

FUNDAÇÃO GETULIO VARGAS
ESCOLA DE ADMINISTRAÇÃO DE EMPRESAS DE SÃO PAULO

BRUNA DE RIBEIRO COSTA

COFFEE VOLUNTARY STANDARDS SYSTEMS
A STUDY OF THE STATES OF MINAS GERAIS AND SAO PAULO

SÃO PAULO

2015

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An exploratory study based on Coffee production in Brazil

Dissertation presented to Escola de Administração de Empresas de São Paulo of Fundação Getulio Vargas, as a requirement to obtain the title of Master in International Management (MPGI).

Knowledge field: Supply Chain and Sustainability

Adviser: Prof. Dr. Renato Orsato

SÃO PAULO - SP

2015

De Ribeiro Costa, Bruna.

Coffee Voluntary Standards Sys – A study of the states of Minas Gerais and Sao Paulo / Bruna De Ribeiro Costa - 2016. 65f

Orientador: Renato Orsato

Dissertação (MPGI) - Escola de Administração de Empresas de São Paulo.

1. Café - Mercado - Brasil. 2. Cadeia produtiva. 3. Certificados e licenças. 4. Sustentabilidade. I. Orsato, Renato. II. Dissertação (MPGI) - Escola de Administração de Empresas de São Paulo. III. Título.

CDU 633.73(81)

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Approval Date

____/____/____

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ACKNOWLEDGEMENTS

I would like to express my gratitude to all those who have been instrumental in the preparation of this research report.

First of all I would like to thank my parents for being my safe harbor and best example. I am deeply grateful for their support, for providing me the opportunity to accomplish this Master, and for being always kind and patient.

Secondly, I am thankful to FGV – EAESP and CEMS Global Alliance for being my alma mater and allowing me to carry out courses in Sustainability and Social Business, which opened my mind and made me even more passionate about the “Coffee World”. I am deeply grateful to my supervisor Prof. Dr. Renato Orsato, who suggested and helped in defining the framework of this research project. I am thankful to him for his continuous support, advice and encouragement.

I also appreciate the support of all my friends and CEMS students that were present in some form in this trajectory. Specially, I would like to thank my friends Renata, Alejandra, Virginia, Marta and Camila that shared the challenges of the master with me. Moreover, I am deeply thankful to the Costa Café Team that has always patiently taught me a lot about coffee. Lastly but very importantly, a special thank you to Mauricio Coelho and Ana Paula Scanavachi, who helped me distribute the questionnaires and were always positive about my research.

“Coffee is probably one of the most poorly understood food products in the world, especially considering how ubiquitous it is in our lives”.

Geoff Watts, coffee buyer, Intelligentsia

Abstract:

In order to adapt to new markets, the coffee supply chain has gone through numerous changes during the last years, which led to the creation of the voluntary standard systems. Adopting a Voluntary Standard System (VSS) consists of becoming a member of a certifier or verifier, in which an independent third party sets specific criteria to ensure a product complies with standards. Yet, the segment is still relatively new and raises some doubts about the economic and financial advantages of investing in sustainability-related certification. This study analyzes the perception of coffee producers about VSS – whether it brings economic benefits. The literature review covers various VSS in the coffee sector, the brief history of the commodity in Brazil, as well as the description of the supply chain. Certified and non-certified producers in the States of Sao Paulo and Minas Gerais, answered questionnaires to indicate the perceived advantages of certification. The results show that, despite some added value that certification can bestow, the quality is what really matter, since it allows producers to sell the product at higher prices and to gain advantage over competitors.

Keywords: Coffee. Coffee Market. Voluntary Standard Systems. Certification. Producers.

Resumo:

A cadeia produtiva do café tem passado por diversas mudanças nos últimos anos para se adaptar a novos mercados, o que gerou os Voluntary Standard Systems (sistemas de padrões voluntários). Adotar um VSS consiste em se tornar membro de uma certificadora ou verificadora onde uma Terceira parte, independente, estipula critérios específicos para assegurar que um produto está de acordo com certos padrões. Porém, esses sistemas ainda são relativamente novos e geram dúvidas sobre os benefícios econômicos de se investir em uma produção sustentável. Esse estudo busca expor a percepção dos produtores de café em relação às certificações voluntárias. A revisão da literatura consiste na definição de VSS e suas variações do mercado cafeeiro, a introdução da commodity no Brasil e na descrição da cadeia produtiva. Produtores certificados e não certificados no estado de São Paulo e Minas Gerais responderam questionários para indicar sua percepção sobre as certificações. No entanto, apesar do valor adicional que a elas podem agregar ao produto, são os atributos finais, implicando na qualidade do café, que realmente importam para conseguir preços de venda mais altos e ganhar vantagem sobre competidores.

Palavras-chave: Café. Mercado de Café. Sistemas de Padrões Voluntários. Certificação. Produtores.

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1. Introduction

Coffee is an important agricultural product that has been present throughout most of the history of Brazil, with this country being its biggest producer worldwide. The coffee market has its structure based on the commodities market, and it worked quite well for a long time, when price was the only factor that would differentiate competitors.

One of the alternatives of differentiation is via certification of relatively more sustainable production practices, usually regulated by the Voluntary Standard Systems (VSS), aiming to bring a trustworthy image to buyers, besides distinguishing the product for consumers. “Sustainable” coffee production follows standards, based on environmental, economic and social parameters. Therefore, according to the definition of sustainable coffee, a certified coffee is considered special for its attributes. The VSS’s consist in a way that an independent third party uses to assure a product is in conformity to specific norms.

However, the increase in awareness of sustainably produced coffee does not necessarily mean profits for entrepreneurs that invest in the field. This segment is still recent and there are still doubts regarding the financial-economic attractiveness of transforming a traditional coffee crop into a sustainable one. Hence, this study was guided by the question:

When does coffee voluntary certification generate economic benefits to coffee producers?

To answer this question, the perception of producers regarding advantages and disadvantages of VSS was analyzed. Literature in the field still lacks studies that expose the behavior of market agents, such as price volatility in the stock market, and focuses more in analyzing sustainable impacts of certifications. This study, on the other hand, focuses on financial benefits for producers since it is one of the most important factors taken into account when the producer

decides whether to get certified. Therefore, this research is justified by the importance of analyzing producers that use some kind of standardization in comparison to others that do not.

The objective of this analysis is to investigate the perception of producers regarding VSS, focusing on the states of Minas Gerais and Sao Paulo in Brazil, more specifically the south of Minas and Alta Mogiana, the two main producing regions in the country, exposing advantages and disadvantages that a certified coffee crop brings to producers when compared to a traditional crop.

A major challenge for the VSS market is that, although sustainable coffee is expected to receive premium prices, the increase in consumer awareness about it does not necessarily mean profits for entrepreneurs that invest in the field, especially due to the fact that supply usually surpasses demand. The concept of having a sustainable production is still evolving and many farmers are not convinced about the financial-economic attractiveness to transform a traditional coffee crop, usually due to the lack of information and financial incentives. Another significant issue is that these sustainable standards can present significant entry barriers for smaller producers as they lack support in infrastructure and face high costs of certification, auditing and adaptations in the property.

The methodology applied in this research is exploratory, involving collection of primary and secondary data. The first step consists of a literature review of articles, official websites, books and specialized organizations where information on coffee VSS can be found. The second part consists of the analysis of questionnaires sent to producers from the focus regions, finalizing with data analysis, result and conclusion.

The study is relevant for practice because it uncovers the rationale for adopting or not a VSS. In the particular case of coffee producers in Brazil, the findings can help producers to take more informed decisions about coffee certifications.

2. Literature review

This section presents an overview of Voluntary Standard Systems in general, followed by a more specific analysis of their performance in the Coffee Market, a description of the market in Brazil and concludes revealing the main problems in the International Supply Chain.

2.1 Voluntary Environmental Initiatives and Standardization

Beyond compliance practices and environmental initiatives are becoming extremely important. Nowadays, people are more aware that some current harmful practices being adopted in agriculture can no longer persist in a world with so much inequality, environmental damage and international pressure for improvements in production chains and industrial performance. Consumers and organizations such as Non-Governmental Organizations (NGOs) are demanding multinational corporations to increase their environmental consciousness and adopt sustainable practices. According to Doh (2003), these cross-sector initiatives involve for-profit and non-profit organizations that join projects to address problems related to the environment, poverty and diseases.

Large-scale disasters in the 1980s, most notably the explosion of the Bhopal plant of Union Carbide in India and the Exxon Valdez oil spill in Alaska, placed environmental issues in the public consciousness. Distinct sectors of the business community and non-profit organizations responded to growing public demand for better corporate environmental management with the release of a series of voluntary initiatives, in the form of codes of conduct, environmental guidelines, charters and programs (Nash & Ehrenfeld, 1997).

According to Potts (2014), in 1992 the leaders of the world came together at the first Rio Earth Summit, historically acknowledging the imperative of a needs-based approach to sustainable development. In this context, it became extremely important for some companies, especially resource-intensive industries, to communicate to customers and the general public their efforts to

go beyond compliance. Usually they do so by getting certified with an Environmental Management System (EMS) that follows the International Organization for Standardization (ISO) 14001 or adopt other Voluntary Environmental Initiatives, which may include membership fees and changes in organizational processes in order to reduce environmental impact (Orsato, Clegg and Falcão, 2013). These initiatives and standards are considered *beyond compliance* as they propose managerial practices that go beyond governmental obligations, and usually help educating adopters to follow practices that minimize environmental impact. In the beginning, the main goal for this adoption was differentiation from competitors. Nowadays, due to the ever-increasing number of sustainable initiatives and adopters, it is becoming more of a license to operate.

According to Orsato, Clegg and Falcão (2013), in the past two decades, companies have been implementing a new form of regulatory practice, which involved a great degree of voluntarism and engagement with civil society organizations. Often, they also anchored their claims of corporate environmentalism in codes and standards of environmental management. In addition, with globalization and the expansion of supply chains, multinational companies (MNCs) source products from developing countries, as production, processing, distribution, and consumption spread across borders. Concurrently, and more specifically since the 1990s, NGOs have organized activities and been part of social movements and market campaigns that aim to influence business practices on issues such as human rights, labor standards, environmental sustainability, and poverty reduction (Perez and Sandilands, 2008).

