birth to the micro mill trend that Costa Rica is seeing today. Roberto believes that micro milling will generate higher income in the future if quality is maintained. Although he also claims there is room within the cooperative for producers to grow economically, as they have a system where they pay higher prices for better quality cherries. None of the producers we interviewed agreed with this statement and said the reason they left the cooperative to start a micro mill was partially because it was not economically reliable to be in a cooperative.

5.3 Social perspective

5.3.1 General health and well-being

“The social situation is also better now for the micro mill producers, because they gain more money”

- Warner Villegas, employee at ICAFE, March 2016

In terms of general health and well-being the producers do not experience any change after gaining more money, the welfare system and the social security system is well developed and reachable for all in Costa Rica and has always been, according to Warner Villegas from ICAFE. More money brings other positive impacts, but more money does not increase the availability to good health and/or health care. Neither has the micro mill production increased injuries at the farm, only one of the producers has experienced a minor injury due to the new machines the micro mill business has brought to the farm.

“It is a lot more work now than before. Because when I didn't have a micro mill, I just collect the picked coffee, put it in the car and leave the coffee at the coop. That's it. Now, when I have a Micro Mill, I must let the coffee in the Micro Mill, do all the processes, put in the sun beds or in machines as well...It is a lot more work, especially during the three harvest months. But I like it, the sacrifice is worth it, because I love my job now.”

- Luis Anastacio Castro, owner of the Micro Beneficio Juanachute, April 2016

On the other hand, in terms of well-being, all except one of the producers express an increased amount of labour, more difficult work, more working hours per day along with stress due to the micro mill business. When working with conventional production, the working hours lasted approximately from 8am to 3pm every day during harvest. When doing micro milling, the work lasts from early mornings to late nights. Some producers feel like they are working 24/7 during

some months of the year. The only odd one out, is the micro mill La Candelilla, the oldest and biggest micro mill in Costa Rica. They express less work and less stress than when they worked with conventional coffee. La Candelilla is very successful, has been in the business for a long time and most of the family members are just working with administration. All the producers who are expressing this increased amount of stress due to amount of labour, are all clearly pointing out how the sacrifice is worth it because of all the positive impacts micro milling bring. The only producer who cannot decide whether she finds the sacrifice worth it or not, is Katherine Gutierrez, a micro mill producer since 5 years back.

“Overall, I don't know if it is better now than before, it is hard to answer. It was so much easier before. But it is a balance between hard work, better economy or a more easy and calm way with the coops (cooperatives). It is more difficult now, more work and stress, I felt calmer and had more feelings of security before. But I still think that micro milling is the best solution for selling coffee... I don't know if I am happy with the decision to start micro milling, but my father thinks it is a good idea and I want to support him”.

- Katherine Gutierrez, owner of the Micro Beneficio La Montana.

The producers expressing most increased amount of labour are the ones just starting their micro mill or who only have been running as a micro mill for a few years. The older micro mills, the ones that have been running for more than 6-8 years, are describing how the work decreases 3-4 years after the time they started micro milling.

5.3.2 Increased responsibility

Three out of twelve producers expressed more stress due to amount of labour and working hours, they are feeling stressful because of the difficulties finding buyers and finding selling channels for the coffee. Even though they all claim that all coffee gets sold, they have to search for the right buyers, willing to pay for the more expensive and exclusive coffee. Richardo Hernandez at Coopetarrazu says that the main problems for micro millers are the difficulties finding the market and buyers for their coffee. The other nine producers, are not feeling any stress at all finding buyers or selling their coffee - but all these producers already have long term relationships with exporters like Exclusive Coffee, Café Imports and/or direct buyers.

The producers are expressing feelings of “being more like a company”, “I feel like an entrepreneur now” and ”much more responsibility”. Most express these feelings of entrepreneurship as a positive aspect, in the context of the pride of having their own traceable brand and being more passionate with their work now, while others describe the feeling as a risk and insecurity since they have responsibility for the coffee to a larger extent. If something goes

wrong along the way, they are the ones suffering, but even with these feelings and opinions, they all agree that micro mill is the best way of producing and selling coffee.

5.3.3 Foreign workers

The producers mostly employ people from Nicaragua and indigenous people from Panama to pick the coffee during harvest season. Most of the producers hire only foreigners, only two producers have Costa Rican people working as pickers, but they still only account for 10-20% of the people employed at these farms. The reason they say, is that Costa Rican people don't want to pick coffee, not that Costa Rican people are not offered the opportunity. Costa Rican people are to a larger extent looking for more qualified jobs because the education level is higher than in the neighbouring countries. Further, all the producers state that Nicaraguans and Panamanians are much better at picking coffee, that they have more experience and only select the best coffee. In the future, all twelve producers will employ only Nicaraguans or Panamanians because of their excellent work. The salaries for the pickers are paid per "cajuela", a basket measure only used in Costa Rica. When working at a micro mill farm, the pickers earn around 30-50% more per cajuela than at a conventional farm, because the picking process is more complicated and therefore each picker picks fewer cajuelas per day. But even taking this into account, the pickers still make more money than before according to the producers.

"Whole families work at the farm, in all ages. They usually bring a lot of children, depending on the age, they work as well. From 10 years and up they work at the farm. New born kids, they put in hammock and just let them hang in the trees."

- Carlos Montero, owner of The Micro Beneficio Don Eli, April 2016

Some migrants work all year around at the farms, not only during harvest. When they arrive from neighbouring countries they bring their whole families to work at the farms. Men, women and children are all working to pick coffee. The age of the children range from 15 to 20 years old but sometimes the youngest working at the farms are approximately 10 years old. One producer said that two children of his employees are going to school in Costa Rica, but in general, the children more than 10 years old, are working as well. The situation is different for the producers' children, according to them all their children attend school no matter if the economy is low, there is an coffee crisis or any other reason, which has not changed when the family started their micro mill business. The municipality and ICAFE confirm this.

