MSc in Applied Economics and Finance, Master Thesis

THE ECONOMIC EFFECTS OF FAIRTRADE

A theoretical and analytical assessment of welfare consequences

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Hand-in date: August 30th, 2013

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Number of pages: 108

Number of characters: 261.269

Abstract

Fairtrade is a niche market within specialised coffee, but the movement has seen significant growth since the establishment of the Fairtrade Labelling Organisation in 1997. The initiative to improve conditions for small-scaled producers has various qualities but has also been the target for excessive critique from many academics, studying the effects of Fairtrade. This thesis investigates the effects of Fairtrade from an economic perspective, through an analytical and theoretical assessment. Despite Fairtrade being a highly debated phenomenon, existing literature is limited in respect to economic modelling on the effects and objective findings. It is therefore the aim of this paper to provide the reader with an objective, economic evaluation of the Fairtrade program, identifying positive aspects and possible shortcomings.

In order to become familiar with the environment in which Fairtrade operates, we investigate differences and similarities between the regular coffee market and the market for Fairtrade coffee. It is found that Fairtrade is seeking to account for certain market failures, such as instable coffee prices, unequal power distribution, and lack of access to markets, all compromising conditions for the marginalised producer.

In this paper, the economic effects are evaluated from a measure of changes in total welfare, but also the effect on reallocation of welfare to individual groups is analysed. Amongst main findings, Fairtrade is found to increase Fairtrade producer income. The gain to Fairtrade producers is, however, lower than the loss to regular producers and total welfare to producers is consequently affected adversely. Finally, considering the effect to consumers, there is found an overall welfare loss from Fairtrade. Analysing factor prices reveals a similar outcome, namely an increase in the rental rate to landowners, hereby also benefitting marginalised producers. As a result, workers are faced with unchanged wages and higher prices, lowering their budget constraint. It can be discussed if the poorest are farmers or workers in developing countries. In the latter case, Fairtrade is in fact worsening the conditions for the poorest, by excluding workers in the program, to some extent. Positive impacts of Fairtrade are identified as increased competition in the market, trough the requirement of cooperative membership, and argued spill over effects to the local society by means of technological advancements and educational improvements. Fairtrade is hereby benefitting the targeted, marginalised producer, but this comes with a cost to others.

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1. INTRODUCTION

Coffee is one of the largest commodities sold and exported, with continuing increase in demand. The price of coffee is known for its great volatility, which has meant the ruin for many small-scale coffee farmers sensitive to price fluctuations. The Fairtrade program aims at protecting these marginalised producers by organising farmers in cooperatives with the prospect of increased market power and better trade terms while guaranteeing a minimum price for their coffee produced. Consumers' awareness of issues in coffee production is growing and so is their willingness to pay higher prices for goods produced under fair conditions, a product of growing altruism in the developed world. Demand for Fairtrade certified coffee has increased notably in the last decades, strengthening the "Fairtrade" brand among consumers. The result is a market for fair trade coffee constituting approximately 1% of the coffee market today. This is a rather small fraction, but considering the absolute size of the coffee market, the significance of the Fairtrade program should not be neglected.

Fairtrade has received considerable amounts of criticism for creating artificially high prices, distorting market mechanisms of supply and demand equilibrium in a free market. The side effects have been identified as oversupply of coffee beans causing lowered market prices to conventional producers, along with eliminated incentives for improved efficiency in production and quality maintenance of coffee beans. However, many studies have found that the program is benefitting the targeted poor producers in rural areas, among others increasing their welfare through stable prices and improved credit options.

The motivation behind this thesis is to investigate the economic effects of Fairtrade. There has been an extensive debate in the academic literature, discussing several aspects of the program and its effect on welfare. However, economic modelling within the subject has only undergone a fairly limited examination. We therefore find it interesting to investigate the Fairtrade program in depth to be able to identify and analyse the economic effects and welfare consequences, to detect positive and negative tendencies of the program. The main focus of this paper will be on the producer, since Fairtrade aims at targeting the marginalised producer.

1.1 Problem statement

Analysing economic effects of the Fairtrade program, this thesis will explore and answer the following problem statement.

How does the current Fairtrade model affect economic welfare and how can a review of the economic implications for developing countries' coffee producers be incorporated in an evaluation of the Fairtrade program?

The above problem statement will be answered on the basis of the following research questions. The paper is structured with the aim of answering the questions in the stated order.

- How is the conventional coffee market structured and what are the market failures that motivated the existence of the Fairtrade movement?
- What are the effects of the increased Fairtrade price on market equilibrium?
- What are the effects of Fairtrade on factor prices?
- What is the effect from the increased Fairtrade price on labour supply?
- How is the presence of cooperatives in the market affecting market mechanisms and trade terms for producers?

Throughout the thesis small scale, poor and marginalised will be used interchangeably, when referring to the targeted Fairtrade producer.

1.2 Delimitations

As indicated in the introduction this thesis will analyse the Fairtrade coffee market, and will therefore not include analysis of any other Fairtrade certified products, such as cocoa or sugar. Even though the mentioned Fairtrade goods are all agricultural, the mechanisms on these markets vary. As coffee was the first product to be offered in the Fairtrade assortment, this is the product category in which there exist most data for analysis. This thesis is therefore restricted to an analysis of the coffee market, to derive the best possible in depth understanding of the market mechanisms and the effects of Fairtrade in an economic setting.

It is not in the scope of this paper to conduct a field study, due to time limitations and resources. The analyses of the subject Fairtrade will therefore be based upon secondary empirical data provided in literature, theoretical investigations and an evaluation of secondary literature as well as economic analysis. This paper is therefore restricted by access to several resources such as data availability and transparency of the Fairtrade program. Generally, Fairtrade International and other Fairtrade organisations publish very limited information and data, and websites are created to increase the overall knowledge of consumers, not analysts. This is a data limitation, which we have sought to work around in the best possible way. In chapter 9 we will identify which areas for analysis that could be relevant for further studies.

The main focus of this thesis is on the producer side, as Fairtrade targets individual producer welfare. The consumer effect will therefore only be considered when evaluating the effect on overall welfare. This study views the program from an economic perspective, and while other factors will be considered shortly, the economic view will be dominant. The paper is therefore delimited in the way that it does not aim to compare the effects from different perspectives, such as social and moral. The aim is to give an in depth economic evaluation of Fairtrade practices and consequences.

1.3 Structure

The thesis is structured in 9 chapters as follows. An introduction to the thesis is given in chapter one, setting up the foundation for the thesis by describing the problem statement for which our analysis is conducted upon. This is followed by a section with delimitations, working out a clear scope for analysis of the thesis. Chapter 2 will present a set of definitions to the reader, along with a description of fair trade organisations and a discussion of fairness and what is perceived to be fair in the scope of this thesis. Chapter 3 describes the methodology of the thesis, from research approach to the theoretical framework and data collection methods. It is defined how the thesis has been worked out, on what basis the research has been conducted, and how the analysis is performed.

In chapter 4 the literature on the subject of economic effects stemming from fair trade is analysed, increasing basic knowledge on the subject. The literature study is used to identify methods and results in earlier studies of fair trade. This is followed by a description and analysis of the regular coffee market in chapter 5. Fairtrade is motivated by changing unsatisfactory

mechanisms in the regular coffee market, and chapter 5 is therefore extended with a description of the Fairtrade coffee market. Chapter 5 is used to provide the reader with information for analysis, and is therefore to a large extent descriptive in character. This is followed by an analysis of the structure of the Fairtrade program in chapter 6.

In chapter 7 the effects of Fairtrade are analysed using economic modelling. A partial model is setup to see the effect from the increased Fairtrade price on supply and demand equilibrium. International trade theory is then presented, as the analysis is extended to an investigation of the effect on factor prices. This follows by modelling the Fairtrade influence on labour supply. To investigate the impact of the required organisational form of cooperatives, cooperative market presence in a buyers market is modelled to explore its implication on farmer welfare. Finally the analysis is brought to a macroeconomic level, as Fairtrade market mechanics are discussed, followed by a breakdown of Fairtrade into cost elements, investigating the cost from the program to the rest of the world. All mentioned parts are gathered in an evaluation of the Fairtrade program.

The thesis conclusion is presented in chapter 8, and in chapter 9 we outline our own suggestions for further research.

1.4 List of abbreviations

EFTA	European Fair Trade Association
FAOSTAT	Food and Agriculture Organization of the United Nations
FLO	Fairtrade International
FT	Fairtrade
ICA	International Coffee Agreement
ICO	International Coffee Organisation
IOF	Investor Owned Firm (Intermediary and middleman)
NEWS	Network of European Worldshops
WTO	World Trade Organisation

1.5 List of figures and tables

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2. DEFINITIONS

In this chapter a definition of fair trade, fair trade organisations and cooperatives is given, to provide the reader with a clear understanding of the concepts used. This is extended with a discussion of fairness and a clarification of what is perceived to be fair in the scope of this thesis. As Fairtrade is evaluated on the basis of its effect on economic welfare, a definition of economic welfare will likewise be presented.