Perez and Sandilands (2008) state that NGO pressure for sustainable practices has particularly targeted companies leading Global Supply Chains in industries such as mining, forestry, agribusiness, electronics, garment, and footwear, among others. This has resulted in the creation of new standards, codes of conduct, and certification programs, which have stipulated norms and practices that define expectations for more socially and environmentally sustainable production processes.

These codes and standards are important to create legitimacy when companies claim sustainable

behavior, and helps them to improve reputation. The acceptability of these sustainable entitlements is connected with third party endorsement and verification. This explains why so many companies have joined Voluntary Environmental Initiatives' (VEI) or Green Clubs, such as the Coalition for Environmental Responsible Economics (CERES), Responsible Care, Global Compact and Climate Leaders (Orsato, 2009).

Within this framework, private voluntary standard systems have become an innovative market-based approach to promote sustainable production within business practices and the adoption of these standards is essentially voluntary. This occurs mainly because governmental legislation in developing countries doesn't usually assure sustainable production and multinational corporations can easily influence legislations, creating the necessity to have internationally recognized standard systems.

These standards are not created, run, or required by governments or government regulation. Instead, they are non-government initiatives that seek to drive sustainable production and consumption by creating market demand for sustainable products, and a supply to meet that demand. They help buyers (both consumers and businesses) to identify sustainably produced products, and they guide producers, forest managers, mine and tourism operators, factory owners and others in the choice of sustainable practices (Komives and Jackson, 2014).

To mention a few, some well known sustainability standards are: the Fairtrade International, the Forest Stewardship Council (FSC), and the Marine Stewardship Council (MSC); these organizations have become internationally well-known brands, sometimes known as 'eco-labels' and acquired significant influence in buying decisions.

It is still very challenging to measure the development of Voluntary Standard Systems but with the intention of creating a better understanding of this scenario and using its infrastructure to expose standards' performance, a market study called "The State of Sustainability Initiatives (SSI) project" was established. This study was developed in 2014 by the Sustainable Commodity Initiative and directly managed by the International Institute for Environment and Development

(IIED), the International Institute for Sustainable Development (IISD), the Finance Alliance for Sustainable Trade, Environment and Trade in a World of Interdependence (ENTWINED), and the Sustainable Trade Initiative (IDH), and it was motivated by the recognition of the need for improved information exchange among stakeholders in voluntary sustainability initiatives and among the voluntary sustainability standards themselves.

According to the SSI 2014 report, sustainability standards continue to experience growth as annually standard-compliant production across all commodity sectors in 2012 increased 41%. The most meaningful growth was found in the palm oil sector (90% in 2012), followed by sugar (74%), cocoa (69%) and cotton (55%).

Another significant fact is that sustainability standards have penetrated mainstream markets. For example, standard-compliant coffee, which led in terms of market penetration, reached a 40% market share of global production in 2012 (up from 15% in 2008). Other commodities with significant market share (in terms of global production) were cocoa (22%; up from 3% in 2008), palm oil (15%; up from 2% in 2008) and tea (12%; up from 6% in 2008).

Nonetheless, a major challenge is still faced by certified coffee, since there is an oversupply. In fact, according to the SSI, this does not only happen with coffee but also with many other commodities, since actual sales of products that are “standard compliant” have not grown as fast as production, resulting in significant oversupply (typically between one-third and one-half of total compliant production is actually sold as compliant). This situation means that companies have a large choice for sustainable sourcing (positive outcome), but also suggests that the market may be placing downward pressure on the prices of sustainable products due to oversupply (negative outcome) resulting in a lack of financial compensation for sustainable producers.

2.2 Voluntary Standard Systems: History and Structure

Voluntary Sustainability Standards date from the first half of the twentieth century when private organic standards for agriculture, such as the Soil Association, began their operation in the

United Kingdom. Initially, organic standards were developed locally, each with its own requirements and criteria. In 1972 the International Federation of Organic Agriculture Movements (IFOAM) was established to unite and assist the organic movement. Nowadays, IFOAM is responsible for the maintenance of the consolidated Principles of Organic Agriculture, an international guideline for certification criteria, published in 2005 (IFOAM, 2005).

The fair trade certification emerged around the same period, with the Max Havelaar national standard from the Netherlands in 1988, later replicated in other markets across Europe and North America. These national standards then came together in 1997 under one umbrella organization - the Fairtrade Labelling Organizations International (FLO), today Fairtrade International (Fairtrade Website, 2014).

These standards, dating back to the 1990s, aimed to develop global consensus on sustainable practices for particular industries and sectors. As mentioned before, some of the first well-known organizations are the Forest Stewardship Council (FSC), the Marine Stewardship Council (MSC), the Rainforest Alliance's Sustainable Agriculture Network (RASAN) and Social Accountability International (SAI), which regulates forestry, fisheries, agriculture and labor. These organizations set standards through multi-stakeholder processes, bringing NGOs, businesses, and other stakeholders together to approximate players of the same sector and stimulate sustainable practices.

Such systems were created in a time when market mechanisms for environmental protection were gaining popularity because of the low effectiveness of government regulation in addressing sustainability issues. Therefore, such organizations can be seen as non-governmental mechanisms that promote social and environmental proactivity. They became important vehicles for the change of production practices and consumer behavior (Komives and Jackson, 2014).

Later, new standard systems emerged from commodity-based 'roundtables', developed by the World Wild Fund for Nature (WWF), bringing together stakeholders, NGOs, and government to develop criteria for commodities with known negative impacts on the environment. Some

organizations that emerged from these movements are the Roundtable for Sustainable Palm Oil (RSPO), Roundtable for Responsible Soy (RTRS) and Bonsucro (Orsato, Clegg and Falcão 2013).

Since the early 1990s there has been a dramatic increase in the number of standards and eco-labels. As of November 2015, the Ecolabel Index totaled 463 eco-labels in 199 countries. In addition, the number of industry sectors employing voluntary standards systems as an approach for beyond compliance sustainability is also growing, with standards in sectors as diverse as mining (e.g. Responsible Jewellery Council) and oil and gas (e.g. Equitable Origin). (Ecolabel Index, 2015).

In parallel with these new initiatives, the first signs of organization within the voluntary standard system industry started at the end of the 1990s, when the Forest Stewardship Council (FSC), the International Federation of Organic Agriculture Movements (IFOAM), Fairtrade International and Marine Stewardship Council (MSC) came together to discuss the feasibility and benefits of working in closer collaboration. By 2002, the International Organic Accreditation Service (IOAS), Marine Aquarium Council, Rainforest Alliance and Social Accountability International (SAI) joined to form the International Social and Environmental Accreditation and Labelling Alliance (ISEAL). ISEAL's goal is to create collaboration between members, coordinate and represent common interests with government and other key stakeholders. In June 2013, the Alliance had fourteen full members and seven associate members, all international bodies involved in standard setting or accreditation (ISEAL Alliance Annual report, 2014).

According to Potts (2014), the continuous growth in the number of Voluntary Sustainability Standards (VSS) is mainly due to the fact that governments alone cannot be relied upon to coordinate actions at a global level with either the precision or timeliness required by the sustainability issues faced by the planet today. VSS allow market players to identify and implement the appropriate corrective measures while integrating them directly into their business models. The need and ability of private sector innovation and investment to provide a more

targeted and agile approach to the implementation of sustainable development also explains the recent emphasis placed on the need for a “green economy”.

Regarding the structure of these accreditations, Komives and Jackson (2014) claim that they have four important components that structure the VSS and secure compliance by adopters, these are assurance, labels and claims, traceability, and capacity building, briefly described below:

Assurance: Producers and other businesses seeking to meet a standard (e.g. farms, fisheries, forests, factories, or operations) are assessed through the assurance system set up by the standard-setting organization. Assurance of compliance has traditionally been based on an independent, third party audit leading to certification. These assurance systems give buyers the confidence that they are purchasing sustainably produced goods.

Labels and claims: Many standard-setting organizations offer corporate buyers the right to use a label or claim on product packaging (e.g. Fairtrade-certified coffee or the Rainforest Alliance). Others permit only business-to-business claims (like the 4C Association). Labels and claims are appealing to buyers and consumers and thus help increase demand for products produced in accordance with the standard.

Traceability: These systems trace the ‘chain of custody’ of products, from where they were produced, throughout the supply chain until the final product, providing proof of origin in products carrying a label or a claim.

Capacity building: With staff training these initiatives help producers, operators, or enterprises to be compliant with their standard. Some VSS work with partner organizations (e.g. NGOs) to provide this training service.

For businesses seeking to source sustainably, standard systems are tools to assure that they are purchasing products that were manufactured based on responsible practices. Together, consumers and businesses build a demand for sustainable production. For suppliers, standard

systems offer guidance on how to improve production, meet sustainability goals and assure sustainability attributes.

2.3 VSS in the coffee market

The coffee sector, which is regarded as a lead indicator for sustainable commodity crops as it often sets the pace and others follow, has gone through numerous changes in the last twenty years. One of these changes is the creation of the Voluntary Standards Systems; coffee pioneered the VSS market due to its major importance in the commodity market as a whole, it is the second major traded commodity in the World, right after oil, providing livelihood to over 100 million people in its production and processing. (Panhuysen & Pierrot, 2014).

Coffee production complying with VSS generates the Certified and Verified Coffees; both terms stand for specific standards adopted throughout the whole production process. The difference is that Certification is used to make a claim with respect to external stakeholders (e.g. communication with a label), whereas verification is used to define conformity assessments for internal processes assurances (Potts, 2014). The majority of the time this includes parameters related to sustainability (environmental, economic and social) and changes in the processing model, such as traceability.