5.3.4 Community

"I feel no competition to other micro mills. I give coffee samples to Fransisco Mena and he knows my customers and sells it to them. Have a good relationship to other producers and the

community is good, but maybe the cooperatives don't feel happy because many producers are leaving them.”

- Luis Monge, owner of the Microbeneficio La Lia, April 2016

Two out of twelve producers described the coffee community in the Los Santos area as worse than before the micro mill revolution had started, this due to increased competition. The other ten find the coffee community unchanged or better than before. According to Richardo Hernandez at Coopetarrazu, the coffee community has not been affected by the micro mill revolution, even though he thinks relationships between micro millers are more competitive now. However, the mayor of Tarrazu is sceptic regarding the effects the micro mills bring to the community. He expresses a concern regarding discord, competition and disagreements among micro millers affecting the community, but he does not further develop his thoughts.

5.3.5 Relationships

Ten out of twelve producers described their relationships towards other producers as good or same as before. Several of them described their relationships towards other micro millers as family.

“I have same relationships towards every other coffee producer as before, both traditional and micro millers. All micro millers are like a family, you know.”

- The owner of Juanachute, Luis Anastacio Vargas, April 2016

Four producers express that they feel unified with other micros and how all micro millers help each other and share tips and advice with each other. The older micro mills are especially helpful towards newly started micro mills. One producer described the relationships between producers as divided into two camps, either you are part of Exclusive Coffee (Fransisco Mena) or you are not, which he also said affected the relationships. Another producer said the relationship between producers has gotten worse since the micro mill revolution, because of the increased competition between them.

5.3.6 Competition

“Competition increases more as more micro mills pop up, now there are 50 micro mills. All are very good quality. Need very good quality to compete”

- Leo Robles, owner of micro mill RYS, April 2016

When asking if the competition between producers has changed, nine felt no competition at all against other producers. These nine producers said that the demand for specialty coffee is too

high to ever feel competition. Duggan, from Portola Roasters, expresses how the demand is exponentially and rapidly growing and therefore leaves room for even more micro mills to establish themselves. The remaining three producers did however express a feeling of increased competition.

Producers were asked if their relationships towards cooperatives had changed since they starting micro milling. Most said yes, but in different ways. Some said they had no relationship at all since leaving the coop. Several producers said that cooperatives are their competition now. Five producers claimed that the cooperatives are the ones seeing micro mills as competition, not the other way around. The same five producers also said that micro mills do not compete with cooperatives since they have different target groups. Fransisco Mena, co-founder of Exclusive Coffee, expresses the same thing.

“ The micro mill word within a cooperative is a bad word... Micro mills are the competition to cooperatives ”.

- Fransisco Mena at Exclusive Coffee, March 2016

A couple of producers feel very little trust towards the cooperatives and how they work. They talked about corruption and manipulation during elections. Other producers thoroughly described their current relationships with cooperatives as terrible. One producer, Javier Meza, has another point of view, he says that the cooperatives don't want producers to have knowledge about coffee and the coffee market because that would empower producers to step out of the cooperatives. He says that the cooperatives fear producers would get awareness and knowledge about the coffee market, the coffee quality and the coffee prices. One anonymous respondent claimed that cooperatives are trying their best to “wedge micro millers out of business in all ways they can, and I believe that could happen”.

“...for the cooperatives it is better, if we don't know about the coffee. My relationship to cooperatives is terrible now, they always say that it is good - but in reality it is terrible. It is hard for us to work against them, it is stupid, but for them we are the enemy.”

- Javier Meza, April 2016

One of the five producers describing this competition towards cooperatives is Carlos Montero. He is certain cooperatives “have something against micro mills” which he noticed when he started his micro mill production. Other producers express the same feelings and describe a lack of transparency in the cooperatives. Some producers have been threatened with lawsuits if they did

not leave the cooperative after starting their micro mill. Carlos Montero is one of them, he got a letter asking him to resign from the cooperative because the micro mills are seen as competition. Apparently, you can't be a member and at the same time compete with them even though you give coffee to the cooperative as well. The same thing happened to Diego Hidalgo, the owner of Micro Beneficio La Bandera. He got a letter from the cooperative telling him to resign his membership or a lawsuit will be filed. Diego Hidalgo and his father had by the time been members since 1968. We asked Roberto Naranjo, manager of Coopedota about these lawsuits and he explained:

“It is the law of Costa Rica and the rules of the cooperative, all the members have to give all their coffee to the cooperative. Micro mill producers only want to give us the first and last harvest, which is the bad quality coffee, it's not fair”

- Roberto Naranjo, April 2016

There was an undertone of scepticism when speaking to the cooperatives about micro milling. During our interview with Coopedota, one employee first received us, but as soon the subject of micro mills was brought up, she did not want to answer claiming it is a sensitive subject. Therefore Roberto Mata Naranjo was contacted, the manager of Coopedota, and the interview proceeded with him instead. Roberto Naranjo, finds it unethical of producers to stay in the coop and do micro milling simultaneously. He says that the micro millers who stays members are giving their inferior quality coffee to the coop and are keeping the superior quality for themselves. According to him, the law states that if a producer wants to be a member they have to give all their coffee to the coop. Roberto also discusses the alleged competition between micros and cooperatives as something only the micros perceive, because Coopedota feel no such competition against micros. According to an employee at CoopeTarrazu, Richardo Hernandez, CoopeTarrazu feels no competition either against the micros. However, he also states that other cooperatives dislike the micro mills and are talking badly about them. To this statement he did not want to mention names.