2.1 What is fair trade?

The word fair trade calls for two very different measures. Fair trade can refer to countries using protectionist measures to avoid import of products produced in developing countries at prices which the developed country cannot compete with (Maseland & de Vaal, 2002). In this paper, fair trade refers to the consumer movement, where consumers in the developed world feel a moral obligation to pay a fair price, above the general market price, for goods produced in the third world under certain conditions. Fair trade, in this sense, is therefore not seeking to restrict trade of products produced cheaper in developing countries, but seeks to address the core issue of income consequences. As a definition of fair trade, the following definition applied by FINE will be used to define fair trade in this thesis.

"Fair Trade is a trading partnership, based on dialogue, transparency and respect, that seeks greater equity in international trade. It contributes to sustainable development by offering better trading conditions to, and securing the rights of, marginalized producers and workers – especially in the South. Fair Trade organisations (backed by consumers) are engaged actively in supporting producers, awareness raising and in campaigning for changes in the rules and practice of conventional international trade." (Fair Trade Advocacy Office, 2001)

Fairtrade can be spelled in various ways, in one word, separate words, with or without capital letters, often with different meanings. Literature used in the thesis is reliant on different sources of information on fair trade. However, as most information regarding the structure and information of fair trade programs is gathered from Fairtrade International, branding its products with the certified Fairtrade mark, and evaluating Fairtrade International to be one of the most dominant organisations within Fairtrade certified coffee, we will use the term "Fairtrade" throughout the rest of the chapters in the thesis. An exception of this is when

referring to organisations or sources. The drawback of writing Fairtrade in one word is in sections where it can be difficult to identify that the term is used as a description of the entire market. However we find it easier for the reader when one term is used consistently, and in sections where doubt can exist, we will identify whether there is referred to the entire market or just the market for the Fairtrade label. Due to the size of the Fairtrade label and associated organisations, we find the data used from this source representative for the entire market. Furthermore, when modelling the economic effect, conclusions are also seen to cover the entire market and not just the branding.

2.2 What is fairness?

The Fairtrade movement argues that what is efficient is not necessarily fair when judgement is based on equality. The Fairtrade opinion is that inequalities caused by systems or institutions which reward people differently on the basis of natural or social differences rather than effort, cannot be defended morally (Maseland & de Vaal, 2002). This raises the question, what is fairness, and how and by whom should fairness of activities be evaluated and judged upon? Is it fair to impose distortions to the market, if the result is bettering the terms for a small target group while the group left out is negatively affected? Is it fair if the net result is a total income gain, but the distortion of income does not favour all implicated parts?

Fairness can be interpreted in many different ways. In this study, Fairness is measured on the basis of welfare economics, focusing on changes in total welfare. Throughout the paper, the total welfare will therefore be taken into account, as well as the consequence of the reallocation of welfare among individual groups of actors. In the analysis we will therefore measure both the total welfare but also welfare gains or losses to producers and consumers, to see the effect of the redistribution. Finally the economic implication will be evaluated upon on the basis of income changes.

2.3 Cooperatives

The International Co-operative Alliance defines a co-operative as
"(…) an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise." (International Co-operative Alliance (ICA), 2011)

In 1995 the International Co-operative alliance adopted the following principles, for cooperatives around the world to follow.

Table 1 - Cooperative principles

	Cooperative principles
1	Voluntary and open membership
2	Democratic member control
3	Members economic participation
4	Autonomy and independence
5	Education, training and information
6	Cooperation among cooperatives
7	Concern for community

Source: (International Co-operative Alliance (ICA), 2011)

In this thesis there will be referred to both ordinary cooperatives as well as Fairtrade cooperatives. Referring to Fairtrade cooperatives, this will be clearly stated. Both types of cooperatives are believed to act according to cooperative principles (Fairtrade International, 2011). When mentioning Fairtrade cooperatives there is referred to Fairtrade producer cooperatives; an association of mostly small-scale producers united in a jointly owned and controlled enterprise. The cooperative buys production from member producers, transport, process and export it to the importing country. The cooperative hereby act as a competitor to the privately owned processor and intermediary. The cooperatives role is to secure stable prices, improved trade terms and fair conditions for small-scale farmers.

2.4 Organisations

The following is an introduction to the informal association, FINE, covering the four largest Fairtrade networks, and Fairtrade International, the most dominant Fairtrade network for agricultural products.

FINE

FINE is a Network consisting of the four main Fairtrade networks, Fairtrade Labelling Organization International (FLO), World Fair Trade Organization (WFTO), the global

representative body, Network of European Worldshops (NEWS) coordinating cooperation between worldshops and European Fair Trade Association (EFTA), an association of European importers and other Fairtrade networks/associations (Wielechowski & Roman, 2012). As FLO is the most dominant institution, this is the Fairtrade organisation from where most information regarding Fairtrade has been gathered. A more detailed description of the organisation is therefore provided below.

Fairtrade International

FLO is an umbrella organisation consisting of several agents supporting the program. The organisations consist of 25 members around the world, including 3 producer networks and 19 national Fairtrade organisations (Fairtrade International, 2013). The national Fairtrade organisations license companies to use the Fairtrade mark. Producer networks consist of certified producer groups and the associate members are Fairtrade Label South Africa and Comercio Justo México.

FLO's role is to 1) promote Fairtrade coffee in consumer markets, performed by national labelling initiatives, 2) identify and assist groups of small growers eligible for Fairtrade certification to become certified Fairtrade coffee producers and 3) guarantying the Fairtrade label integrity by constant verification of loyalty to the Fairtrade principles by everyone involved. Furthermore, the objective of the Fairtrade label is to make the producers visible by providing publicity of the Fairtrade cause in consuming countries thereby making an impact affecting the lives of these producers (International Trade Center, 2013).

3. METHODOLOGY

In this section the methodical assessments is presented, including the choice of research approach, the theoretical framework of the thesis, methods used in data collection, along with the empirical data background and theoretical considerations applied in the analysis.

3.1 Research approach

The research approach conducted in this paper has been separated into different stages along the work progress. The analysis is initiated by, in a descriptive manner, becoming familiar with the field in which Fairtrade is operating, i.e. the regular coffee market, production in developing countries, international trade of coffee beans and the structure of the Fairtrade program. This is done by working out an overview of relevant literature, identifying new insight into the field and locating relevant issues or obstacles to the subject of Fairtrade and its economic implications. Since the field of which the research question lies is not defined thoroughly with the Fairtrade program, this design is identified as advantageous. Next, the study has been extended with an economic analysis, analysing possible effects from the Fairtrade program as we seek to explain the workings of the market mechanisms as a result to Fairtrade. The focus in this paper is theoretical based, and the subjects identified for analysis are therefore built upon secondary literature on the subject, combined with our own economic models, to explain the effects of the Fairtrade program. The research method applied in the project is of deductive character, as we explore the literature and existing theories and use it as a foundation for analysis and development of models. This way we are able to locate relevant issues or obstacles for analysis.

The theoretical approach is chosen due to the fact that the subject of Fairtrade has been thoroughly discussed, but economic models on the subject are limited. Furthermore the aim is to present a critical analysis of the subject, to evaluate on the consequences from regulating the market. It has been chosen to investigate the overall picture and therefore enhance the reader with a broader understanding of the program and knowledge of the different consequences from Fairtrade, both negative and positive, in an economic setting. This is done by explanatory research. We apply a positivistic view when assessing the subject, as we act as independent observers when analysing. Analyses and evaluation of the subject is based on observable phenomena, and our acknowledgement is based on empirics and science within the field. We hereby add no personal value to the analysis, meaning that choices are determined not on

interests or believes, but on objective criteria (Fuglsang & Bitsch Olsen, 2004). Viewing the world this way, we use quantitative data to evaluate the Fairtrade program.

3.2 Theoretical framework

The analysis is based on neo-classical theory and compares the derived predictions with available official empirics together with theoretical and also empirical literature. The models presented are therefore reliant on a set of assumptions. The main assumptions are rational preferences, utility maximising individuals and profit maximising firms and all players acting on the basis of full and relevant information (E. Weintraub, 2002). The first assumption is based on the fact that individuals are perceived to act rational, while the second assumption assumes that the individual always seek maximum utility. The third assumption assumes full information, with no information asymmetries being present. These assumptions present a very simplified world and can therefore be argued to be far from reality. One main point of criticism is the assumption of perfect information. Farmers are not aware of external chocks to the market, affecting demand for coffee, such as changes in tax rates, money supply or governmental spending, and production is therefore not adjusted accordingly. According to (Akiyama, 2001), the coffee market has several microeconomic failures. These consist of lack of information, lack of access to financial markets, non-competitive markets and weak legal systems just to name a few. Applying the models based on neo-classical theory, however allows us to analyse on the effects in an isolated setting, from where it can later be discussed if a deviation from the assumptions will affect the conclusion or the validity of the result.