Therefore, it is possible to conclude that certified and verified coffee are differentiated from the mainstream product due to the fact that an independent, third party, verifies and certifies some of its attributes to assure the product is in conformity to specific norms. In essence, these accreditations are supposed to be the means to help farmers upgrade production, improve productivity, reduce costs and increase quality, which can lead to financial benefits and increased profits (Panhuysen & Pierrot, 2014).

According to Oliveira (2012), to comply with a VSS there are three necessary steps: the producer's filiation to the VSS organization, the certification or verification of the property, and

the transition or conversion period of the farm. To register the property the producer must send the required documentation and pay the inscription fee.

The objectives to follow a sustainable standardization are: identify and differentiate the product through a seal, get credibility in the market, aggregate value to the product, facilitate knowledge and recognition, and to gain the trust of consumers (Oliveira, 2012).

Moreira (2007) states that certified agricultural products have increasing demand, especially in developed countries where information regarding the production process, origin and social and environmental practices are a requirement by final consumers, who are increasingly willing to pay premium prices in order to get food products with the attributes desired.

Yet, the segment is relatively new and raises some doubts about the economic and financial attractiveness of investing in sustainable production, which organization to choose among all the existing ones, and their effectiveness in dealing with major social and environmental problems.

According to Panhuysen and Pierrot (2014), although VSS cannot solve all of the problems in the Coffee Supply Chain and still need adaptations, they are considered the most effective way to do it, especially when it comes to bringing stakeholders together, as is the case of the 4C association, the biggest sustainable multi-stakeholder platform that operates as an entry level certifier to develop sustainable coffee.

There is a significant number of VSS in the coffee market and they are also responsible for regularizing intangible aspects of the production, as for example fair-trade and social responsibility. According to Chagas (2009), the concept of sustainable coffee is the result of following a set of standards for social conditions and sustainable practices throughout the Supply Chain. The way farm employees are treated and the minimization of environmental impacts are examples of quality factors that require a well-known certifier to confirm these values, which explains the number of certifier and verifier organizations available internationally.

The main international certifications present in the coffee market are: Organic, Fair Trade Certified, Rainforest Alliance (RFA), UTZ Certified and 4C Common Code (Figure 2). Each of them has different standards covering different aspects and their products present diverse characteristics. In Brazil the most popular ones are UTZ, RFA and the 4C Association, there are also some national initiatives but they have a smaller adoption when compared to the international ones.

Nevertheless, according to SEBRAE (*Serviço Brasileiro de Apoio as Micro e Pequenas Empresas* or Brazilian Support Service for Micro and Small Enterprises), although certifications vary in some aspects, they generally promote sustainable practices, environmental protection and dignified work conditions for farm employees. Thus, they encourage responsible production, respect for the environment and economic and social development for the producers and community involved.

Moreira (2007) highlights the importance of presenting the characterization of each certification, citing possible advantages and disadvantages to each according to the producer's profile. For consumers, it is also important that the different standards are displayed so they can easily make their buying decisions.

Furthermore, using a study carried out by Adam Kline (2009), a member of the Specialty Coffee Association of America (SCAA) 's Committee, the main characteristics of the most used certifications will be briefly described. More detailed information regarding each certification can be found on the Appendix. SCAA is the oldest and most recognized organization that regulates and networks specialty coffee stakeholders and this study was made based on the certifiers' website and SCAA's collection of market researches. More detailed information regarding each certification can be found on the Appendix.

2.3.1 Organic Certification

The organic certification's mission is to “create a verified sustainable agriculture system that produces food in harmony with nature, supports biodiversity and enhances soil health”.

The Organic Trade Association certification was created in the United States (US) in 1967 aiming to reach all countries worldwide. The scope of the program covers organic farming and processing practices, stipulating a federal standard with practices for producers and handlers applying to all organic products sold with unique standards applied internationally.

Unlike other certification systems, organic certification standards are often set or regulated by governments. For example, to get accredited as an organic producer in the United States the farm receives annual inspections from certified entities and USDA certification is also required.

The standards formulated by the International Federation of Organic Movements (IFOAM) form the basis from which public and private standard-setting bodies develop more specific standards. As mentioned before, different standards apply in different countries and regions, and the most recognized organic seals are from the EU, the United States and Japan. A transition period of three years is usually required before coffee converted to organic production can be sold as such.

Regarding price, organic certification brings an average premium of US\$0,255 cents per pound to producers but these prices are not mandatory. The main consumer-countries are the United States, Canada, the EU, Russia and Japan.

2.3.2 Fair Trade Certified

Its mission is “Support a better life for farming families in the developing world through fair prices, direct trade, community development and environmental stewardship”.

This certifier began in the 1970's in the Netherlands and it now collaborates with more than twenty national branches throughout the World. The scope of the program is economic and environmental sustainability for farmers and their communities. It establishes a minimum price

and social premium to cover production costs and community-elected development programs. Its differential is the model that helps small farmers become organized into democratically run cooperatives to compete on a global scale. Fair trade has a baseline and progress criteria with annual inspections by independent and annually trained inspectors.

Regarding price, which is the focus of the program, all purchases must be at or above the Fairtrade Minimum price, which can vary according to coffee type and origin. In addition, if the market price is higher than the one settled by the organization, buyers must pay the market price and also another US\$0.10 cents per pound for a social premium and US\$0.20 per pound for Organic Differential when appropriate; prices are constantly updated and published in their website. The main consumer markets are the United States, Canada, the European Union, Japan, Australia and New Zealand.

2.3.3 Rainforest Alliance

Mission: “Integrate biodiversity conservation, community development, workers’ rights and productive agricultural practices to ensure comprehensive sustainable farm management”.

The Rainforest Alliance focuses on the global market with special emphasis on North America, Europe, Japan and Australia, and it began in 1992 through a coalition of Latin American NGOs. The emphasis of the program is on sustainable farm management in the most complete sense, based on social, environmental, economic and ethical improvements. The certifier has more than 200 criteria, for example obliging farmers to preserve 30% of farm area for natural vegetation, with field-tested indicators applying to all farms and cooperatives and annual audits by biologists, agronomists, sociologists and other specialists, trained, authorized and monitored by them. It may bring a premium price for the labeled products but there are no guarantees, and the differential is negotiated between customer and supplier.

The fees for producers are only the cost of auditing and access for small farmers can be through group certification. The goal of this certification is to make farmers earn more with the gains in

efficiency, improved quality and controlled farm costs than with the premium in the sale price. Rainforest Alliance Certified Coffee is consumed in 44 countries across six different continents.

2.3.4 UTZ Certified

Mission: “UTZ’s mission is to achieve sustainable agricultural supply chains, where: producers are professionals implementing good practices, which enable better businesses, livelihoods and environment”.

UTZ Certified began in 1997 in Guatemala, with its main focus on sustainability. The organization aims to teach farmers and improve their economic performance through productivity and farm professionalism, establishing standards to preserve flora, fauna, shade, buffer zones and workers’ health.

The aim of the code of conduct involves field-tested indicators and independent, third-party auditing applying to all farmers and cooperatives. The independent auditor must be accredited to ISO 65 standards and 10% of the audits are previously unannounced to the producers.

Regarding price differentials, they are fixed by the market and certified producers receive updates on market information about differentials and demand per quality. There are no fees for producers, only the auditing price. The main consumer markets are: the United States, the United Kingdom, Netherlands, Norway, Sweden, Belgium, Spain, France and Japan.

2.3.5 4C Common Code

Mission: “Achieve global leadership as the baseline initiative that enhances economic, social and environmental production, processing and trading conditions to all who make a living in the coffee sector”.

The 4C Association aims to reach the majority of the coffee market having begun in 2003 with a partnership between the coffee industry and the German development cooperation to initiate a multi-stakeholder dialogue for defining a mainstream code of conduct for sustainability. The goal of the program is to exclude unacceptable practices and improve sustainability in processing and production in the social, economic and environmental dimension. Inspections are made by independent auditors accredited to ISO 65 and trained by 4C.

Regarding price differentials, there are no influences on mainstream market price but a premium price is expected as a reflection of the coffee quality and sustainable practices provided by the association. It is also possible to make individual price negotiations between members of the association.

In sum, the 4C association is a verifier that unites coffee producers, trade and industry, trade unions, and social and environmental NGOs to develop a global code of conduct aiming at sustainability in the production, post-harvest processing and trading of mainstream green coffee. It is supported and facilitated by the Deutscher Kaffeeverband and is considered an entry level VSS (Lloyd & Toulmin, 2005).

2.4 Coffee in Brazil

Coffee is one of most valuable agricultural commodities in the world, cultivated in more than 80 countries in Central and South America, Africa and Asia. Its cultivation provides livelihoods for 20 - 25 million farming families and involves over 100 million people in its production and processing (Panhuysen & Pierrot, 2014). According to Oliveira, (2012) Coffee has its origins in the mountain regions of Abissina, or in the regions of Kaffa and Enaria, which today comprehend the countries of Ethiopia, Sudan and Kenya.

Before becoming the biggest coffee exporter in the World (Figure 3), Brazil had a very wavering history concerning the commodity. The grain arrived in the country in 1721 (Oliveira, 2012), and the development of the coffee market is extremely interconnected with the country's history. Its

entry into the country was made through the Portuguese official Francisco de Mello Palheta who brought it from a mission in French Guiana, since the grain had great commercial value (Romero, 1997).

In Brazil, coffee crops started in the state of Pará. From there, they spread throughout the country, starting to be grown in other states. In 1770, planting was initiated in Bahia. Three years later, Joao Alberto Castelo Branco, a judge who was transferred from Pará to Rio de Janeiro, brought some seeds with him and initiated the cultivation in that state, where the main area of cultivation was the “Baixada Fluminense”.

According to Romero (1997), it was in Rio de Janeiro that the plant began its remarkable expansion to other regions of the country. Therefore, many forests were cleared to start coffee plantations. An example of that is the area where we now find the famous houses of the Tijuca Forest, which had its native forest devastated to make way for large coffee plantations. The current Tijuca neighborhood was known at the time as the "coffee area." Later, around 1860, the grain was eradicated from that region. With a big drought in 1844, the minister Almeida Torres proposed the expropriation of the plantation areas in order to save water resources in the city. Thus, reforestation was undertaken, and with it came the Tijuca Forest, which currently makes up the landscape of Rio de Janeiro city.