5.3.7 Local democracy

“I get no help. They have rules and regulations, but they are more for big producers. Rules are the same for big producers and small producers, the rules are not adapted for me at all. I have no possibility to participate in rules and regulations. It is almost impossible for us to get a chair at the table. The cooperatives get a seat around the table. In conclusion, ICAFE is the big cooperatives, they are run by them.”

- Javier Meza, owner of micro mill La Cabana, April 2016

Producers were asked if they are able to participate in the rules, laws and regulations from ICAFE, which affect their business. Four producers felt they had no ability at all to participate even though they want to. Producers are paying taxes to ICAFE for all their production but they get no help in return nor any participation in new regulations. All four describe the rules as only adapted to big cooperatives or companies, not the small-scale producers. Since the production system and the work they perform are so different, the producers want to be able to raise their opinions and be involved in decision-making processes. Several producers are hoping for micro millers to create a community, they are seeing a community as the way to solve this problem. If micro millers unify, as they say, it would be more likely for them to be involved in decision-making processes at ICAFE. However, ICAFE has a different perception of the participation of producers:

“ In ICAFE we have a board of directors which is representatives from all 8 regions around the country, and producers from all regions elect the representatives so they have democracy. And at the coops (cooperatives), they also have board of directors and producers have participation in election there as well”.

- Warner Villegas at ICAFE, March 2016

Roberto Mata Naranjo at Coopedota claims members of the cooperatives are able to participate in new regulations at yearly assemblies. But the members have no say when electing managers at the cooperative, they are chosen by the board of directors. The board of director on the other hand, is chosen by the members. As previously described, many producers are sceptic to the elections, claiming they are manipulated and corrupt.

5.3.8 Increased pride and passion

One of the most important aspects the producers pointed out was the pride they took into the work they do. This pride and joy of working with coffee they said truly has increased since they started micro milling and left the cooperatives. The enthusiasm for their work when showing us around the farms was clear. It seemed like their farms now had become a part of their brand in a new way. Since they have buyers from all over the world visiting their farms they take great pleasure in caring for it. As they expressed it, they have been able to invest money in their farms, they have visitors coming to see how they work, they get new relationships with people from all over the world who buy their coffee and visit their farms. They constantly get feedback on their product enabling them to always strive towards higher quality. Even though cooperatives claim they give feedback and encourage their producers, none of the producers we spoke to could

confirm or agree with this statement. Ten of the producers expressed an increased sense of passion and happiness for both coffee and their work since they established their micro mill.

My passion for coffee and my work has increased. I just made a coffee plant tattoo, I love coffee. I loved coffee before as well, but not in the same way... Before they never used my name, now, I have a brand. I do everything with my coffee, I want to, I don't like when other people come and do what they want with my coffee".

- Javier Meza, La Cabana micro mill, April 2016

Javier Meza explained how he had gotten a new spark of passion for his work since he started micro milling. There is a sense of pride in having a label on the coffee with his name on it, his own brand, as he explained it. This was something we heard from many other micro mill producers, the pride in having their names on their product, the joy of being associated with a quality-product.

"When I was in high school, I did not like working at the farm. There were no incentives to work with coffee. But as soon as I saw that micro milling gave more money, I instantly decided to stay in the coffee business instead of finding other jobs".

- Enrique Navarro at Monte Copey micro mill, April 2016

5.3.9 Unifying the family

Enrique from Monte Copey explained to us that after he graduated high school he felt forced to seek other jobs and education in order to get a better life. But when his father decided to start the micro mill and they saw all the benefits and positive effects, he did not hesitate to commit all his time to the coffee production. Many producers explained how coffee is their passion in life and that micro milling has given them the opportunity to keep working with coffee in a way that is economically sustainable. Another aspect that was pointed out by all of the producers is how micro milling has brought the family closer. The business of micro milling requires more work with administration, marketing, logistics etc. Now that the farm is making more money, it allows for all family members to participate and makes these micro mills into family businesses. Many of the producers we spoke to clearly expressed how they wished for the farm to remain a family business. One of them was Minor Esquivel from the micro mill La Pastora: *"In the future I hope we remain a family business and that we can keep producing coffee of high quality"*. The family values of the people we interviewed are very important to them and micro milling has brought the families back together, which they value highly. The ownership of farms is mainly of male gender, approximately 8 of 10 farms are owned by men.

5.3.10 Cultural value

“I want to teach people about coffee culture, we are in a coffee zone but people don’t know anything about coffee. We need to teach children, kids, students about the coffee culture. To make the region strong... I want to make good coffee and I want people to come here and learn about the coffee culture, that is my vision and dream”.

- Allan Vargas, Terra-tzu micro mill, April 2016

Allan Vargas was not the only producer to point out the fact that people in the region know very little or nothing about coffee beyond the growing process. They would not be able to tell the difference between good or bad coffee. Even the coffee producers of the region have very little knowledge according to some of our interviewees, Javier Meza: *“Before, I didn’t even drink my own coffee, I bought coffee at the supermarket. Now I only drink my own coffee and I have learnt what quality coffee is”.* Javier Meza, Luis Castro and other micro millers also explained how they want to and do teach the people of the region about coffee production, coffee taste and coffee culture. Through many channels this is done; everyday small talk to locals, opening of cafes where focus lays on inviting locals to teach them about coffee, free tours on the farms, inviting schools and students to the farms, among other actions. As the producers expressed it, before the coffee production in Costa Rica became a quantitative commodity, there was a certain cultural value to the coffee, but somehow it got lost along the way, now they are working to get it back.

5.4 The hopes for the future for micro mill producers

Five producers were hoping to improve their micro mill in terms of improved quality, making more varietals of coffee and some wanted to differentiate their coffee in comparison to other micro mills. Others spoke in terms of “I just want to maintain the family business” or “now I just want a calm family life, I don't seek to make millions.”