In the thesis, theory is presented throughout the paper, as this is suitable in relation to the method of explanatory research. The benefit and aim of this approach is that theory is presented in a relevant context, resulting in a better flow. This choice however, disables the reader to gather a broad view of theory used before becoming familiar with the subject of the thesis. It is our judgement though, that a presentation of theory along the way enables the reader to create a better relation between relevant theory and analysis applied in each section. The theory used is mainly within microeconomics, international trade theory and welfare economics with implications from macroeconomics. These areas of interest are chosen to evaluate the Fairtrade program from an objective, economic perspective. To evaluate the program, also social factors are included to a limited extent, but these are only included for discussion and the value of these indistinct areas is not determined numerically.

3.3 Data collection

Data used in the thesis is gathered from others empirical assessments of the subject, and is therefore of secondary nature. Optimally this would be matched with a self-selected primary dataset, to test the theories, but it is outside the scope of this paper to conduct this kind of empirical research. Data is therefore mainly collected from websites of various organisations, publishing data online, along with information gathered through personal contact with the Fairtrade office in Denmark. When measures are needed for further analysis, results gathered from research papers are used as yet another source of information, and economic literature in the form of books is used to clarify and develop topics for analysis. Searching for scientific papers within the topic, the search engine at Copenhagen Business School's Library portal has been used, with access to a large variety of scientific research papers, books databases etc. Also Google scholar has been applied in the process. One has to be careful using others conclusions and we therefore evaluate the assumptions and the method of which the results have been generated with care. We are aware of the fact that many of our sources might be biased and as a consequence we retain a critical view of these throughout the paper.

To present the coffee market, data on coffee sales are collected from FAOSTAT. The numbers are available at a country level and in time series data. The data is presented for the largest players in the regular coffee market and aggregated in regions. Presenting the data this way provides a greater overview of the distribution of power in the coffee market and the changes in this. Another main data source is the International Coffee Organisation publishing indicator prices for coffee in the period 1990 to 2004. The data is used to analyse the development in the price of coffee used for volatility analysis. Fairtrade International is yet another main data source, in mapping of the Fairtrade program, its structure and regulations. Unfortunately Fairtrade International does not publish much official data regarding sales of Fairtrade coffee, and it has not been possible to collect from their Danish Office or their International office in Bonn. This can either be due to the lack of data or the reason can be that the organisation is not interested in sharing these data with the public.

4. LITERATURE REVIEW

In this section the existing literature on the subject Fairtrade will be evaluated to build a greater knowledge of the prospects and limitations associated with Fairtrade. We will especially investigate the literature focusing on welfare effects of the program, and the economic implications for attending parties, to gain an understanding of the literature related to the problem statement. The review is organised in accordance with the structure of the thesis, providing the reader with a broad introduction and knowledge of the relevant areas presented and analysed upon.

According to (Baumann, Oschinski, & Stähler, 2012), the research field on Fairtrade is very limited and the existing work is often dominated by narrow views, prejudices and emotionalised arguments. The consequence can be non-objective and imprecise analysis' that doesn't contribute to the literature. (Richardson & Stähler, 2007) support this view, claiming that existing literature on Fairtrade is highly non-analytical. This paper seeks to add to the analytical literature on Fairtrade, investigating the field of Fairtrade from a predominantly analytical and theoretical view. The purpose of our work is therefore to give a holistic view on the economic effects of Fairtrade. It is therefore essential to be aware, that arguments and analytics in this paper are sought to be unbiased.

The most relevant contributions are presented beneath, organised as follows. Firstly previous work and discussion regarding the market for Fairtrade, especially demand, is presented. Next we review the Fairtrade program to investigate the critical views present in the literature. Lastly the literature regarding the subparts in the analysis is explored, introducing the field of analysis. This part will focus on the welfare aspect of the Fairtrade program in accordance with the problem statement. Throughout the literature review, possible shortcomings will be identified and connected to the relevant sections in the paper.

4.1 The market for Fairtrade

It is central to discuss whether there is a market for Fairtrade isolating the Fairtrade product from the regular coffee product. (Loureiro & Lotade, 2005) conduct a face-to-face survey to investigate consumer preferences for ethical programs in coffee. They do so by measuring consumers' willingness to pay for different ethical coffee products, compared to regular coffee.

The study concludes that consumers' willingness to pay depends positively on educational level, income and gender (higher for females) and environment, while it depends negatively on age and welfare. This can explain why almost all Fairtrade production is being exported to developed countries where welfare, educational level and income on average are greater. The study also finds that willingness to pay by consumers is highest for Fairtrade coffee, then shade grown coffee and lastly organic coffee, measured in premiums above original price. From this investigation, there is an indication of an existing demand for Fairtrade coffee and a willingness to pay an extra premium for this product. This indicates that the consumer must differentiate between regular coffee and Fairtrade coffee, otherwise he would not be willing to pay an extra premium. As an objection to the survey method used to measure willingness to pay, (Hainmueller, Hiscox, & Sequeira, 2011) refers to the lack of accountability in the survey method, as it gathers no real evidence of the consumer actually spending its own money on investing in ethical labelling programs. (Hainmueller, Hiscox, & Sequeira, 2011) report evidence of consumer demand for Fairtrade labelled products, conducting an experiment in 26 US stores of a major US grocery store chain, finding that simply displaying the Fairtrade label resulted in approx. 10% sales increase. This study therefore also suggests a demand for Fairtrade coffee. This view is supported by (De Pelsmacker, Driesen, & Rayp, 2005), who work around the attitude-behaviour Gap with an experiment conducted in a close-to-reality setting. They find that 10% are willing to pay the current Fairtrade premium. Furthermore morality is found to create utility for consumers. According to classical economic theory the consumer maximises utility based on physical factors, such as income and expenses for goods and shelter. (Kadow, 2011) investigates the effects of Fairtrade using an extended Ricardian model, and finds that consumers do assign value to non-physical goods, for example morality. One of the findings is that Fairtrade is the result of altruism and a rational product of altruistic utility-maximising households.

According to the above review of the literature, there exist a demand for Fairtrade coffee. This indicates that the consumer differentiates between regular coffee and Fairtrade coffee, as the consumer is willing to pay an extra premium. On the basis of this, the analysis in the thesis is based on the fact that there exists a Fairtrade market distinct from the regular coffee market.

Another relevant question regarding demand for Fairtrade is the appearance of the demand curve. This is dependent on the price elasticity of demand and is important to consider since it decides the magnitude of the welfare effect of Fairtrade. The elasticity is measured in a study by (Hainmueller, Hiscox, & Sequeira, 2011), who finds evidence of coffee buyers being sorted into

different types with heterogeneous preferences over different product attributes. In their field experiment, consumers buying the lower priced coffee appear to be price sensitive and not willing to pay a 9% Fairtrade premium. Consumers buying the higher priced coffee show to be less price sensitive when the coffee is labelled Fairtrade, and these consumers are willing to pay an 8% premium for Fairtrade labelled coffee. Overall there is found to be inelastic demand- and supply elasticities for coffee by the authors (Akiyama & N. Varangis, 1990), (Webb & Hall, 2009) and (Bettendorf & Verboven, 2000). These results will be taken into account in consideration of the appearance of the demand curve and incorporated in illustrations of supply and demand, to reach a more realistic conclusion of the effect of Fairtrade.

4.2 The structure of the Fairtrade program

In section 6 the Fairtrade program will be analysed. There have been much critique of the way the program is organised and only few supporting evaluations. One supporting view is that of (Craxton & Rathke, 2011). According to them a positive effect of Fairtrade is that the minimum price can help small producers survive recessions. Since the introduction of Fairtrade there has been evidence of a lot fewer deaths among small farmers, indicating that the program in fact is protecting marginalised producers, who is especially vulnerable to shocks in the market or exterior shocks caused by weather conditions. However this argument has also been reasoned to have negative effects since it may be inefficient to keep these productions running. The question is if the failure of small farmers is due to inefficiency or too high-risk exposure caused by lack of capital. If the latter is the case, it might be efficient to keep the small producer in production. If on the other hand the producer is inefficient it can be argued to be a disadvantage, from an economic point of view, to artificially keep this farmer in production. This is central to consider in the evaluation of the program since it questions the core purpose of Fairtrade.