Around 1825, coffee was taken from Rio to the states of São Paulo and Minas Gerais, today the main producing states, due to favorable climate and soil conditions, and the main producing regions were and still are the South of Minas Gerais and Alta Mogiana. By the end of the XX century, Brazil had become the biggest coffee producing country in the World. In the country coffee was and continues to be, in many producing regions, a major drive for socio-economic development, generating income and employment in rural areas. For each hectare of a coffee crop, approximately 2 or 3 direct and 4 indirect jobs are generated and the occupied area is superior to 2.3 million hectares. (Revista Cafeicultura Website, 2006).

The State of Minas Gerais, since 1969, has consolidated its participation in the national context,

with a plan to replant 1.28 billion Coffee trees, increasing its numbers from 332 million in 1969 to 1.7 billion in 1998. In 2003, the number of trees reached approximately 2.87 billion. The state's average annual coffee production increased from 2.3 million bags in the period of 1968-1972 to 25 million in 2002/2003. Such production represents 13% and 52% of national production, respectively. The large number of new trees is indicative of the continuity of the prominent position of Minas Gerais, compared to other producing states.

In general, Brazil is the biggest coffee producer and exporter internationally. In the 2014 crop the country produced more than 36.32 million 60 kg/bags of coffee with revenues of US\$6,5 billion (Cecafe, 2015).

The introduction of Voluntary Standard Systems is, however, a recent event. Moreira (2007) affirms that organic certification was the first sustainable standardization mechanism introduced into the Brazilian market and for a long period of time it was the only one as some producers had been exporting organic coffee since the early 1990s. According to Parreiras (2014), a researcher from the Brazilian Agronomic Institute (IAC), Brazil is the biggest producer and supplier of sustainably certified coffee in the World, accounting for 15% of international production, and these coffees are present in all producing regions with several certification programs and independent sustainable initiatives, such as UTZ Certified, Rainforest Alliance, Organic, FairTrade, the national program "Certifica Minas", 4C Association and Nespresso AAA. The region of Minas Gerais is the biggest provider in terms of volume, responsible for half of the sustainable production.

Although most of the Certification programs not always disclose country specific data regarding figures, some could be found about Brazil in the UTZ Certified and 4C Association website. Coffee farmers in Brazil make up a significant portion of their certified coffee. The volume of UTZ Certified coffee purchased worldwide is approximately four million 60kg/bags per year, and Brazil accounts for 35 to 40% of this volume. To date, UTZ certification in Brazil has mainly been adopted by medium (20 to 100 hectares) and large-scale (more than 100 hectares) producers. Together, they represent more than 98% of the UTZ certificate holders in the country.

Small-scale producers are underrepresented, although there are efforts to include them in the certification program, through projects and partnerships with businesses and government bodies.

Regarding the 4C Association, Brazil was responsible for more than 51% of 4C verified Global production. The country produced 22.616.037 60kg/bags and international production was 43.749.766 60kg/bags. Brazilian sales were 3.025.890 60kg/bags, while total sales were 9.949.732 60kg/bags.

2.5 The Coffee Supply Chain

The coffee supply chain has undergone an unprecedented commodification over the last three decades due to technological advancement, market liberalization, as well as changes in consumer taste and consciousness. Awareness surrounding sustainability throughout the coffee industry has become widespread, driving major coffee retailers to rethink their supply chains accordingly.

As smallholder farmers are responsible for 70% of the worldwide production, value distribution is an important issue throughout the coffee supply chain, which goes through many stages from producers to the final retailer (Figure 4). According to the International Coffee Association these stages are: growing, preliminary processing, secondary processing (hulling), exporting from developing countries, importing into developed countries, roasting and, finally, retailing (Lloyd and Toulmin, 2005). The process will be explained below:

Growing: Once planted, coffee takes about three to five years to reach full yield, but will then continue yielding coffee cherries for at least 20 years. This means that supply is price inelastic in the short-term. Factors that significantly affect supply are frost, drought and disease. Coffee can be grown with shade cover or in full sun. The main factor that affects the quality of the coffee at this stage and hence the price to the grower are the choice of species, whether Arabica or Robusta, and the altitude at which the coffee is grown. High altitude usually results in higher quality. Other factors affecting the quality are the approach to picking (the extent to which unripe berries are

picked).

Preliminary processing: This normally takes place on the farm or estate, but occasionally farmers sell unprocessed cherry to local traders. Two main types of on-farm processing method exist: dry and wet. This gives rise to a further sub-classification of Arabica coffees into unwashed or natural Arabica's resulting from the dry processing method, and washed Arabica's resulting from the wet method. Coffee produced by the wet method is usually regarded as being of better quality, as it is more homogeneous with fewer defective beans. It therefore commands higher prices.

The dry method involves sorting to separate unripe, overripe or damaged cherries, and cleaning to remove twigs and dirt. Cherries are then dried in the sun and on larger plantations; mechanical drying will also be used to speed up the process. Drying has a crucial effect on quality as over-drying will result in broken beans and insufficient drying will lead to fungal attack.

Wet processing requires specific equipment and substantial amounts of water. Removal of the fleshy pulp is first done mechanically and the residual pulp is then often removed through a fermentation process. The fermentation process requires monitoring as the coffee can acquire sour flavors. This is followed by washing in tanks or machines and then drying in the sun or in machines to give parchment coffee. As with the dry processing method, the drying process can affect quality. In Brazil, the fermentation process is rarely used in wet processing and only mechanical methods are used.

The dry method is used for 95% of Arabica coffee in Brazil, most Arabica's from Ethiopia, Haiti and Paraguay and almost all Robustas. The wet method is used for most other Arabicas and rarely for Robustas.

Secondary processing (hulling): Farmers sell the dry cherry or washed parchment to the processing mill, either directly or via a local middleman, or in some cases pay the mill to do the processing for them. Large plantations have their own processing operations on site. The hulling process removes the outer layers of the dried cherry, or the parchment in the case of wet processing. This is followed by a number of cleaning, screenings, sorting and grading operations common to both wet and dry processing.

Export/import: From the mill the coffee goes to a trading company, directly or via an intermediary, either for export or less commonly to local roasting companies for domestic consumption.

Roasting: Roasting of coffee beans usually takes place in the consuming country or close to point of final sale because of its short shelf-life compared to green beans. Blending of different types of coffees to achieve a desired taste is also an important activity of the roasters.

Retail: Roasted beans and/or ground coffee are then sold to retailers or to commercial catering outlets or coffee houses, either directly or via a wholesaler.

The fact of having so many stages before arriving to the final consumer causes some problems with value distribution, which is one of the problems VSS tries to address. Also, as coffee production is concentrated in developing countries, there are many problems that are usually generated throughout its supply chain, such as high price volatility creating uncertainty for producers, poor work conditions for farmers and the deterioration of the local environment.

Moreover, to expose the consequences of these issues and their implications, four main problem categories were created based on the report “From bean to cup: how consumer choice impacts upon coffee producers and the environment”. Consumers International (CI) published this study as part of its Global Food and Nutrition Program with financial support from the Ministry of Foreign Affairs of the Netherlands. CI collaborated on the report with the International Institute on Environment and Development (IIED). IIED’s participation in the project was co-funded by the Swedish International Development Cooperation Agency (SIDA) and the Royal Danish Ministry of Foreign Affairs (Danida). The four main problem categories are:

1) Price Volatility: Between 1997 and 2001 coffee prices fell by almost 70% in nominal terms, falling to below the cost of production in many countries. In that period, prices reached their lowest levels for 30 years and for 100 years when adjusted to inflation. These price trends have severe consequences for coffee growers who are sometimes forced to sell below production cost and see their incomes reducing drastically. Economic losses for small coffee farmers also affect

children's education and healthcare. The loss of foreign exchange also leads to fiscal constraints for governments of coffee-producing countries.

Problems of declining prices are compounded by price volatility making rational adjustment to price changes difficult. According to Baffes (2005), both Arabica and Robusta prices varied by a factor of five during the 1990s, the principal contributing factor was the weather conditions in Brazil where frost and droughts affect the coffee crop every few years.

Historical fluctuations in coffee prices have shown how factors outside the sphere of coffee production can contribute to this variability. For example, the ICO review for September 2005 emphasized how coffee prices were below expectations because of speculative movement in petroleum products, which influenced the activities of investment funds.

In addition, these price volatilities directly influence producers' decisions whether to invest or not in a sustainable crop because, although these productions can receive premium prices, they are completely dependent on market prices and they don't receive any guaranties of compensation. Even when prices do increase, there will still be concerns that growers are receiving a decreasing share of the coffee revenues.

2) Declining Share of Revenue Distribution: The apparent widening of the gap between prices received by growers and retail prices has prompted studies comparing the share of the final retail price accruing to growers with that of other stages of the value chain, and also examining trends in the share of total value of coffee retained in producing countries. Some of these studies are a snapshot estimates for a single year, others examine trends. Considering them together, there is some indication of a declining share over time both for growers and for producing countries.

Researchers give different emphasis to the various reasons for this trend in declining grower and producer country share. All agree that the problem is one of imbalance between supply and demand. There is general agreement that oversupply of green coffee is the principal contributing

factor to the slump in prices and that this is more than a cyclical problem, reflecting the short-term inelasticity of coffee supply, but also a result of some major restructuring.

New low-cost producers have come onto the market, notably in Vietnam and Brazil, where a large-scale, highly mechanized, high density and input-intensive form of coffee farming has become prominent. Therefore, higher cost traditional smallholder producers are the least able to compete and are either being forced out of the coffee market or having to look for other ways of increasing their competitiveness.

On the demand side, consumption is increasing only very slowly in developed countries despite the perception of a coffee boom and the emergence of coffee shop chains and a coffee culture.