Most producers described an urge to be more independent, by selling directly to buyers in the future. They want to eliminate the last intermediate as well, referring to the exporters such as Exclusive Coffee and Café Imports. Some say, the reason is not to make more money but to have closer and direct relationships with buyers. As they expressed it, they are more likely to satisfy the demand of each buyer if all communication is direct. Some producers also saw a direct relationship with buyers as an opportunity to gain more money. Other producers were hopeful to be part of a micro mill community in the future.

“In the future I would like all the micro mills to make a union, I would like to see that. To work together, find markets for sales together.”

- Allan Vargas, owner of Terra-tzu, April 2016

Allan Vargas was one of four producers expressing a hope for a future micro mill union. They want micro millers to stick together and the whole region to unify as a community, which hopefully would benefit all micro millers and might also solve problems micro millers are facing. As they expressed it, they would have more power to impact regulations from ICAFE, an improved ability to find markets and direct buyers, improved marketing capabilities, and might also be able to decrease cost by owning cupping rooms together instead of one each. One producer, is currently trying to form a union of this kind in the Los Santos region, she meets support and positivity when speaking to micro millers about this.

5.5 Internet and social medias linked to increased sales

When asking the producers about the use of Internet and social medias, the response was similar from all respondents. All of them have started using the Internet for marketing and sales around the same time they converted into a micro mill and left the cooperatives. Some of them see internet as a crucial factor in order for the micro milling business to work, Carlos Montero from Don Eli: *“I think micro milling business works this well thanks to the Internet”*. He then explained that for a small business it is important to be able to find and communicate with customers. None of the producers used any sort of social media or Internet for marketing before starting the micro mill business, saying that there was simply no reason to do it: *“...we didn’t use internet before, why would we?”* said Javier Meza from La Cabana micro mill. The most common social media was Facebook, which was used by all producers. Some of the older and more developed micro mills had their own webpage.

6. Analysis

The following chapter contains discussions that answer the research questions. The principal research question (is micro milling a way to achieve economic and social sustainability in the coffee production business?) is not treated separately but instead answered intertwined below the headlines of the two sub research questions. The chapter puts the context of the field study in relation to the theoretical framework.

6.1 Economic opportunities and challenges faced by micro mill coffee producers

6.1.1 Economic challenges

The economic challenges we could identify from our interviews were clearly in the early stages of starting a micro mill business, producers that were further gone with their micro mill had a stable economy, both privately and in the business. As described previously, these economic challenges consisted of start up costs, processing costs, increased salaries to pickers along with general higher costs. After some years these costs are outweighed by the increased profit, and has been since then. As Doane and MacGillivray (2001) states, the definition of what economic sustainability is refers to an action economically viable and reliable long-term, hence the difficulties experienced in short term could be considered part of the natural start-up process and in long term it could still be considered an economically viable action to start micro milling, even though it's economical challenge the first three years.

6.1.2 Economic opportunities

As Wollni and Zeller (2007) stated, it is a necessity to differentiate a product in order to compete on the specialty markets, and micro milling allows this for the producers. Teuber (2010) stated that coffee producing countries are trying to establish appellations of origin, much like the wine districts of France, and the same phenomenon could be observed in Tarrazu. By protecting the geographical based brand, the Tarrazu brand, the producers reaches the specialty market via geographical differentiation and achieve economic stability. The Tarrazu brand is a valuable asset, however, the micro mill producers take the geographical differentiation even further, by having the name of their farm or mill on the coffee they sell. This makes the product even more unique and desirable and the price increases further. We believe that the pride of having a traceable brand name and a differentiated product is one of the biggest incentives for the producers to work hard to achieve quality. Moreover, by doing this, the producers achieve economic sustainability. The producers did not have sufficient money before implementing the micro mill, but afterwards, all producers have sufficient money and good private economies. In general, producers' income has improved, the ability to invest in the business has improved, and the wages throughout the whole organization have increased. According to what Doane and MacGillivray (2001) expresses to be economic sustainability, it seems like the micro mill producers have achieved just that; making profit and reinvesting this profit in both the farm and employees. Therefore, micro mill business could from this point of view be seen as economically sustainable.

Further, the economic situation seemed to have improved for all employees in a micro mill business and not only the producers. However we cannot comment further on the situation of the pickers at the farms, except that they will earn up to 50% more than in conventional coffee production. As stated by Hopwood, B et al. (2005), to be economically sustainable the benefits must reach all people, which have been witnessed at the micro mill farms. In this moment micro milling could be seen as an economically sustainable business thanks to the viable and reliable income and the economic opportunities it brings. Doane and MacGillivray (2001) say “only the companies that put social and environmental aspects in the core of the company should and would survive in a sustainable economy”. Adapting this theory to micro milling defines the business as economically sustainable since the micro millers do put this in the core of their business, at least the social perspective.

6.2 Social opportunities and challenges faced by micro mill coffee producers

6.2.1 Social opportunities

By using social sustainability as a practical tool adaptable to all situations, as Weingartner and Moberg (2014) describe the concept social sustainability - as long as it refers to improvement of life quality - this particular field study is more about analysing the social situation in terms of happiness, joy and satisfaction in life rather than basic material needs, poverty or hunger. Poverty, hunger and basic material needs, as Murphy (2011) are expressing social sustainability to be, have not been a problem for the respondents, before the micro mill revolution they faced other social problems that now seem to have been minimized. Overall, nearly all stakeholders in the coffee production business agreed - the social situation improves for all producers joining the micro mill revolution. It seems like the quality of life increases the longer a producer stays in the micro mill business. Without giving any clear definition of social sustainability, Weingartner and Moberg (2014) describe “general health and well-being” as one example of aspects connected to social sustainability. Depending on how “general health and well-being” is defined and identified, we would like to emphasise this part as one of the most important positive impacts producers are brought by starting their own micro mill. Even though there is no change in terms of physical illness, injuries or health, it does not necessarily mean that no change has occurred in the perceived general health and well-being among the producers. The working environment has improved, the producers are finally feeling they are paid fairly for their work and the micro mill business are economically stable and growing, these three aspects is mentioned by Weingartner and Moberg (2014) as example to what social sustainability could be. Not only this, we also find a clear connection to an improved mental health and general well-being for producers after started their own micro mill, hereby we are referring to mental health and general well-being as a term of