There has been a lot of debate regarding the quality of the Fairtrade produced coffee or the lack of it. This can be debated to cause a moral hazard issue when the producer knows that the quality is not checked per individual producer, which creates the possibility of the producer to rely on others work. As indicated by (Richardson & Stähler, 2007), the coffee beans produced for Fairtrade are being collected by the cooperative and mixed with production from all members. This creates incentives to deliver low quality coffee to the cooperative and sell the high quality coffee in the regular market instead. (Henderson, 2008) also mentions this issue. According to him, the structure of the program generates an incentive for farmers to free ride on

other farmers' efforts, which will result in producers providing a lower quality. He argues that a better alternative to Fairtrade would be to eliminate trade barriers, in the form of tariffs and import quotas restricting trade, due to the fact that barriers drive down the price received by producers and at the same time increases the price consumers pay.
In another study (Haight, 2011) explains that Fairtrade coffee can come in any quality, but is considered to be a part of the speciality coffee market. This qualification is therefore not due to the quality of the coffee it self, but special production and pricing structure. It is paradoxical however that these factors, special production and pricing structure, are the creators of the quality issue. (Henderson, 2008) is very excessive in the statement about this issue. According to him, paying a higher price for a product with the same or a lower quality is counter-productive and unfair. Contrary it can be argued that the relevant concern is not that the coffee sold as Fairtrade is of lower quality. What is relevant is that the higher price paid by the consumer is intended for improved production facilities, proving that morality is closely attached to quality for the morally obligated consumer. (Richardson & Stähler, 2007) refer to this as the "warm glow" effect, meaning that consumers derive a utility from knowing that they are buying a product that delivers more. The problem arises, if the product is promoted and advertised as a high quality coffee. Then the label is selling something else than promised. The quality debate will not be incorporated in our economic modelling of the effects of Fairtrade, but will be considered an important factor in evaluating the program.

Besides this issue, (Henderson, 2008) criticises the program for the lack of requirements on employment standards in the written Fairtrade standards. (Smith, 2009) on the other hand confront this argument by arguing that in fact, the sections covering labour conditions are some of the most detailed, as they are based on conventions of the International Labour Organisation. These opposite perceptions of the FLO Fairtrade standards could indicate that the standards lack transparency. This is a small but main issue with the Fairtrade program.

Most of the official knowledge regarding the program appears to be targeting consumers seeking greater knowledge of the program instead of interested producers or analysts. This creates the idea that Fairtrade does not find it in their best interest to publish relevant data to be able to analyse the program in depth, or the data is simply not available. Either way this does not help convincing the interested reader of the fact that Fairtrade has a proven positive effect.
In line with this (Haight, 2011) points out that the Fairtrade label is not selling what it is promising. According to Haight (2011), retailors explain that neither FLO nor Fair Trade USA

have sufficient data to claim that Fairtrade has an economic positive effect on growers, while claiming that they use a market-based approach that empowers farmers.

(Mann, 2008) also addresses a misleading fact in the program, namely the possibility of becoming certified. He claims that organisations deal with market surpluses by establishing barriers, and it is close to impossible for a new producer organisation to be registered by FLO. To be registered as a new producer organisation, additional demand in the market has to be identified, for example through a new importer. And importers create yet another barrier as they control the selection process of suppliers. This view is supported by (Utting-Chamorro, 2005), who acknowledge, from a field study in Nicaragua, that the capacity of producer organisations to broaden its membership base is determined by demand in the North, and more specifically demand in the US. (Valkila & Nygren, 2010) conduct a field study in rural Nicaragua and find evidence of great differences in the amount of coffee production that can be sold as Fairtrade, by each cooperative. Some cooperatives sell almost all of production as Fairtrade, while other cooperatives might only sell approx. 30% as Fairtrade. Cooperatives entering Fairtrade therefore complaints that the system is not fair, and that early entrants control the market. Limitations of the Fairtrade program, when certifying new members, are discussed in the analysis regarding the presence of cooperatives in the market. We argue that Fairtrade cooperatives' standards and fees might limit access to cooperatives, and investigate the effect from this as well as the effect of the open cooperative interacting in the market. The analysis is motivated by Milford (2004) who analyses the effect of profit maximizing, income maximizing and output maximising cooperatives. This paper contributes by applying a more realistic setting, arguing that cooperatives cannot fully control output or membership access.

(Stoddart, 2011) writes that if the aim of developing the poorest societies through trade is unsuccessful, Fairtrade is misleading consumers and is directing funds away from other charity. In this setting, Fairtrade can be viewed as a cost to the poorest producers, assuming that charity will reach the poor producers more effectively. This argument is supported by (Craxton & Rathke, 2011) who also state Fairtrade to be harmful because it distracts from higher-impact initiatives to help the marginalised producer. According to them, the most effective way to aid is to increase the amount of cash in the farmers' pockets. (Yanchus & De Vanssay, 2003) and (LeClair, 2002) shows with a simple model that Fairtrade, associated with a subsidy, is inferior to providing a direct payment to producers, as the cost of Fairtrade is higher than the cost associated with a direct transfer. The model of Yanchus and De Vanssay is replicated and

discussed in the analysis, moving the focus of effects from the small-scale producers to the rest of the world.

To avoid divergences from the Fairtrade standard of producers, inspections are conducted yearly. (Craxton & Rathke, 2011) point to the fact that the inspections are preannounced though, giving the cooperative and the farmers an opportunity to prepare for the inspection, which in terms result in decreasing probability of detecting flaws.

The program is structured such that cooperatives receives the Fairtrade premium and it is decided democratically how the premium should be spend. According to (Henderson, 2008) some of the premium must be transferred to farmers to create incentives to join the cooperative. The excess premium can be used on common facilities, for example improving production facilities or the local society. The democratic decision making in cooperatives can however also be imagined to have negative outcomes. For example a plausible postulation could be that poor farmers maximise utility on a short run basis instead of maximising in a long run aspect. The result is an inefficient optimisation of resources that might be improved if decisions were made in cooperation with process developers or another educated force. Overall there are many studies discussing the different limitations of the structure of the Fairtrade program. As mentioned the program will be presented in section 6 and be evaluated together with a critical analysis of own considerations and the studies presented.

To sum up, the structure of the Fairtrade program implies several consequences, both positive and negative. On the positive side it helps small producers survive recessions, whom due to lack of capital normally would not survive shocks to the market. On the negative side it might keep inefficient producers in business with the subsidy. A quality problem has been identified, with the minimum price creating an incentive for producers to free ride instead of improving quality. Further, several authors have questioned the intended positive effects from Fairtrade, complaining that data transparency and real prove of effects is lacking. Certification is found to be demand driven, and hard to obtain, as barriers ensures market surpluses by restricting output. Further the cost of Fairtrade is found to exceed the cost of a direct transfer of aid. If Fairtrade does not reach its goal, money could be spent better in other charity programs, and Fairtrade might come with a cost to the poorest producers. However, spill over effects might cause production enhancements to the society, as well as improving infrastructure and educational systems.

4.3 The effects of Fairtrade

A common criticism of Fairtrade is that the mechanism results in oversupply. According to (Mann, 2008), the perception of the Fairtrade coffee market can be twofold. Either Fairtrade coffee deviates from market equilibrium, which is based on the assumption of one market equilibrium, or Fairtrade coffee is perceived as a different product to conventionally produced coffee, in terms of moral attributes, resulting in each product having its own market equilibrium. The first mentioned, causes excess supply in the market. (Craxton & Rathke, 2011) agrees with the problem of oversupply in their study on Fairtrade. According to the two authors, Fairtrade generates soft budget constraints and incentives to produce beyond the market equilibrium. In a perfectly competitive market absent from Fairtrade, coffee production is determined by supply and demand. Introducing Fairtrade however ensures a minimum price for the coffee beans sold as Fairtrade coffee, which gives incentives to produce more due to the increased price. However producers of Fairtrade coffee are not guarantied any quantity sold, so even if prices are high enough to create incentives for oversupply, the producer has to ensure that there is a buyer for the coffee produced. This places a natural limit on Fairtrade coffee produced. In the thesis the potential market distortions caused by Fairtrade will be evaluated upon. This is done by an analysis of the welfare effects in the case of Fairtrade being limited to an extend where it shows no effect on market equilibrium followed by an analysis of the case where Fairtrade is large enough to distort prices and equilibrium output.

(Kadow, 2011) conduct an analysis of the economic effects of Fairtrade by extending the Ricardian trade model in a general equilibrium setting. There is found to be positive welfare effects of Fairtrade but these are costly to other sectors. Overall the aggregated effect looking at the world economy is found to be positive, but it results in inequalities in the developing country in the south. The result is reliant on Fairtrade staying as a niche movement, as Fairtrade is demand driven. The paper suggests incentives for the Fairtrade program to stay as a niche, to justify price differentials. This constitutes the main paradox of the Fairtrade movement. For the program to be beneficial it must limit the migration of farmers into Fairtrade production or the outcome would be lowered prices due to increased supply or overproduction relative to demand. The exclusion of members is therefore seen necessary to obtain profits, but at the same time it causes inequalities. This thesis contributes to this view, with a partial analysis solving for the Fairtrade price and the Fairtrade market size effect on welfare, i.e. a research is conducted to explain the welfare effect stemming from a change in the Fairtrade price and market size.