There is less agreement on the role of market power held by roaster companies. Brown (2002) contrasted the losses, or at best tiny margins, made by farmers and exporters in developing countries with the ‘extraordinary profits’ being made by roaster companies in the USA and Europe on their retail coffee business suggesting that the market power held by these companies was a major contributing factor.

Lewin (2004), while acknowledging the importance of corporate concentration, places considerable emphasis on two factors. First, the roasting companies have been able to take advantage of various value-adding activities such as marketing, branding, differentiation and flavoring. Second, the non-coffee components of the retail price of coffee such as wages, packaging and marketing have grown and now represent a more significant share of the retail price than the coffee itself.

May (2004) argues that while there may be circumstantial evidence of roaster influence on retail prices there is little evidence of roaster influence on world market prices for green coffee. This is because concentration in the physical market is not reflected in the futures market where benchmark prices are established – roasters, traders and investors interact in the futures market creating a more competitive environment.

3) Poor Working Conditions for Farmers: Concerns are often raised about the wages and working conditions of coffee farmers and plantation workers, especially regarding the use of child labor and the safety implications of handling pesticides.

The pressure to compete and to reduce costs can lead to poor conditions for farm workers and limited compliance with the law. Some examples of poor practice can be: safety equipment usually not supplied for the harvesting process, workers being prohibited from using gloves because of the risk of harming the plants, no limitation of working hours, no payment for extra hours, no sanitation facilities and no formal signed work papers.

4) Deterioration of Local Environment: Coffee tends to be grown in high biodiversity areas and areas of natural forest. The destruction of the Atlantic forest in Brazil in the 19th century was greatly due to coffee, but deforestation to make way for coffee has taken place more recently for example in Cote d'Ivoire, where the government in a bid to expand cocoa and coffee production allowed free access to uncultivated areas. In Central America, coffee growing is located in some of the principal river basins of the region. Preservation of the coffee-growing micro-basins is important for the survival of the rivers and all the associated flora and fauna.

Since the 1970s there has been a move in a number of coffee-growing regions away from traditional approaches involving shade-grown coffee, in the case of northern Latin America, and away from traditional lower-yielding varieties, such as bourbon in Brazil (which has little tradition of shade coffee), to very mechanized, input-intensive sun coffee, with denser planting, high dependence on irrigation and use of coffee varieties more suited to chemical fertilizers. New producers, such as Vietnam, started off their production based on sun systems with the aim of increasing yields.

For example, Colombia, in the space of 30 years, went from mainly traditional systems of coffee to 68% of its coffee areas being intensified. It has been estimated that shade monoculture and sun coffee account for 40% of the coffee producing area in northern Latin America. This trend has

had significant environmental impact since studies have shown that shade coffee supports a diversity of species and migratory birds.

The decline in coffee prices has led to further concerns about the impact on the more environmentally friendly smallholder producers. In some cases, decreasing prices has led to replacement of shade coffee by other crops such as pasture and sugar cane, considered more environmentally damaging. In other cases, falling prices have led to the abandonment of coffee plantations, encouraging deforestation elsewhere in order to plant alternative crops.

Processing also has an environmental impact. Wet processing of coffee uses substantial amounts of water and as the process involves fermentation of the residual pulp surrounding the cherry; it generates wastewater with high concentration of biochemical oxygen demand. In Central America coffee processing in the 1990s was considered the region's most polluting agro-industry. Well-established treatment techniques exist but add to costs of production for producers already feeling the squeeze of lower prices.

In sum, the key issue is whether VSS initiatives can help address these social, environmental and economic problems as usually the offer of certified coffee surpasses demand. The major challenge is therefore to create alternative incentives for producers to invest in a sustainable coffee crop as they face many challenges throughout the commodity's production.

3. Methodology

In the literature review, this study presents an overview of Voluntary Standard Systems in general, followed by a more specific analysis of their performance in the Coffee Market, a description of the market in Brazil and concludes by exposing the main problem in the international supply chain. This review is supported by previous academic studies, books, official websites and specialized organizations, aiming to analyzing if changing from mainstream to sustainable coffee production can bring financial and economical benefits to coffee producers in the states of Minas Gerais and Sao Paulo. As mentioned before, detailed analytical literature is still scarce in the field as most of the information has a different approach towards studying sustainable initiatives, not considering the main issues affecting the coffee supply chain. These studies focus instead on finding sustainable impacts but not much focus is given to financial and economic returns, which in the end represent a crucial factor in the producer's decision.

After the literature review, in order to better understand the subject, primary data was collected from producers in the field. The primary data was collected through a questionnaire of qualitative data that aimed to deepen the empirical investigation. The data collection with people connected to the phenomenon was used to create arguments and form a more detailed explanation of the subject, based on real sources related to the field of study. According to Boni and Quaresma (2005), a qualitative study works with very particular notions, such as meanings, motivations, beliefs and values, and these cannot simply be translated into quantitative data but, inside a research, quantitative and qualitative data complement each other.

Structured questionnaires were used to collect data. Boni and Quaresma (2005) also affirm that a structured questionnaire has previously formulated questions, carefully followed, in order to create a pattern of answers, making it possible for the author to make comparisons and draw conclusions.

Regarding the quantitative data, some examples of quantitative data collected were the comparison of the price paid to certified and non-certified producers in the same period for one coffee bag of 60kg and the amount of money producers had to invest when adopting a certification. Questions were elaborated in a simple and clear way in order to achieve the target group.

3.1 Sample

For the primary data collection, a sample of 30 participants was selected, all of them coffee producers in the focus regions. These participants were chosen as they represent a group of coffee producers from the network of the author's coffee trading company, Costa Café, located between the Mogiana Paulista and the South of Minas Gerais and a relevant market player in the region. The company was founded in 1985 in Espírito Santo do Pinhal, in the state of São Paulo, and sells coffee mainly from Minas Gerais and São Paulo, the two biggest producing states respectively.

The sample studied represents a convenience non-probabilistic sample; therefore the inherent bias is that the sample is unlikely to be representative of the general population being studied but the justification for the choice of the selected group is due to the fact that it is a homogeneous group located in the focus region. The choice of sampling was made due to limitations of time, budget and accessibility, since the author no longer lives in Brazil.

3.2 Data Collection

The collection of data aimed to understand the perceptions of producers, through questionnaires applied to people connected to the phenomena, providing more detailed information concerning the subject. The empirical research was a means of investigating the facts, within a real context and based on real sources that relate to the subject.

Questionnaires that followed a structured script were used for data collection. According to

Marconi and Lakatos (2003), in structured questionnaires the questions are formulated in advance and are strictly followed by every participant. The main reason for this carefulness is the possibility of comparison with the same set of questions and that differences should reflect distinctions between respondents and not differences between inquiries.

According to Marconi and Lakatos (2003) the questionnaires can be sent to respondents by e-mail or a carrier and when this happens, a note explaining the nature of research must be sent. For this survey the author of the study sent questionnaires by e-mail (electronic mail) in which there was a note explaining the objective. The questionnaire is found in Appendix A.1.

The sample of the study consists of 30 people among small and large producers, 27 men and 3 women, 14 certified and 16 non-certified. They all, except for one, have their properties located in the states of São Paulo and Minas Gerais as detailed in table 1.

Table 1 - General Characteristics of Studied producers

Producers Interviewed	30	Properties in MG	Properties in SP	Properties in both	Other*
Certified	14	10	4	-	-
Non-Certified	16	10	4	1	1

*Property in Espírito Santo

Source: Collected by the author

The purpose of the questionnaires, according to Smith and Thorpe (2008), was to reveal the meanings and interpretations that people attribute to the subject researched. Thus, the goal was to better understand the coffee market and what the advantages and disadvantages are of investing in the VSS.

The unit of analysis is the basis of any sample, and to achieve the ultimate goal it is very important to answer the problem posed in the survey, in this case it was: whether the adoption of the VSS can bring financial and economic benefits.

3.3 Questionnaire Elaboration

According to Marconi and Lakatos (2003), questionnaire preparation is one of the most important stages of research and requires special attention, always bearing in mind the objective to be achieved.

The questionnaire (Appendix A.1) has open questions for producers with a traditional and or certified/verified crop. The questions were divided into two parts, and according to the answer of the second question, the respondent was directed to answer one of the parts.

The interests regarding the adoption (or not) of a VSS were also addressed. This question intended to identify the differences between the properties that adopt a VSS and those who have no interest in the procedure, also comparing the growth of production and access to international markets, seeking to understand the improvements and growth of the sector as a consequence of the adoption.

Some of the items covered to characterize the respondents were age, number of properties, annual production, location and size of the properties. Regarding price and the buyers, the study sought to understand the buying behavior in relation to coffee quality and the influence of VSS on the purchase.

Finally the study aspired to identify and understand advantages and disadvantages of the various VSS as well as which VSS has more demand in the market.

4. Results

The first part of the questionnaire focused on differentiating the respondents using data such as age, whether they belong to a traditional family of coffee farmers, if they own a brand, location of the property, number of farms, farm size and the annual production. Table 2 shows the general results:

Table 2 - Characteristics of the Producers

Variables	Number of Producers		
	General	Certified	Non-Certified
Age			
20 to 30 years old	-	-	-
31 to 40 years old	3	-	3
41 to 50 years old	7	2	5
51 to 60 years old	7	3	4
61 to 70 years old	9	6	3
71 to 80 years old	4	3	1
Comes from a family of coffee producers?			
Yes	25	12	13
No	5	2	3
Has its own brand?			
Yes	8	7	1
No	22	7	15
Location:			
SP	8	4	4
MG	20	10	10
Both states	1	-	1
Others	1	-	1
Number of Properties:			
1	10	4	6
2	8	2	6
3	5	4	1
4	4	2	2
5	2	1	1
6 or more	1	1	-

Source: Collected by the author

Factors such as age and location of the property might seem irrelevant in order to answer the research question, whether VSS brings financial benefits to coffee producers, but they were addressed in order to make the sample as diverse as possible. And the fact that most of the certified properties were located in the state of Minas Gerais can be simply explained by the fact that it is the biggest producer state in the country and therefore has the biggest number of coffee producers. Further, an analysis was made distinguishing the producers adopting one or more VSS and the ones that didn't.