perceived happiness, satisfaction and quality of life, especially in producers daily work. Not only did the producers speak straight out how they felt more happy now in comparison to before, this increased general happiness could be related to other aspects; the elimination of economic worry, the increased passion and interest in their work, the increased love for coffee, the increased pride for their coffee, the new relationships micro mill has brought them, the possibility to invest in the farms, among other factors. The producer's could not underline enough how happy they felt because they have started a micro mill business, and it was thanks to all these reasons. The pride of the produced coffee was often mentioned by the producers, especially the part with knowing where and which people around the globe that are drinking their coffee. There was also a special pride expressed of having international friends and relationships.

Even though the specific aspects mentioned above are not suggested as general well-being or general health by previous research, it could still be seen as a part of social sustainability. This because social sustainability is to such high extent context based and is basically just a way to improve quality of people's lives according to Weingartner and Moberg (2014). Therefore, in this context, the terms general well-being and health have been further developed to mean happiness, joy and satisfaction in life.

Another important social impact brought on by the micro mill revolution is that the families are brought back together. It was common for families to get scattered since the older families usually moved away from the Los Santos area to find work. Now, the producers' children, the young adults, are joining the family business and staying close to their families. None of the theories about social sustainability or social development we found, mention strong family relations as a part of social sustainability, but again, by using social sustainability as a practical tool described by Weingartner and Moberg (2014), this definitely has improved producers life quality and has increased the happiness.

As described earlier, the cultural value of coffee has for many years been lost in Costa Rica and in the Los Santos area. As stated producers in the conventional production don't know nothing about coffee beyond the coffee growing process, are not drinking their own made coffee nor know the difference between high or low quality coffee. Cultural value is according to Weingartner and Moberg (2014) one of the core aspects when questioning social sustainability. It could be identified that the micro mill revolution is bringing the cultural value of coffee back to the community and society, in form of knowledge and interest. The actions to regain the cultural value of coffee to the region is not really business related for the producers, and not even a joint agreement among the micro millers. Instead, each individual has decided to take action to improve the coffee culture. This is pure passion by each producer, a willingness to contribute to

and improve the community. According to Barros Pereira (2014) who claims social responsibility is *“the level of obligations an organization has to take actions to protect and improve the well-being of society as it seeks to achieve its own interests”*, this action made my each micro mill truly could be seen as their way to take social responsibility in their business. Especially since cultural value is one core aspect of social sustainability according to Weingartner and Moberg (2014).

Some of the above mentioned aspects, which have raised the general life quality, would not be possible without the Internet. Just in line to what Mathews, S., et al. (2015), are saying, the use of internet has contributed to worldwide marketing capabilities as well as the possibility to develop a worldwide network. These two aspects are two of the core reasons why micro milling businesses are up and running. The micro mills have a very specific strategic orientation, they need to have passionate customers interested in expensive and unique coffee, the internet has brought the ability to reach these customers around the globe, this also goes in line with what Mathews, S., et al (2015) are expressing.

In sum, the social opportunities producers are brought by implementing micro mills are to be more happy, passionate, interested and caring for their job, as well as a general increased happiness thanks to a more unified family and the joy of being one of the pioneers to bring the cultural value of the coffee back to the Costa Rican people.

6.2.2 Social challenges

One of the social challenges faced by producers when entering the micro mill business is increased amount of work, stress and responsibility. Even though the general opinion among the producers are that they are gladly working hard and long hours since they love their job, it can not be denied that the changed working environment needs to be discussed. According to Weingartner and Moberg (2014) fair operating practises and a good working environment (for example reasonable amount of daily working hours) is part of social sustainability. If the core aspects in their theory would be applied here, the micro millers are having a socially decreased situation, due to unreasonable amount of working hours, especially some parts of the year. But the producers are nearly exclusively describing the social situation as much better and are loving their work, thanks to several reasons, as presented earlier. There seems to be a contradiction in their theory in this context, since the same article states social sustainability *“is a way to maintain or improve quality of people's life”*. Every time we asked producers about this increased amount of work, stress and responsibility eleven out of twelve of them added, and clearly pointed out how much they love their job, *“so I like to work, it is good”* as many ended the sentence. If you are working more, are more stressed, feel more responsibility but at the same time love your job, feel

more happy and the life quality has improved, has the working environment improved or worsened? Which factor weighs more than the other, increased happiness or more heavy work? It should also be added that most of the producers are having their farm, home and micro mill at the same land plot, surrounded by their families, in a perfectly healthy environment. Since social sustainability at bottom line basically is an attempt to grade if people are happy, we argue, that the work as a micro mill producer is so unique and special it can not be compared to any other job, like for example at an office. What Weingartner and Moberg (2014) say, “social sustainability is to such a high extent context based it cannot have a clear definition”, is perfectly clear here. Some of their core concepts of what social sustainability could be, can not be applied here, since we find micro milling in this particular context to have increased social sustainability even though it goes against examples of what social sustainability can not be. From an individual point of view, micro milling could therefore be seen as socially sustainable.