An important factor of consideration is changes in the price level, considered by many studies. (Potts, 2007) argue that the attractive conditions for Fairtrade producers causes an oversupply, leading to a reduced market price. Several critics support this view, such as (LeClair, 2002) and (Sidwell, 2008). (Nicholls & Opal, 2005) on the other hand argues that the relative small Fairtrade market share of 1%, results in Fairtrade having no impact on the general spot price, as 99% of world trade operates under free market principles. (EFTA, 2001) argues for the rather small market share of Fairtrade, but finds evidence of the snowball effect on prices in the general production. He argues that the purchase of products by alternative trade organizations reduces left over supply to the middleman, forcing the middleman to pay a higher price to obtain sufficient quantities. Bowen therefore argues that Fairtrade allowing member producers to sell at better prices benefit conventional producers as well. (Chambolle & Poret, 2009) model the snowball effect to find evidence of its existence. This is supported by (Novkovic, 2008) who also finds that the existence of Fairtrade improves the conditions for producers in this market, referred to as the competitive yard stick effect, raising their bargaining power and prices. (Kadow, 2011) points out the consequence of setting the Fairtrade premium too high. He argues that prices has to be flexible downward, otherwise Fairtrade demand will be lowered, harming the most marginalized Fairtrade producers. There exist diverse opinions on the Fairtrade price effect on conventional producer welfare in the literature, and we therefore find it relevant to further explore this area. In this thesis we therefore seek to provide an answer to the effect of the increased price, by investigating the Fairtrade price effect on producer welfare in two different models. The effect is assessed in a partial analysis of market equilibrium, but also with a 3-factor model investigating the increased Fairtrade price effect on factor prices, see section 7.1.2.

Establishment by producers in cooperatives is a required part of the Fairtrade program, and we therefore find it relevant to study the changes in the market, when farmers are organised through these cooperatives instead of acting as individual players in the market. The effect of cooperatives has also been greatly discussed in the existing literature. (Hayes, 2006) finds evidence that Fairtrade can offset monopsonistic[1] behaviour in the market producers are selling to, increasing the competition and therefore better conditions of the marginalised producers. This is due to the increased market power of small farmers when organised in cooperatives.
(Tedeschi & Carlson, 2011) study the effect of Fairtrade regarding the presence of cooperatives by comparing three states under analysis, namely perfect competition, inefficient credit markets

[1] Monopsonist market conditions describe a market with one buyer and many sellers. This condition results in the buyer being able to exploit its market power.

in the absence of Fairtrade and inefficient credit markets with the possibility of Fairtrade. They argue that previous models fail to sufficiently characterise the effects of Fairtrade because of two overlooked and very important factors. Firstly there is more to Fairtrade than a minimum price, and secondly the commodity markets in developing countries are usually not perfectly competitive, as assumed by many academics. The model used is a short run partial equilibrium model, based on the assumption that the farmer is too small to affect market prices for coffee, credit or labour. They find that the Fairtrade movement does not improve the level of competition in the market, but it does change the distribution of welfare gains from the middleman to the farmer. The non-competitive equilibrium is found to be the most inefficient outcome due to monopsonistic conditions were the middleman exercises his power by collecting very high rents. The non-competitive equilibrium in absence of Fairtrade compared to the equilibrium with the Fairtrade possibility does not show significant differences in efficiency. However, farmers use labour markets more intensively with Fairtrade than with the non-competitive model and the profits of farmers are higher. Even though the model including Fairtrade is superior to the non-competitive regime, it is still a second-best equilibrium compared to perfect competition. The analysis provides evidence of the fact that Fairtrade can be used as a tool to distribute a larger share of profit created by Fairtrade to the producer, offering a substitute to the middleman in the supply chain. In section 7.1.1, this effect on farmers is analysed in our own partial equilibrium model. Furthermore, the discussion of power distributions between farmers and middlemen is analysed in an alternative model evaluating the effects with and without cooperative presence.

Generally studies agree that the existence of cooperatives have positive effects, because they increase the bargaining power of marginalised producers among others. (Richardson & Stähler, 2007) state that this also comes with a cost, namely the vertical integration of the Fairtrade firm from the producer to the consumer. This is due to the fact that Fairtrade firms produce the final output exclusively with the input of producers with which it has assigned an exclusive contract. This is relevant to consider when evaluating the effects of the program.

In the long run there can be argued to be a number of positive effects from the Fairtrade movement. One of these is the possibility of Fairtrade being productivity enhancing, because of spill over effects improving the technology and capacity building mechanisms between Fairtrade cooperatives and Fairtrade importers. This is claimed in an article by (Kadow, 2011). However he also emphasises that there has been no robust empirical evidence of the validity of this claim, it is still just a theory. The model captures the trade-off faced by consumers, consisting of the willingness to support ethical working conditions on one hand and the reduced budget

constraint on the other. The issue is therefore to find the optimal wage mark-up, i.e. Fair-trade premium that optimises the wage level. The analyses conclude that Fairtrade may only be sustainable as a niche movement. (Bacon, Ernesto Mendez, Gómez, Stuart, & Flores, 2008) investigate 177 households in Nicaragua in a period of more than 6 years and find several positive spill over effects from Fairtrade. The found effects are positive impacts on education, infrastructure, investment and monetary savings. Besides this, (Haight, 2011) argues that the Fairtrade program holds a lot of credit in increasing the awareness of American consumers toward the economic state of poor coffee growers. Besides creating greater awareness among the American consumers, (Haight, 2011) argues that the program has created greater awareness amongst all coffee drinkers. A proof of this claim is the exponential growth in the sales of Fairtrade products over the last decade.

To sum up, the Fairtrade price is argued to distort equilibrium and cause oversupply, sold in the conventional market. Positive economic effects are found for the implicated parts, but this comes with a cost to the rest of the world. Others argue that Fairtrade improve conditions for non Fairtrade producers as well, as increased competition in the market that producers are selling to, forces the middleman to pay higher prices to non Fairtrade producers. Lastly it is argued that the Fairtrade market share is too small to impose a significant effect to the market.

5. THE MARKET FOR COFFEE

In this section the market for coffee is presented, as the structure of the regular coffee market and Fairtrade coffee market is outlined, describing the market mechanisms of the two markets. In section 5.1 a description and analysis of the regular coffee market is provided, while section 5.2 extends the analysis to include the Fairtrade market for coffee. Fairtrade coffee can be seen as a niche differentiation of regular coffee and the regular market is therefore investigated to identify similarities and differences between the regular coffee market and the market for Fairtrade coffee.

5.1 The regular coffee market

This section is presented with a historical development of the coffee market. The coffee market is a highly volatile market, but to understand the mechanism and its evolvement, it is necessary to take a closer look at the evolvement of the market. Special attention is paid to the coffee crisis caused by the break down of the International Coffee Agreement in 1989. This caused the market to change from a somehow stable and regulated market, into a volatile market making producers sensitive to price changes. Fairtrade seeks to create a more stable market as a consequence. Section 5.1.2 defines production methods and included production technology, a relevant factor when considering efficiency in coffee production and possible room for improvements. The market structure of the conventional coffee market is presented in section 5.1.3 to gain an understanding of the characteristics defining the market, which is used for analysis of the Fairtrade effect on the market later on. This knowledge is extended with an investigation of supply and demand in section 5.1.4, to understand the impact of a price change on producers and consumers.

5.1.1 Historical development

Evidence of coffee cherry consumption dates back to the 15th century, and in 1668 coffee was served as a drink for the first time in North America. The spread of the coffee plant began in 1718, where it was brought to central and South America, to be followed by plantations in French Guyana, Brazil and Jamaica. Today coffee plantations exist in the coffee belt, covering most of the countries surrounding equator. The coffee market is a well-established market today, as it has undergone development for several centuries. As of today coffee is one of the

most valuable primary products in world trade, and it takes up an important space in the world economy, as the coffee sector employs hundreds of millions of people worldwide. In many developing countries coffee is fundamental in economies and politics, as coffee exports constitute more than 50 per cent of foreign exchange earnings in many of the least developed countries (International Coffee Organisation, 2013c).