4.1 Producers Adopting a VSS

According to Table 2, among the certified producers 42% are between the age of 61 and 70 years old, with 85% coming from a traditional coffee family and 50% owning a brand. Regarding the properties, 70% are located in the state of Minas Gerais, mainly in cities from the Cerrado Mineiro Region. And around 60% of these producers own one or three production properties.

Table 3 shows that among the certified producers 42% have farms bigger than 450 hectares and general production among the respondents was very diversified with 35% producing between 5,000 to 10,000 60kg/bags of coffee.

Table 3 - Characteristics of area and production for certified producers

Variables	
Size of certified plantation	Number of Producers
10 to 50 hectares	
50 to 100 hectares	1
100 to 150 hectares	2
150 to 200 hectares	
200 to 250 hectares	2
250 to 300 hectares	1
300 to 350 hectares	2
350 to 400 hectares	
400 to 450 hectares	
450 to 500 hectares	1
500 to 1000 hectares	3
More than 1000 hectares	2
Average production of 60K g-bags/year	
100 to 1000	
1001 to 5000	2
5001 to 10000	5
10001 to 15000	1
15001 to 20000	
20001 to 25000	1
25000 to 30000	
30001 to 35000	2
35001 to 40000	
More than 40000	3

Source: Collected by the author

Table 4 demonstrates that the great majority of producers have RFA and UTZ certifications; in fact 70% of them have both certifications at the same time and 42% of them have been certified for around five to six years. Only one producer had a different certification from the ones described in this study, from a national organization called “Certifica Minas”. He was also the only one that affirmed not to be receiving a premium price for his coffee.

Table 4 - Certifications used and time of adoption

Variables	
Type of Certification	Number of Producers*
4C Association	1
RFA	11
UTZ	11
Other*	1
Time of Certification	
1 to 2 years	2
3 to 4 years	3
5 to 6 years	6
7 to 8 years	3
More	-

*Certifica Minas

*Number of producers overlaps since the majority has both UTZ and RFA

Source: Collected by the author

Some questions in the questionnaire were analyzed separately and not included in Tables 1, 2 and 3. Question 12 (if they had more than one property, how many are certified) was the base for producers to answer question 13, which inquired why they had chosen not to get all their properties certified. A recurring response was the high certification costs and implementation difficulties, either due to a lack of suitability of the property, the need for operational adjustments, technical improvements and the high cost of maintenance audits and fees.

Another important question was asked to shed light on whom the buyers of certified coffee are (question 20). In general, the majority of the buyers were from the international market, some names mentioned were exporters such as Stockler, Noble, Atlantica, Louis Dreyfus (exporter and importer) and Costa Cafe, as well as roasters, like Nespresso. One of the respondents replied that he has a direct sales contract with an importer in Japan.

This study also aimed to find out how the buyer behaves towards the offer of certified coffee, that is, whether it is difficult to find a buyer and if they are willing to pay more (question 21). 90% of farmers do not see difficulties in selling certified coffee. However, many mentioned that

the premium paid for certified coffee in relation to the commodity's market price is not very expressive.

Some producers believe that, nowadays, the market for certified coffee is saturated and therefore the premium decreases every year. However, two respondents whose production is focused on quality and who have direct sale contracts, one selling directly to Nespresso and the other to importers in Japan, said they already got paid significantly higher prices.

Hence, although there are always buyers for sustainable coffee, quality is the master key that, combined with certification adds more value to the product. However, it is important to remember that certification is not only related to product quality but often focuses on other aspects such as sustainable production.

As for incentives provided by the government to incentivize certified production (question 22), all respondents were unaware of any kind of government incentive. Two respondents mentioned there is a national certification, the “Certifica Minas”, with such incentives, however, they declared to ignore the existence of commercial advantages about having this seal.

The questionnaire also addressed which specific qualifications the certifiers demanded from the employees of the property (question 23). The most cited qualifications were a variety of lectures, first aid course and technical responsibility instructions. Learning was encouraged in day-by-day working life so it becomes easier when they have the audit. However, the 4C certification has less strict requirements, as for example it only requires producers to obey national labor laws.

One of the questions investigated the auditing procedures during the visits (question 24). According to the answers collected, auditing can be scheduled or sometimes unexpected. The auditors work with a checklist, the property has to conform to these items that can vary according to each certifier. Visits are usually annual.

Another important subject dealt with in the research was the expenses (question 25). Producer's

investments, to get a property certified, were between R\$20,000 (US\$ 6,400) and R\$70,000 (US\$22,400). It was also possible to observe a difference in costs from more strict certifiers, such as UTZ and RFA, and the 4C. It is important to mention that such price variations are due to the level of adaptations producers are required to do in the properties in order to adequate with the standards' demands.

In relation to the price received for certified coffee (question 26), a small premium between R\$5.00 (US\$1.60) and R\$15.00 (US\$4.80) per 60Kg/bag was identified when compared to the mainstream commodity price. And regarding profit increases (question 27), the majority of producers had similar answers. They had higher profitability; however there was also an expansion of work and expenses directed to the cultivation.

It is valid to point out that many considered it profitable, nevertheless with only a slight increase in profits. Also they mentioned that certification did not delivered greater lucrativeness but helped improve production control and increase the fulfillment of environmental laws, leading to an improvement in property management.

Likewise, when considering only the profitability, 90% of producers said they would opt for certification again mainly due to the added value and management improvements generated, which made them save money in the long-term since they learned, for example, how to decrease water, energy and pesticides consumption, which are part of the certifier's requirements (Question 28).

Finally, question 29 and 30 were elaborated to have a better understanding of farmers' difficulties and the advantages of getting a certification. In general, the main difficulties were the cost of implementation, employee's training and adaption of the property to the certifier's requirements. Other less mentioned factors were labor and environmental law fulfillments. Regarding the advantages, according to 100% of the respondents, the most relevant factor was the improvements in property management.

4.2 Producers not adopting a VSS

In relation to producers not adopting any type of VSS, the study also distinguished those using data such as age, whether they belong to a traditional family of coffee farmers, if they own a brand, location of the property, number of farms, farm size and the annual production (Table 2).

Also according to Table 2, it is possible to observe that among the non-certified producers 56% are between the age of 41 and 60 years old, with 81% coming from a traditional coffee family and 94% not owning a brand. Regarding the properties, 62% are located in the state of Minas Gerais, 25% in the state of São Paulo, and one has properties in both states, while only one respondent has their farm in another state (Espírito Santo). Concerning the amount of properties, 75% of respondents have up to 2 properties and the other 25% have 3-5 properties.

Table 5 shows that the sample of non-certified producers is very diversified, the smallest property has 30 hectares and the biggest one has 1.680 hectares. 69% of all the farms are smaller than 100 hectares. Logically, the average 60kg/bags produced annually are also very diverse, with the lowest production level of 30 bags and the highest production level of 20,000 bags.

Table 5 - Characteristics of area and production for non-certified producers

Variables	
Size of certified plantation	Number of Producers
Less than 50 hectares	6
50 to 100 hectares	5
100 to 150 hectares	3
150 to 200 hectares	
200 to 250 hectares	1
250 to 300 hectares	
300 to 350 hectares	
350 to 400 hectares	
400 to 450 hectares	
450 to 500 hectares	
500 to 1000 hectares	1
More than 1000 hectares	
Average production of 60K g-bags/year	
100 to 1000	5
1001 to 5000	8
5001 to 10000	2
10001 to 15000	
15001 to 20000	1
20001 to 25000	

Source: Collected by the author

The questionnaire also had questions about price and the coffee buyers. Regarding price (question 7), the answers were that a 60kg/bag of coffee was sold for between R\$420.00 (US\$135.00) to R\$500.00 (US\$160.00). This significant price variation is usually due to differences in the quality classification of the coffee. The buyers mentioned (question 9), were exporters such as Costa Café, Stockler e Terra Forte.

Another very important question was posed to provide understanding as to why the producers did not join any of the certifiers (question 10), and 100% of the respondents said the high entrance fees were the reason.

5. Conclusion

The goal of this study was to analyze the perception of coffee producers regarding the advantages and disadvantages of the Voluntary Standard Systems (VSS), so to understand if their adoption can bring them financial and/or economic benefits.

In the literature review, the first step was to conceptualize the VSS in general, and the role in the coffee market. After this contextualization, a short description of coffee's introduction into Brazil was presented and the importance of the commodity to the country. This section finalized with a description of the coffee supply chain and the main issues involving it.

The methodology was described in Chapter 3, followed by an explanation about how the questionnaire was elaborated and finally the data was analyzed. The questions were elaborated so as to characterize the respondents and aimed to provide understanding about their perception regarding joining a VSS and its main implications. In order to answer the research question - whether the adoption of a sustainable initiative provides coffee producers' economic benefits or other positive outcomes -, a questionnaire was applied to a group of 30 coffee producers, of which 14 had one or more types of certifications and 16 did not have any.

The sample of certified and non-certified producers was diverse. Both groups had respondents between the ages of 30 and 80 years old, the majority came from a traditional coffee farming family and both samples had producers owning properties of small, medium and large sizes. Regarding the brand, half of the certified producers own one, while the majority of the non-certified producers do not. Producers owning a brand join a certifier because they aimed at adding value to their brand with a certification label, conferring differentiation.

Previous research indicated that there are many similar coffee certifiers, mostly focusing on the sustainability throughout the supply chain. As a result, by complying with the rules and goals of one system, the producer ends up meeting the standards of other, which he can then join without

too much effort. Of the 14 certified producers, 70% have both the RFA and UTZ certifications, which are well suited organizations for medium to large producers that already possess good documentary organization, adequate production practices, great social conditions and a well established human resources policy.

With the analysis it was also possible to conclude that premium prices received for certified coffee did not vary greatly, regardless of the certification type, but price differentials were found when considering the quality of the final product.