As described earlier, when investigating social sustainability, contradictions is not uncommon according to Vallance, Perkins and Dixon (2011) who describe three different aspects often colliding with each other. The main point Vallance, Perkins and Dixon (2011) are expressing, when taking action to improve social sustainability, some actions could act against each other, hereby other social issues could surface and need to be examined. This type of contradiction could be found in this context, the producers *want* to work a lot because they love their job, but people also *need* to rest and pause from work more than the hours sleep during a day.

Another challenge faced by micro millers is the ability to participate in regulations, rules and laws regarding their micro mill business coming from ICAFE. This problem has not surfaced due to micro milling but rather remained. But now, the producer both need and want to make their voice heard since the rules are affecting their business to a larger extent than before. The micro mill revolution has empowered and engaged people and producers to take a stand and empower themselves, since the interest for these kinds of questions, and the wish to have local democracy has increased. Maybe this could be seen as an opportunity as well, an opportunity to empower oneself. According to Weingartner and Moberg (2014) local democracy and participation is of importance when striving for social sustainability, which also is clear when discussing these issues with the producers. They clearly state this inability to be part of decision-making regarding their business, as a drawback in the Los Santos society right now.

Weingartner and Moberg (2014) are stating both gender equality and equal opportunities in society as a part of social sustainability, within the micro mill business this could be seen as a challenge. The ownership of farms is mainly of male gender and even though women are included in the business and are working at the micro mill, the ownership is still not dedicated to

them. This problem and gender imbalance did not seem to be of priority or even seen as a problematic situation when speaking to the producers and the other stakeholders of the coffee business. As we see it, the micro mill business need to get aware of the problem and improve their gender balance in order to be socially sustainable, in this aspect.

Since our research does not extend to further than how the situation of the owner of the micro mill and its family has changed, some people of the micro mill organization are excluded in our study. As stated, both the economical and social situation clearly has improved for the producers and owners, but what about the employees, meaning the pickers; the migrants and the indigenous people? We are not able to answer whether the economical and social situation has improved throughout the organization as a whole, or whether the benefits of a micro mill business only reaches the owner and its family. Many questions are still unanswered; do the employees have fair social conditions? Is it more appealing for employees to work at a micro mill in comparison to a conventional farm? Is the economic and social situation sustainable for the employees? All we know about the employees and their situation at the micro mill is that they have gained an increased salary and that whole families, sometimes children, are working at the farm. We know that children of the foreign workers, the ones over 10 years old, are skipping school and are working at the farms instead. Is it child labour, or forced labour? This is information we do not have, and questions we cannot answer. Further investigation is recommended, since it is of importance to know if the economic and social conditions have improved throughout the whole organization, and not only the owners and their families.

6.2.2.1 Community

Developing strong communities is a crucial part of economic sustainability according to Doane and MacGillivray, 2001. As expressed by Weingartner and Moberg (2014), it is also of importance when defining social sustainability since quality of life and sense of place and belonging, we argue must be correlated to a good community and cohesion in a society. All stakeholders agree that micro milling will raise the quality of life of a producer. Nonetheless, this micro mill revolution is not well received by all stakeholders in the coffee industry or members of the community of Tarrazu. There seems to appear problematic situations and disagreements due to the evolution of micro mills, which consequently affect the community. Even though the cooperatives claim they do not see micro mill producers as competition, the producers experience the opposite due to the behaviour and signals from cooperatives. Disagreements regarding membership of cooperative while being a micro miller is another problematic situation, even though those members contribute with coffee to the coop they do not contribute all their coffee. This behaviour is of course problematic for the functioning of a cooperative as stated by Österberg and Nilsson, 2009, every member needs to pull his/her weight to the organisation. Even

though the argument from Coopedota is understandable from a business point of view, the way they dismiss a member since many years, we believe is a clear signal of the sentiments towards members starting a micro mill business.

The quote by Javier Meza “...for the cooperatives it is better, if we don't know about the coffee. My relationship to cooperatives is terrible now, they always say that it is good, but in reality it is terrible...” fits quite well the overall impression perceived by us from the cooperatives. Our perception is based on both through the undertone of scepticism when speaking about micro milling as well as the action by Coopedota to change respondent during the interview. This clearly shows the sensitivity of the subject and a division of the community that according to Doane and MacGillivray, 2001, could damage the economic and social sustainability for the community. Disagreements between stakeholders in the community, along with rumours and discords creates disharmony and a worsened community, which could be seen as a emerged side effect due to micro milling. Micro mill producers are breaking out of the norm and the normal way of producing coffee, empowering themselves and become independent. It stirs and irritates the society and the already established stakeholders in the business.

As described, most of the micro millers perceive the community and relationships towards producers as the same or even better than before. Some claim they have not ever felt so connected and coherent to other producers as now, for example Luis Anastacio Vargas says “...all micro millers are like a family, you know”. In one way, micro milling has brought an increased sense of coherence for producers to one another, especially between the micro millers, which certainly has unified and improved parts of the community. The sense of place and belonging has improved and thereby the social perspective of the community has improved as well, according to Weingaertner and Moberg (2014). Weingartner and Moberg (2014), exemplify social capital, network and connectivity in society as important when questioning social sustainability. We argue, based on their theory, that since producers feel more unified and most of them are helping and supporting each other as micro millers, this has also a improved the community. Be that as it may, not all feel the same way, and a new ingredient is competition, which is unavoidable when becoming an independent producer, even though the alleged competition does not seem to be perceived by all producers. The major part of the producers are aware that innovation is key in order to thrive in the future, just as stated by Wollni and Zeller (2007). The fact that producers feel the need to further innovate and differentiate, also signals that even though some don't express their worries for competition in the future, they are aware that the future is uncertain. This increased competition between micro mill producers might affect the relationships between producers and the community as a whole, since there are producers that no longer feel the same coherence to each other. This hurts the cohesion in the community to some extent, however, these

competitive feelings only extend to a few producers. With that said, we argue, societies can not let opportunities such as micro milling pass and instead keep on doing things the same way simply because it irritates and stirs the harmony in the community, and the previously established stakeholders. The challenge is to find solutions to manage this increased competition and the earlier established stakeholders to avoid it becoming a problem that affects the community. One solution could be a micro mill union, which many producers are hoping for, in order create unification between micro mill producers.