The International Coffee Agreement (ICA) was founded in 1962 to establish and monitor an export quota system; with the main objective to increase and stabilize prices through export quotas. As inelastic supply and demand was causing large changes to the coffee price, constituting an income source for a large share of world population, stabilization to the highly volatile market was well met by producers and consumers. The largest coffee producing and consuming countries signed the agreement. The agreement was set up so that export quotas were tightened if international coffee prices fell below 1.20 USD/lb. and loosened if the prices rose above 1.40 USD/lb., to stabilise the economies (Igami, 2012). To administer the export quota system, ICA issued a certificate of origin and used this for monitoring through public reporting by ICO. To maintain the cartel, several punishments were enforced if members were to deviate from the agreement. These consisted of penalties for excess shipment as an example. In the case of such an excess shipment, deductions of the shipment were imposed on the following years quota. Excess in the second year increased the punishment to double deductions in the next year. If shipments were excessed a third year, the member would loose voting rights and generate the possibility of exclusion from ICO (Igami, 2012). The agreement, however, was difficult to control as some member countries began to distribute their exports at lower prices through non-member countries. Even though the goal of ICA was to increase coffee prices by restricting production, continuous overproduction of countries outside the ICA was caused by the artificially higher price. Oversupply pushing the price down, along with signs of the price not following inflation, was causing depressed prices to producers. The price was kept low by taxation to restrict supply, and governments, bureaucrats and exporters gained from taxation quotas in contrary to producers (Lindsey, 2004). The ICA collapsed in 1989 mainly due to the fact that members were disagreeing on how to control exports to non-members and distribute coffee quotas (Russell, Mohan, & Banerjee, 2012). The collapse led to a global coffee crisis where producers, who had been forced to limit production before, started expanding production. The result was a world supply reaching beyond world demand, causing decreasing international coffee prices (Ponte, 2002). After the collapse in the early 1990's, many coffee-producing countries began reforming the coffee subsectors. This liberalization was a part of a broader macroeconomic reform and was primarily a result of the collapse of the ICA quota system, due to

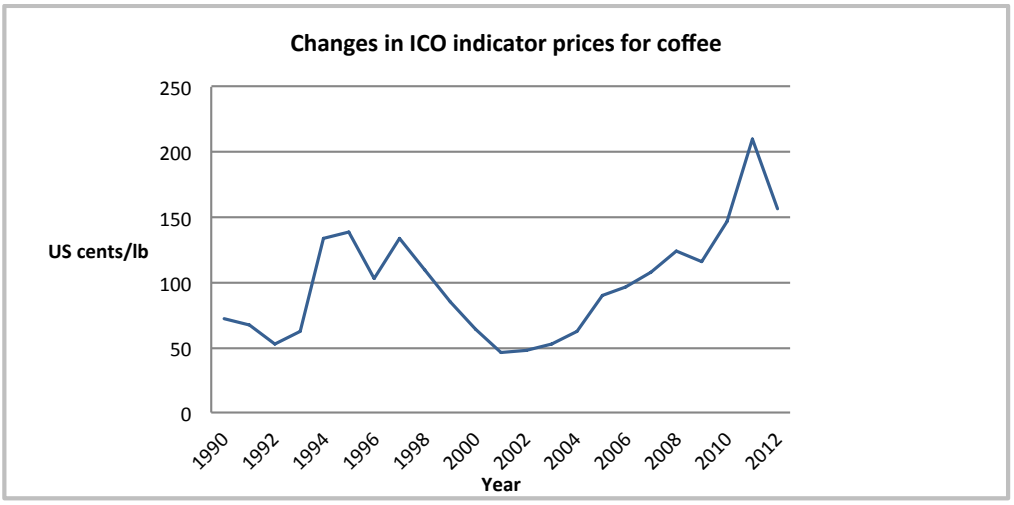
the sharp fall in coffee prices. The severe decrease in prices caused fiscal problems and governments were forced to seek financial aid at international institutions and supporting countries. In trade for the assistance, market reforms were required.

According to (Akiyama, 2001) the liberalization of the coffee market had several positive effects. These effects included increased private sector investment and increased collaboration between the government and the private sector. There is evidence that the liberalisation affected prices positively. According to (Russell, Mohan, & Banerjee, 2012) the insufficient inflation of coffee prices under the ICA compared to world inflation in prices, resulted in increasing market prices after the collapse of ICA. Producers were found to be overall better off after the liberalisation, because of higher real prices, higher production and a higher share of the terminal price of coffee (Russell, Mohan, & Banerjee, 2012).

New challenges arose from the market liberalisation, including price uncertainty and reduced access to credit (Akiyama, 2001). Producer organisations were not able to substitute for institutions regulating the market during ICA, resulting in local exporters facing troubles finding funds to compete with international traders. This has caused local exporters to ally with international traders, with examples of backward vertical integration up to initial producers. During ICA power was distributed between producers and consumers. A reaction to the breakdown was a redistribution of power to the buyer, with transnational companies exercising their buying power (Ponte, 2002). Volatile prices also resulted in several small and mid size trading companies either merging or being taken over by major trading companies, resulting in large traders controlling the market. Similarly the roasting market became even more concentrated (Ponte, 2002). A key feature of the regular coffee market after the liberalisation is the fluctuating prices exposing producers to a great amount of risk. These price fluctuations are partly due to the fact that coffee is a primary commodity. As a result of the break down and a more liberalized coffee sector, coffee trade has become more competitive and mostly subject to market forces. Figure 1 illustrates the evolvement in ICO composite indicator prices[2] of coffee from 1990-2012.

[2] The ICO composite indicator price, a historical series which can be extended back to 1947, provides an overall benchmark for the price of green coffee of all major origins and type, considered to be the best available measure of levels of green coffee transactions on a global basis. (ICO)

Figure 1 – Changes in ICO indicator prices for coffee



Source: Own contribution from ICO prices

Price volatility has increased through coffee crises in both 1989 and 2001, caused partly by overproduction forcing prices to a low. Incidents affecting production, such as frost and droughts caused peaks in prices in some years.

It has been argued that liberalization of coffee trade has benefitted the producer by increasing the producer's share of the export price. On the other hand it is also argued that increased price volatility has been one of the reactions to a more efficient and liberalized coffee market, exposing the producer to a greater price risk (Gemech & Struthers, 2007). The econometric study of Ethiopian coffee prices in the period 1982-2011 by (Gemech & Struthers, 2007) finds significant evidence of the fact that market reforms embarked in 1992, liberalizing the Ethiopian coffee market, increased price risk for producers. Also ICO finds evidence of increasing price volatility in the composite indicator price since 1989 (International Coffee Organisation, 2005).

5.1.2 Coffee production

The process of producing coffee includes several steps, from the farmer picking the cherries to drying the coffee and processing it. Technology allows for some efficiency in coffee production, but for farmers picking the cherries, the use of machinery is scarce. The best quality coffee is obtained from hand picking, where ripe cherries can be selected. This is a time consuming and labour intensive harvesting method, and it is therefore replaced by stripping, when coffee prices are low, to cover expenses. By stripping there can be harvested three to four times more a day.

Mechanical harvesting can be carried out with the use of either hand held machines or large wheeled mechanical harvesters. This technologically advanced harvesting allows for even faster cherry picking. Machines cannot be used in areas with ripe cherries, or areas where trees carry flowers or pinheads at the same time though (International Trade Center, 2013). The use of machinery in cherry picking is therefore limited.

When processing coffee, the green bean found inside the cherry has to be separated from the skin and pulp. This can be done by the "wet method", where the cherry is pulped, fermented and washed, dried peeled and polished, or by the "dry method" where the cherry is dried and dulled. The result is a green been ready for roasting. The quality of the coffee is dependent on correct harvesting, processing and drying, and requires great training of people handling these steps of production. Mechanical drying can cause colour changes to the bean, down grading the quality. Mechanical drying can either be a result of unreliable weather or too big quantities of cherries. This reveals a capacity constraint to the producer, as too large volumes might lower the quality due to the need of mechanical drying.

Overall production allows for little use of machinery or long term investments, but abundant use of labour for harvesting, planting of trees etc. This means that production technologies of small scale farmers, cannot necessarily reach much advancement as their picking technology do not differ much in efficiency from large scale farmers, also found in empirical studies. (Binam, Sylla, Diarra, & Nyambi, 2003) conduct an analysis of the technical efficiency of 81 peasant farmers in the low-income region of Côte d'Ivoire. They find that the average level of efficiency equal 36 or 47 per cent depending on the chosen measure. The numbers indicate that substantial gains in output and lower costs can be achieved with the existing technology, revealing that the production could become significantly more efficient without requiring additional inputs or new technologies. Furthermore they find that there is a positive relationship between ethical native farmers and the level of technological efficiency, which indicate the importance of social integration.