The high costs to join a certifier were mentioned by both certified producers and non-certified producers as the biggest challenge to start a certified production. Overall, for the coffee sector in general, the implementation costs still represent the main access obstacle.

The main buyers for certified and non-certified coffee are from the international market. Certified producers argue that property management improvement, through the adoption of sustainable practices, was the biggest advantage after joining a certifier. Even the non-certified producers recognized this advantage. Therefore, the administrative savings with the use of a certification is undeniable and can be considered as one of the economic benefits besides from the actual premium price, confirming what was mentioned before by Panhuysen & Pierrot, (2014) in the Literature Review.

Thus, with this study it is possible to conclude that joining a certification brings limited added value to the final product since producers' perception regarding the increase in prices received by their coffee was not so significant and high premium prices were only received by farmers that adopted a quality oriented production. On the other hand, producers perceived a great level of improvement in property management and gain in administrative knowledge after joining a certifier, which generated cost savings in the production process and was highly appreciated by farmers. Therefore, analyzing producers' perception it was possible to conclude that sustainable initiatives can bring some financial-economic benefits to the coffee producers in the focus region, but to a limited extent since adoption costs still represent a major challenge and supply

significantly surpasses demand, limiting premium price payments.

In addition, with this study it was also possible to realize there is a big challenge certifiers have to overcome since voluntary coffee certifications are more financially beneficial for producers with farms that do not need a lot of property adaptations, which are the biggest costs to get certified, and these are the producers likely to be the relatively wealthier ones than undermining certifiers' biggest goal, which is to decrease poverty level and increase living standards at producer countries.

Regarding future research, this study can serve as a basis for delving deeper into the subject since to better understand the many different certification schemes and which one can be more beneficial, a bigger sample would have to be studied in order to enable further comparisons between price premiums received, producer satisfaction level with the inputs given by the certifier, such as trainings, and the amount a farmer had to invest in order to be compliant.

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Appendix:

A.1. Questionnaire

Questionnaire sent to producers:

Name:

Age:

1- Do you come from or work at a traditional coffee producing family?

Yes / No

2- Does your production have any type of coffee certification?

Yes (go to question 11)

No (answer questions from 1 to 10)

3- How many properties (farms) do you have?

4- Where are they located?

5- What is the size of the area used for coffee plantation?

6- What is the average production (in 60kg/bags)?

7- What is the coffee price today (in 60kg/bags)?

8- Do you own a brand?

9- Who are the main buyers of your production?

10- Why don't you have any interest in getting certified?

11- How many properties (farms) do you have?

12- If more than one, how many are certified?

13- Why did you choose not to certify the other properties?

14- Where are the certified properties located?

15- What kind of certification do you use?

16- How long have you been using a certification?

17- What is the size of the area used for coffee plantation?

18- What is the average production (in 60kg/bags)?

19- Do you own a brand?

20- Who are the main buyers of your production?

21- Do you find it difficult to have buyers for certified coffee? Do most of them buyers agree to pay a premium price?

22- Are there any governmental incentives to get certified? If yes, do you use them?

23- Does the certifier require your employees to have any type of special qualifications? Any type of special qualification of your employees?

24- How are the auditing visits?

25- How much, approximately, was the investment to get certified?

26- What is the price of a 60kg/bag of certified coffee nowadays?

27- Since you implemented the certification, did you have an increase in profits?

28- Only considering profitability, if you could go back, would you opt to have a certification again?

29- In your opinion, what are the main difficulties to having a sustainably certified production?

30- And what are the advantages?

A.2.Table 6 – Certified Coffee Production and Sales:

2012 - Coffee Production and Sale per VSS (Million Tons)*			
	Production	Sales	% sold as certified
4C Assoc	1.782.058	152.708	9%
UTZ	715.648	186.096	26%
C.A.F.E.	457.339	222.550	49%
Fairtrade	430.000	128.000	30%
Rainforest A.	265.565	129.846	49%
Organic	248.767	133.163	54%
AAA	247.114	-	-
Global**	3.422.038	731.813	21%
*Source: SSI (2012 Data)			
**Excluding AAA and C.A.F.E.			
2013 - Coffee Production and Sale per VSS (Million Tons)*			
	Production	Sales	% sold as certified
4C Assoc	2.280.000	450.000	20%
UTZ	727.000	224.000	31%
C.A.F.E.	-	170.000	-
Fairtrade	440.000	145.000	33%
Rainforest A.	455.000	168.000	37%
Organic	248.000	133.000	54%
AAA	-	55.000	-
Global**	4.150.000	1.120.000	27%
*Source: Coffee Barometer (2013 Data)			
**Excluding AAA and C.A.F.E.			
2014 - Coffee Production and Sale per VSS (Million Tons)*			
	Production	Sales	% sold as certified
4C Assoc	2.624.986	596.983	23%
UTZ	729.918	258.867	35%
C.A.F.E.	-	-	-
Fairtrade	521.387	148.157	28%
Rainforest A.	456.042	184.599	40%
Organic	-	-	-
AAA	-	-	-
Global**	4.332.333	1.188.606	27%
*Source: 4C Association 2014 Report			
**Excluding AAA, C.A.F.E. and Organic			

A.3. Figures

Figure 1: Certifier Logos



Source: 4c-coffeeassociation.org, usda.gov/organic-agriculture, utzcertified.org, ec.europa.eu/agriculture/organic, rainforest-alliance.org, fairtrade.net

Figure 2:

Global Coffee Exports Ranking (Tons/Value)

Country	Tons	Value (1000\$)	Country	Tons	Value (1000\$)
Brazil	1.791.207	8,000,416	Honduras	252.928	1,358,438
Vietnam	1.256.400	2,752,423	Guatemala	261.775	1,062,969
Colombia	433.646	2,623,212	Indonesia	346.092	1,034,815
Peru	293.638	1,580,372	Belgium	205.244	942,160
Germany	348.584	1,579,457	Ethiopia	159.135	844,555

Source: FAO Statistical Yearbook, 2011 (latest data available) - FAOSTAT

Figure 3: Number of producers and hectares per VSS

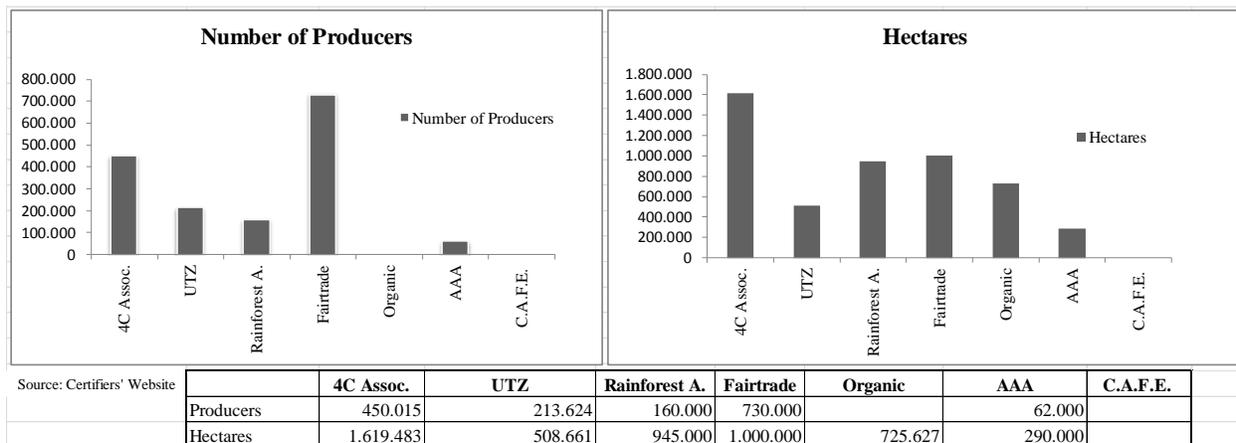
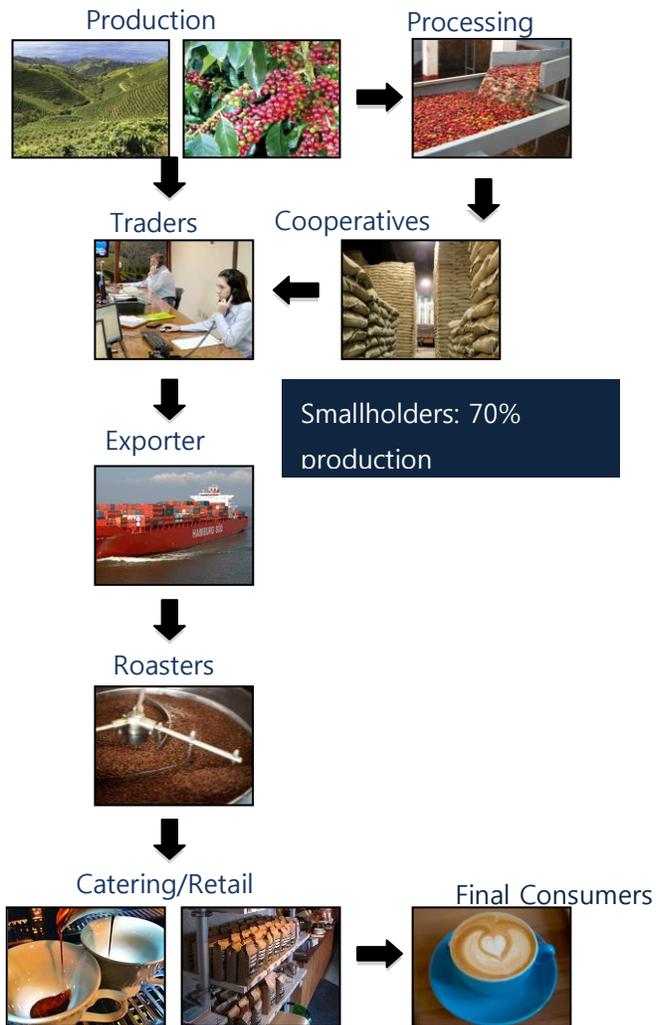