7. Conclusions

In order to fulfil the purpose of this study, our ambition was to investigate to what extent micro milling can be considered socially and economically sustainable. By seeking answers to our research questions focusing on the economical and social impacts of micro milling on producers, we were able to draw the following conclusions.

Of all the effects of the micro mill revolution, one the most prominent is the increased profit and ameliorated economic situation for producers. Micro milling seem to fit within the frame of how Doane and MacGillivray (2001) define economic sustainability, an action economically viable long term. However, the road to economic stability for micro mill producers is not free of obstacles and the early years are clearly challenging due to a lack of experience, high start-up costs and increased production costs. Eventually the increased income will outweigh the increased costs and the profit will increase, allowing producers to reinvest earnings into the business.

Furthermore, another crucial change is the social situation, both on individual level and for the community as a whole. As stated earlier, defining social sustainability is problematic in many ways because it is to such high extent context based (Weingartner & Moberg, 2014). One aspect of social sustainability mentioned in the previous research we found, was general “well-being” which we found to be relevant to apply in our case. However the term well-being is very diffuse and not clearly defined. This study has allowed us to define well-being in a way that has not been done previously. We have been able to show an example and put in a local context how well-being can be defined as social sustainability, in terms of happiness and joy. The producers expressed a satisfaction with life with the current situation that according to us is very rare. By retaking control over their product, their work and their lives, they are achieving satisfaction. Not wanting something else, not wanting more, not wanting to be somewhere else. This clearly highlights the difficulties of measuring social sustainability, because something that is measurable can always increase. However according to these producers, their satisfaction with life could

barely increase from this point. This defines, according to us, a situation of social sustainability that is not achieved by the satisfaction of material needs, hunger or poverty, rather than satisfaction of the mind.

As the three pillars of sustainability are to such high extent dependent on each other (Atkinson, Dietz, Neumayer & Agarwala, 2014), further studies including the aspect of environmental sustainability would be of interest in order to fully understand the implications of micro milling.

8. Appendix

8.1 Interview guide – Producers

Name:	Date:		
Organization:	Anonymous?	YES	NO
Age of mm	Sex	F	M
Size (ha)	Altitude		
Number of employees	Member of cooperative?		
Producer	Exporter	Both	Production

Micro milling

- For how long have you been producing coffee at this farm?
- When and why did you decide to start with micro milling?
- Has your production increased or decreased since you started micro milling?

Economical perspective

- What changes has micro milling brought to your production in terms of quality?
- Is your farm more profitable now than before? Better total income?
- What new costs occurred when you started micro milling?
- Do you invest more or less money in your farm than before?
- Have you ever chosen to stop producing coffee for a period of time? If so, why?
- Through what channels do you sell your coffee?
- Do you find micro milling to be a long term profitable way to produce and sell coffee?

Social perspective

- Do you have a family?
 - If yes:
 - Are your children attending school? All year?
 - Is your family working at the farm? If they are grown ups, have they always chosen to do so?
- Since implementing micro milling, has the amount of work increased or decreased? How many working hours per day per employee in comparison to before?
- In terms of health, injuries, stress, amount of labor, do you or your employees experience any change after starting micro milling?
- Do you experience any change in happiness at your work and your daily life after starting your micro mill business?
- Have the employees salaries changed after implementing micro milling?

- Has your relationship to nearby producers changed since you started micro milling?
- Do you feel any competition to other micro millers or conventional producers?
- Do you think you have gained more cultural value to your business after implemented micro milling?
- How many women work in the micro mill business in comparison to men? Approximately, how many women own farms in comparison to men?
- Do you have working migrants working at your farm during harvest season?
- What is the best and worse part of being a micro mill producer?

Internet and social medias

- Do you use internet for sales and marketing?
 - If yes:
 - For how long and how have you been doing so?
 - What changes has internet brought to your knowledge of the market?
 - Have you been able to see changes in sales thanks to the internet?
 - If no:
 - What are the reasons for not using the internet?
 - Do you believe you are missing out on advantages that the internet could bring?

Future

- What possibilities can you see in the future for your coffee production using micro milling?
- What are your hopes for the future with your coffee business?

8.2 Interview guide - the cooperatives

Name:	Date:
Cooperative:	Anonymous? YES or NO

General Questions

- What are the main purposes of your organisation?
- What is your role in the organization?
- For how long has the organisation existed?
- How many coffee farms are involved? The amount of farms, have they increased or decreased the last 15 years?
- Are you involved with micro mill production in any way?
- Why do you believe many producers have choose to start a micro mill farm?

Economic perspective

- What economic benefits does micro milling bring the producers?
 - Improved quantity or quality?
 - Better profit? Better total income?
 - Increased costs? Invest in new machines?
- Do you find micro milling to be a long term sustainable and profitable way to produce and sell coffee? In other words, is it a reliable and viable way of producing and selling coffee from an economical perspective?

Social perspective

- Do you know if producers general health and well-being have changed when implementing micro milling? For example stress, working hours, sickness, injuries?
- Has the salaries of the employees changed after implementing micro milling?
- Have you observed any changes for the community related to micro milling?
- Has micro milling affected the cultural value of coffee?
- About local democracy, do producers have the possibility to participate in new regulations coming from ICAFE?

- Do you know if education is accessible for all producers and their children? Are the children going to school? All year?
- What does the gender balance in the business look like?