5.1.3 Market structure

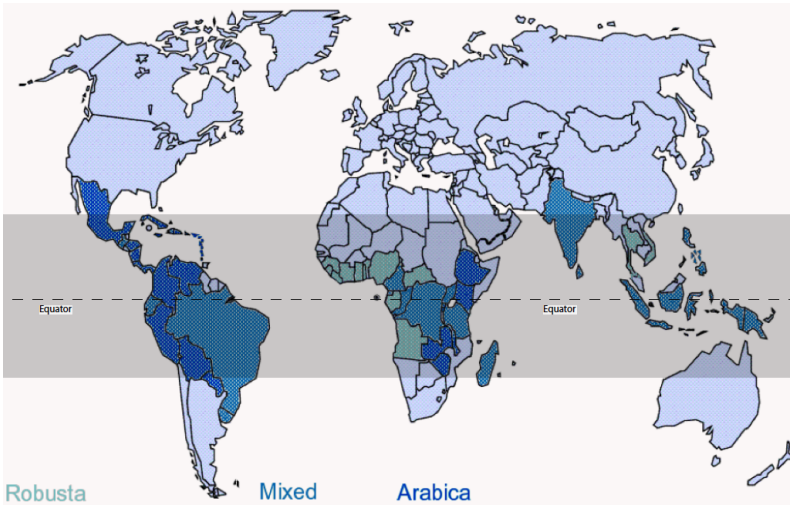
In this section the regular market is presented by identifying players in the market, entry barriers, market concentration and exercising of market power and competitive behaviour. In section 5.2.2, the Fairtrade market will be examined similarly and compared to the regular

market. This will provide a basic knowledge of the field in which the small-scaled farmers, targeted by Fairtrade, is operating. The market structure can in large part influence the decision making of players and the success rate of a new initiative, such as Fairtrade.

Players

The coffee industry is one of the largest industries and many players characterise the market. The countries in which the coffee beans are produced depend in large part on the conditions for production. There are generally two types of coffee beans, Arabica and Robusta, which are grown optimally under different conditions. For growing Arabica coffee beans there exist two optimal climates. One is a subtropical climate, at high altitudes. Rainy and dry seasons must be well defined. Examples of countries with these climates are Mexico, Jamaica, Brazil and Zimbabwe. The second climate is equatorial regions, found in countries such as Kenya, Colombia and Ethiopia. The Robusta bean is much less sensitive to warm conditions and is grown in lower altitudes, in an area stretching 10 degrees north and south of the equator (Coffee Research Institute, 2006). In figure 2 the coffee belt of producing countries is depicted, surrounding equator. The colours indicate the type of coffee produced.

Figure 2 - Map of coffee producing countries



Source: Own contribution

As illustrated, coffee producing countries are located around equator. Regions with optimal climate, altitude and weather conditions therefore hold many coffee producers. Limitations to

land are the biggest barrier to entry, within regions containing the right climatic conditions. As all countries in the coffee belt, optimal for coffee production, are producing coffee, there exist no indication of significant barriers aside of land ownership to be excluding producers from coffee production. Land ownership does imply some amount of fixed cost investment though, and this can work as a barrier to some poor producers.

The largest players in the coffee industry as of 2011 are Brazil, South and Central America, Vietnam and Africa, which is illustrated by the rank of countries in table 2. To investigate the impact of the International Coffee Agreement established in 1962, followed by the breakdown and liberalisation in 1989, the table shows development in production of coffee per country for the largest players. The production is presented for the three different years, 1963, 1989 and 2011. The first two years cover the period of the cartel being active, from the beginning of its establishment until right before its breakdown, and it therefore displays the effect this agreement had on production in the given period. 2011 is the most recent data available, and can be used to investigate the development in production numbers and distribution after the ICA collapse until 2011.

Table 2 - Coffee production over time, by region

Production, tonnes			
Region / year	2011	1989	1963
Brasil	2,700,440	1,532,340	1,650,530
South and Central America	1,263,640	979,608	514,104
Vietnam	1,167,900	40,900	4,500
Africa	1,125,926	1,092,222	837,603
Others	687,053	855,208	416,082
Indonesia	634,000	401,048	139,600
Colombia	468,120	664,000	450,000
Mexico	237,056	343,440	137,069
Total	8,284,135	5,908,766	4,149,488

Source: Own contribution from (FAOSTAT, 2013)

As mentioned in section 5.1.1 the ICA collapse caused increased prices, as prices had been depressed during the cartel. Production was restricted, and the breakdown therefore resulted in oversupply, shown by the large increase in production numbers from 1989 to 2011 in the table, for most countries. On the other hand production was kept low during the cartel. Looking at the overall picture, production of coffee has clearly increased in the period from 1963-2011. It is also clear that the largest increase appeared in the years after the cartel collapse, which could

indicate that the increased price from the collapse of ICA has made producers better off, creating an incentive for producers to increase production. (Russell, Mohan, & Banerjee, 2012) show similar results in their paper, concluding that the liberalisation had a positive impact on production. Increase in production can however also be explained by changes in demand. Coffee has changed from being a luxury good to being a normal good in many high-income countries, however in low-income countries coffee is still considered a luxury good. For this reason changes in income will have a greater effect on coffee demand in low-income countries, as income elasticity of demand is higher for a luxury good than a normal good. Rising income in countries such as Slovakia, which have experienced a three doubling of income measured by GDP per capita in the period 2000-2012 (The World Bank, 2013) have experienced a great increase in coffee demand. On the other hand demand has been decreasing in high-income countries. The evolvement in coffee imports by consuming countries is found in appendix 1.

Even though production has increased, this is not the case for all countries presented in the figure. Colombia, Mexico and the categorisation covering other countries have experienced a fall in production in the aftermath of the liberalisation in 1989. (Igami, 2012) investigate the effects of the cartel especially with focus on efficiency- loss or gains. To measure efficiency, the cost of a country's domestic farm-gate price is measured. The biggest winner is found to be Brazil while the biggest looser is Colombia. The result is explained by the cost differences between the two countries. Brazil is a low cost country, while Colombia is a high cost country and efficiency is therefore improved, by allocating more production to the low cost country. This explains the decrease in production for Colombia and increase in production for Brazil respectively.
Vietnam has experienced a significant increase in production both while the cartel lasted, but even more after it collapsed. As Vietnam did not join the International Coffee Agreement until 1991, the country's production did not undergo the cartels restriction on production (International Coffee Agreement, 2013). In 1989 the Vietnamese government was expanding coffee production with foreign aid, with the purpose of producing coffee plants. According to (Igami, 2012), the motivation behind the offensive producer strategy was more geopolitical than economic. The geopolitical issues were a result of the war and consisted of lost control over abandoned land and ethical minorities were seen as potential political threats, as was the growing population in urban areas, undermining government authority. The significant increase in the coffee production in Vietnam can therefore be explained by political strategies.

In the following table, changes in production are illustrated. The change is calculated as a percentage change between each year.

Table 3 - Percentage change in coffee production over time, by region

Change in production, percentage terms			
Region / year	2011	1989	1963
Brasil	76%	-7%	0%
South and central America	29%	91%	0%
Vietnam	2756%	809%	0%
Africa	3%	30%	0%
Others	-20%	106%	0%
Indonesia	58%	187%	0%
Colombia	-30%	48%	0%
Mexico	-31%	151%	0%
Total	40%	42%	0%

Source: Own calculations based on data from (FAOSTAT, 2013)

Looking at the percentage changes in the table, it can be seen that the overall production has increased by 42% during the years where the cartel was sustained. In the period after the collapse of the cartel however, the production increased by only 40%. Removing Vietnam, which can be argued to obscure the picture as Vietnam entered the coffee industry relatively late, reveals a growth rate from 1989 to 2011 of approx. 21% compared to 41% during the cartel. Considering the percentage change in production, a different image is presented, of cartel output restrictions not working as intended. As found in section 5.1.1 this indicates that ICO's intention to raise prices by restricting output did fail to some extend. The table also reveals that some countries coffee production grew most during the cartel, and have after the collapse experienced negative growth. However, taking a closer look at production, it is still possible to detect an increase in production for Colombia right after the collapse, followed by decreasing production, see appendix 2.

The above mentioned producing countries all posses a comparative advantage in coffee production, for example due to weather conditions, explaining why these countries are the biggest players in the coffee market. There seems to be a positive relationship between developing countries and the production of coffee. According to international trade theory, countries trade because of differences in endowments and tend to produce the good of which they possess a comparative advantage. Empirically this is supported by coffee being exported intensively. It is difficult to imagine that the players in the coffee market will change significantly, because production is dependent on climatic conditions. There might be observed

changes in the future in the distribution of production among the actors present though, as comparative advantages in form of cost advantages caused by technology might change.

Entry barriers

The production of coffee beans requires start up capital in the form of land, coffee plants and equipment. The fixed costs in production represent a large part, relative to variable costs in form of wages, coffee bags etc. and can therefore be argued to constitute an entry barrier for marginalised producers. Many coffee producers are small scaled and employment usually consists of family members. 50% of world coffee production is estimated to be produced by small-scaled producers, whereas 20% is produced in a medium sized facility between 5 to 25 hectare, and 30% in large plantations over 25 hectare of land (Nicholls & Opal, 2005). Production of coffee beans is appropriate for family farms since this state of production does not take significant advantage of economies of scale or production technologies. The ability to adjust the size of production, i.e. the elasticity of supply, predominantly depends on the liquidity of the two input factors, labour and land.