Figure 4: The Coffee Supply Chain

Source: Author's personal file

Figure 5: Coffee Certifiers' Comparison Matrix

	4C Association	UTZ	Rainforest Alliance
Since	2003	2002	1987
Founded	German Ministry for Economic Cooperation and Development (BMZ), the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and the German Coffee Association (DKV)	Belgian-Guatemalan coffee grower, Nick Bocklandt, and Dutch coffee roaster, Ward de Groote.	Group of volunteers led by Daniel Katz (now member of the board of directors) and by President Tensie Whelan.
Financed	Core budget through membership fees. Also received funding from BMZ, GIZ, Flemish International Cooperation Agency (FICA) and Oxfom Novib (Netherlands).	Nationale Postcode Loterij, The Sustainable Trade Initiative (IDH), Irish Aid, Ford Foundation, Hivos, Department of the Dutch Ministry of Economic Affairs, Agriculture & Innovation and Euromonitor.	Audits payment (36%), private foundations (18,3%), government grants (27,4%), contributions and memberships (11,7%) and special events (3,3%). producing countries the Participation Fee will be paid by the first buyer after shipment.
Mission	4C Association is the leading multi-stakeholder sustainable coffee platform, guiding the mainstream sector toward more sustainable production in a non-competitive arena where all relevant stakeholders are enabled to participate. It has 27 principles and 10 unacceptable practices.	To create a world where sustainable farming is the norm. Sustainable farming helps farmers, workers and their families to fulfil their ambitions and contributes to safeguard the world's resources, now and in the future.	The Rainforest Alliance works to conserve biodiversity and ensure sustainable livelihoods by transforming land-use practices, business practices and consumer behavior.
Crops Covered	Coffee	Coffee, cocoa, tea, and provides traceability services for RSPO (Roundtable on Sustainable Palm Oil) certified sustainable palm oil.	Bananas, cattle, cocoa, coffee, ferns and cut flowers and tea. They also have a Forestry products and a Tourism program.
Chain of Custody Requirements	Code of Conduct applies for producers, Rules of Participation for Trade and Industry Members, and the governance structure.	All supply chain actors have to be UTZ certified. Different requirements apply for each SCA member.	Accredited certification bodies certify farms, group administrator (for group certifications), and Participating Operators (POs) that conform to the SAN's standards and policies.
Costs	Only charges Audit Costs. Depends on region and country but expenses are the costs of the Audits (average of 2800 euros).	Certification Bodies are independent third parties, UTZ Certified does not set the price for audit costs nor interfere in price negotiations. Program fee: UTZ Certified charges a volume-based program fee. This fee is only charged to the last buyer of UTZ certified coffee (meaning: the company who packs the coffee in consumer-end packaging) and is set at US\$26.50 per Metric Ton (MT) of green coffee.	Farmers pay per day and travel expenses for technicians and auditors. Smallholders may organize an internal management system and seek certification as a group, thus reducing auditing and administrative costs.
Main producer Countries in 2012 (SSI 2014)	Brazil (55%), Vietnam (20%), Colombia (15%)	Brazil (33%), Vietnam (22%), Colombia (11%)	Brazil (33%), Colombia (11%) and Peru (11%)
Countries with local operations	El Salvador, Brazil, Vietnam, Indonesia, Uganda (currently in recruitment process).	Colombia, Guatemala, Ghana, Indonesia, Brazil, Kenya, Zambia, Ethiopia, Vietnam, Peru, Ivory Coast, Ecuador, Argentina, India and China.	20 Global Offices. Africa (Ghana, Cameroon, Cote D'Ivoire), Asia-Pacific (Indonesia, Australia, New Zealand, India, Japan, China, Vietnam) and Americas (Canada, Brazil, Guatemala, Bolivia). Representatives in other central American countries.
Frequency of audits	Audits every 3 years and self-assessment every year. (Some visits can be by surprise).	Annually. Some audits are made by surprise.	SAN units are certified every three years.

Auditing Process / Group Certifications	A small producer can join a 4C Unit and get certified with them. The 4C Verification process starts with a self-assessment by the 4C Unit, a mapping of all business partners and an organizational chart of the Unit. After these documents are completed and submitted to the 4C Secretariat, a third party verifier will visit the Unit. The verifier checks documents and procedures, carries out interviews and collects other evidence, as well as making random checks of 50% of the square root of all individual farmers and other partners involved in the business.	The minimum number of plots to be physically audited by the CB is the square root of the total number of plots on the farm, rounded up to the next whole number. The CB conducts a risk assessment before the audit to assess which plots will be physically audited. Every year a different sample of plots must be audited. Group certification: All sites under the central management are physically audited by the CB.	The SAN external auditor does not review compliance with the <i>Sustainable Agriculture Standard</i> by each group member farm, but does evaluate the operation of the group administrator's internal management system, based on the <i>Group Certification Standard</i> . (The auditor visits at least a square root of the total number of member farms. In some cases, the size of the sample may increase up to 1.4 times the square root, provided this scenario proposed by the certification body).
Who makes the audits	Independent third-party companies accredited against ISO/Guide 65 or equivalent.	Third Party Certification Bodies	All audits are conducted by third-party auditors. Sustainable Agriculture Standard (SAN).
Partnerships	RFA, UTZ, FTA and Certifica Minas (Producers of Rainforest Alliance and to a certain extent Fairtrade certified farmers can be 4C certified without going through the audits), SustainabilityXchange, Product Category Rule (PCR), IDH and ICO.	Solidaridad (solidaridadnetwork.org), Hanns R. Neumann Stiftung, GIZ, ACDI/VOCA.	Coalition of independent, mostly Southern non-profit conservation organizations.
Highlights	Focus on mainstream market	Focus on corporate partners	Focus on environmental aspects of farm management.
* Different requirements for different market players Source: Author's Personal File based of Certifiers' website			

	Fairtrade	Organic
Since	1988	1972
Founded	Dutch development agency Solidaridad.	Roland Chevriot of Nature et Progrès, Lady Eve Balfour, founder of the UK Soil Association, Kjell Arman from the Swedish Biodynamic Association and Jerome Goldstein from the Rodale Institute.
Financed	DFID (UK Department for International Development), ICCO (Inter-Church Organization for Development Cooperation, Netherlands), Irish Aid, NORAD (Norwegian Agency for Development Cooperation) and (SECO - Swiss State Secretariat for Economic Affairs).	Humanistisch Instituut voor, Ontwikkelingssamenwerking (Hivos), The Swedish Society for Nature Conservation-SSNC, The Schweisfurth Foundation, The Swedish International Development, Cooperation Agency (Sida), Novib-oxfam, The International Fund for Agricultural, Development (IFAD), Software AG – Foundation, The United Nations Development Program Office for, Project Services (UNOPS/UNDP), Gesellschaft für Technische Zusammenarbeit (GTZ), Misereor, Technical Center for Agricultural and Rural, Cooperation ACP-EU (CTA), Bread for the World, Lebensbaum, Rapunzel.
Mission	To connect disadvantaged producers and consumers, promote fairer trading conditions and empower producers to combat poverty, strengthen their position and take more control over their lives.	Organic Agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects.
Crops Covered	Bananas, Cocoa, Coffee, Cotton, Flowers, Sugar, Tea, Composite Products, Fresh Fruit, Gold, Honey, Juices, Rice, Spice and Herbs, Sports Ball and Wine.	Most of the agricultural products
Chain of Custody Requirements	Different standards for small producers, hired labor, traders and a climate standard (Gold Standard certification).	They have different requirement for each market player but it varies from one Certification Body to the other
Costs	Small farmers' organizations are eligible for a grant if they are applying for initial Fairtrade certification, but lack sufficient financial resources to pay the full certification fee. Application fee: 538 EUR + Annual fee (from 1500 EUR to 5000 EUR, depending on farm(s) size and number of workers). Traders: 538 EUR + Audits fees (from 400 EUR to 1300 EUR depending on the country where it is located)	Depends on the Certification Body
Main producer Countries in 2012 (SSI 2014)	Colombia (28%), Peru (16%) and Brazil (13%)	Peru (25%), Ethiopia (18%) and Mexico (18%)
Countries with local operations	El Salvador, South Africa, Ghana, Kenya. Marketing Offices: Brazil, Czech Republic, Hong Kong, India, Philippines, Kenya, Slovakia, South Korea, Taiwan. FLOCERT: Costa Rica, Bonn, South Africa and India.	
Frequency of audits	At least twice in a three-year certification cycle. In addition to the regular audits, FLOCERT conducts regular unannounced audits.	Depends on the certification body.

Auditing Process / Group Certifications	FLOCERT randomly selects a pre-defined minimum number of farms to be physically visited and workers to be interviewed. Following the physical audit, an audit report is sent to FLOCERT for evaluation and approval or to follow-up on any non-conformities identified during the audit.	Depends on the certification body.
Who makes the audits	Third party Company, FLOCERT.	
Partnerships	French Development agency (AFD), Comic Relief, Deutsche Entwicklungsgesellschaft (DEG), German Development Bank (KfW), European Commission (EC) , Brot für die Welt, Ethical Tea Partnership (ETP), Fundación Fortalecer, German International Development Cooperation (GIZ), German Initiative for Sustainable Cocoa (GISCO), Hivos, ICCO, Irish Aid / Solidaridad, Kaufland, Lidl Stiftung & Co. KG, SNV, SNV, Swiss State Secretariat for Economic Affairs (SECO), UK's Department for International Development (DFID).	Biofach, Hivos, FiBL (responsible for statistics), IOAS, Food and Agriculture Organization of the United Nations (FAO) and United Nations Conference on Trade and Development (UNCTAD).
Highlights	Access to Financing and Focus on premium prices.	Coffee is considered organic if it follows the production guideline of IFOAM but it can be certified organic by many region specific seals (for example European Union Organic Seal).
* Different requirements for different market players		
* IFOAM (International Federation of Organic Agriculture Movements)		
Source: Author's Personal File based of Certifiers' website		