Internet and social medias

- How many of the farms use internet and social medias for their businesses today?
- For how long have they been doing so?
- What can you see as benefits and drawbacks with using internet and social medias from a coffee business aspect?

Future

- What possibilities can you see in the future for your coffee production with using micro milling?

8.3 Interview guide - ICAFE

Name:	Date:
Organization:	Anonymous? YES NO

General Questions

- What is ICAFE's role in Costa Rican coffee production and exportation? What is the role in pricing, regulations, etc?
- Has the role changed over the years?
- For how long has the organisation existed?
- What are the goals or responsibilities of the organisation? Do you have any economic and social ones?

Respondent

- What is your role in the organisation?
- How long have you been working for ICAFE?

Coffee production

- Historically, how important has coffee been to Costa Rica? How important is it today?
- How has the coffee production and trade evolved in the last 15 years in terms of amount produced, export, prices?
- Has there been any changes in the way coffee is produced and sold during these last 15 years?
 - What changes?

Micro milling

- Are you familiar with the term micro milling? What do you know about this way of producing coffee?
- Has the role of cooperatives towards coffee producers changed?
 - If yes, is it due to micro milling?
- How has micro milling affected the coffee producers of Costa Rica?

Economical perspective:

- Improved quantity or quality by having micro milling?
- Better profit? Better total income?
- Increased costs?
- Do you find micro milling to be a long term sustainable and profitable way to produce and sell coffee? In other words, is it a reliable and viable way of selling coffee?

Social perspective:

- Do you know if producers general health or well-being have changed when starting micro milling? What about stress, working hours, sickness, injuries?
- Do you know if producers and their employees have fair salaries? Has the salaries changed after implementing micro milling?

- Has micro milling affected the cultural value of coffee?
- Is there a change in pride or passion related to the micro mill for the producers?
- About local democracy, do producer have the possibility to participate in new regulations coming from you?
- Do you know if education is accessible for all producer and their children? Are the children going to school? All year?
- Do equal amount of women and men work at and own coffee farms?

Internet and social medias

- Approximately, how many producers use internet/social medias to sell their coffee? Is it more or less common among micro milling producers?
- What can you see as benefits and drawbacks with using internet and social medias from a coffee business aspect?

Tarrazu region

- How familiar are you with the Tarrazu region?
- What is characteristic of the coffee production in Tarrazu compared to the rest of Costa Rica?

8.4 Interview guide - Municipality of Tarrazu

Name:	Date:
Organization:	Anonymous? YES or NO

General Questions

- What is your role in the municipality?
- How many people live in the Tarrazu region?

Coffee production

- Is coffee the main business of the Tarrazu region?
- How many in the region (%) gain their livelihood of coffee production?
- How many coffee farms are there within the Tarrazu region?
 - How many micro mill farms in the region?
- How many of the farms use internet and social medias for their businesses today?
 - More or less common among micro millers?
- Why did the micro milling trend start, according to you?
- What is your thoughts and general opinion about the micro mill revolution?

Economic perspective

- What economic benefits and drawbacks does micro milling bring the coffee producers?
- Do you find micro milling to be a long term sustainable and profitable way to produce and sell coffee? In other words, is it a reliable and viable way of producing and selling coffee from an economical perspective?
- Have the salaries changed after implementing micro milling for the employees?

Social perspective

- Do you know if producers general health and well-being has changed when implementing micro milling? What about stress, working hours, sickness, injuries?
- Is there a change in pride or passion related to the micro mill for the producers?
- What social changes has micro milling brought to community?
 - Competition? Relationships between conventional producers and micro mill producers?
- Is education accessible for all producers and their children? Are the children of producers attending school?
 - If yes, all year?
- Is there a gender balance in the industry of producing coffee?

8.5 Interview guide - Exclusive coffee (including coffee buyers)

Name:	Date:
Organization:	Anonymous? YES or NO

General Questions

- When and why was Exclusive Coffee started? By who?
- What is your role in the organisation?
- What are the goals or responsibilities of the organisation?
 - Economic and social ones?

Micro milling

- What is the major difference between traditional production of coffee and micro milling?
- How has micro milling affected the coffee industry in Costa Rica?
- How are cooperatives involved in the micro mill revolution?

Economic perspective

- What economic benefits and drawbacks does micro milling bring the coffee producers?
- Does micro milling improve the quantity or quality of the coffee production?
- To the producers gain more or less profit? In total?
- Do micro mill producers ability to invest in their business increase or decrease?
- Do you find micro milling to be a long term sustainable and profitable way to produce and sell coffee? In other words, is it a reliable and viable way of producing and selling coffee from an economical perspective?

Social perspective

- What changes does producers experience from a social perspective when taking the step to micro milling?
- Have you observed any changes for the community related to micro milling?
- Does the relationships or competition between producers change?
- Do producers and their employees have fair salaries? Have the salaries changed after implementing micro milling?
- Have producers experienced changes in terms of health and well-being? Stress, working hours, sickness, injuries?
- Is there a change in pride or passion related to the micro mill for the producers?
- Has micro milling affected the cultural value of coffee?
- About local democracy, do producers have the possibility to participate in new regulations?
- Is education accessible for all producers and their children? Are the children of producers attending school?
 - If yes, all year?
- Gender balance in the business?
- From your experience, are the producers taking the step to micro milling overall happy with that decision?

Internet and social medias

- Approximately, how many producers use internet/social medias to sell their coffee? More common among micro milling producers?
- What can you see as benefits and drawbacks with using internet and social medias from a coffee business aspect?

Tarrazu region

- How present is your organization in the Tarrazu region?
- What is characteristic of the coffee production in Tarrazu compared to the rest of Costa Rica?
- Is the Tarrazu region well suited for micro milling farms?

Future

- What possibilities can you see in the future for micro milling?

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