A small coffee producer can relatively easy adjust the size of production with respect to labour, putting more or less family members to work, possibly hire workers outside the family. The ability to adjust the production size in the form of land is affected by a relatively long production time of green coffee though. A new coffee plant has to grow and mature for 3-4 years before the tree begins to bear fruit, depending on the variety (International Coffee Organisation, 2013a). This highly affects price volatility, since producers are unable to match changes in demand instantly and increases barriers of entry. The two effects are offsetting, but since coffee is land-intensive relative to labour-intensive, as more land relative to labour is used in production, the summed effect is increased barriers of entry. For the rest of the coffee value chain, conditions differ for each linkage in the chain. As to entry and exit there exist barriers in the form of investments in land and coffee plants. After entering, fixed costs in production, such as rent and limited machinery, are relatively low, and costs to the producer therefore mainly consist of variable costs and start-up investments.

Market power

The coffee value chain consists of many linkages from coffee bean to consumer. There are numerous coffee suppliers in the first linkage of the chain and therefore this market is very

competitive. Moving up the value chain toward the end consumer, the coffee market becomes more concentrated with fewer actors (Nicholls & Opal, 2005). This result in a growing market power curve the closer one gets to the end product and therefore a degeneration of competition. Each actor in the coffee chain will have more market power in a buying situation, and the coffee market can therefore be characterized as a buyers market (Milford, 2004).

A market with many small-scaled suppliers and few buyers can be described as oligopsoni. Oligopsoni is frequently present in agricultural markets mostly due to high transportation costs and spatially distributed supply and processing. As it is costly for a small coffee farmer to engage in transportation costs relative to the value of the product, the producer is obligated to sell to a processor or intermediary hired by the processing company. Leaving the producers with little sales options increases the power of the buyer, which causes the intermediary to exercise local market power. The result is low prices paid to producers who are not in a position to bargain on price, and producers become price takers. As a new supplier has to make sunk investments when entering the market, this increases exit barriers and reduces bargaining power further (Graubner, Balmann, & Sexton, 2011). The low bargaining power of farmers affects prices and hereby also conditions. Furthermore, when the beans are picked they need to be dried immediately after, removing the possibility of keeping stock. This further affects the power of farmers, since the buyer is in a better bargaining position being aware of the inflexibility in the producer's process. Overall the power in the coffee chain is skewed towards the higher link in the chain.

The coffee market post ICA breakdown is characterised by producers becoming price takers and exporting countries loosing market power. The result has been backward vertical integration up to the producer, changing the competition in the market. Competition between producers is fierce, due to the large number of coffee producers. The market for coffee producers is therefore roughly characterised by perfect competition. There are several assumptions for a perfectly competitive market to hold, and while the coffee producing market doesn't exhibit all characteristics, there do exist similarities. Assumptions such as perfect information and access to markets are questionable. The producer market is however characterised by many players offering homogenous products in an industry with relatively low entry and exit barriers and where most individual producers are not able to influence the market.

A result of the breakdown of ICA was a redistribution of power with transnational companies exercising their buying power. Many roasters merged causing the market to become

characterised by large retailors such as Kraft and Nestlé controlling a rather concentrated roasting market (International Trade Center, 2013). The result is a gain in market power, having an even greater impact on prices. In the following table, market shares for the top roasters as of the year 1998 are depicted.

Table 4 – Market shares of roasting and instant manufacturing companies

Market shares of roasting and instant manufacturing companies		
#	Roaster	Market share 1998
1	Phillip Morris	25%
2	Nestlé	24%
3	Sara Lee	7%
4	P&G	7%
5	Tchibo	6%

Source: (Ponte, 2002)

Since market shares for the top 5 roasters are not available today, market shares in 1998 are presented. According to the Fairtrade Foundation the top 5 roasters in 2012 are the same and the table therefore gives a representative illustration of the distribution of shares amongst roasters (Fairtrade Foundation, 2012). As the table shows, the market is characterised by a few top players, multinational roasters covering half of the market, followed by a number of smaller roasters. Since it was found that the market for producing coffee is characterised by many small players, this shows signs of a coffee chain that becomes more concentrated as you move upwards, indicating it is a buyers market in each linkage of the chain.

5.1.4 Supply and demand

According to ICO the aggregated demand for coffee has increased steadily over the last couple of years. Consumption of coffee increased by approximately 10% in the period 2005 – 2009, and has been growing steadily but relatively slow and with low fluctuations (International Coffee Organisation, 2010). This is mainly due to changes in consumer demand and increased income in the developed part of the world. In this section, the mechanism of supply and demand will be analysed upon, to understand the effect of a price change to the coffee producer as well as the consumer.

According to basic microeconomics, an increase in the demand for a normal good caused by income changes or other non-price determinants will result in a shift of the demand curve to the right. Given that the supply curve is unchanged, this will increase the price of coffee. Increased demand, causing higher prices means a greater incentive for farmers to produce coffee and supply of coffee therefore also increases in equilibrium during the period of boosted demand. Demand for coffee has been rising steadily during the last period, and the highest demand is found in the Nordic countries, which are also high-income countries (International Trade Center, 2013). An important factor of demand is income, and low income countries experiencing a larger rise in GDP compared to high income countries has therefore also experienced higher growth rates in coffee imports, as was discussed in section 5.1.3.

Elasticity of demand

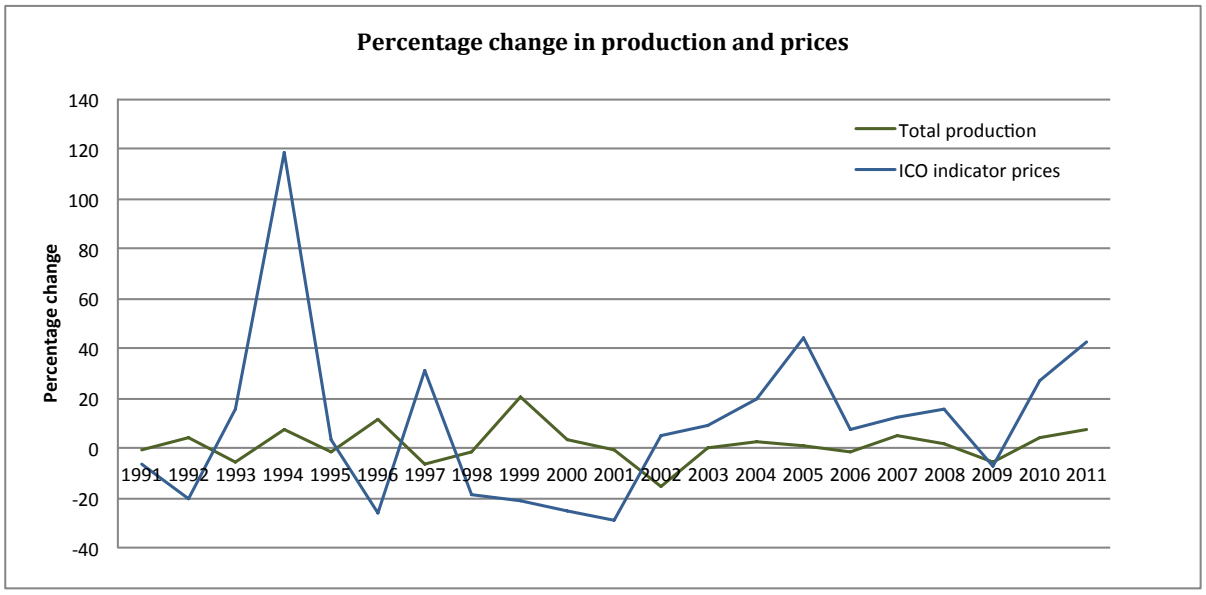
The appearance of the demand curve is affected by the elasticity of demand. A high elasticity of demand is illustrated by a very flat curve, meaning that consumers will substitute away from the product at small increases in the price, i.e. consumers are price sensitive. On the opposite a low price elasticity of demand will result in a steep demand curve, since a change in the price will have a small effect on the quantity demanded. Demand for coffee is argued to be relatively inelastic, as the percentage change in the quantity demanded is smaller than the percentage change in price, meaning that demand is not very responsive to price changes.

There are several determinants affecting the low responsiveness in demand to price changes. As mentioned earlier the sales of coffee has grown significantly in recent years, increasing the attachment to the good by consumers. The more necessary a good is considered to be, the lower the elasticity of demand is argued to be. In general there are no close substitutes to coffee, decreasing the elasticity. This is of course individually dependent on consumer taste, where some might find tea or other caffeine-rich drinks a preferred substitute for coffee. Another factor that influences the level of elasticity is the fraction of income that is paid to acquire the good. The price of coffee forms a small fraction of the consumers' income, assuming that the regular coffee drinker is from the industrialised part of the world, also decreasing the elasticity of demand. Overall the price elasticity of demand is highly inelastic and the demand curve appears fairly steep as a result of this. Knowledge of inelastic demand will be applied when analysing on the Fairtrade effect in the coffee market.

Elasticity of supply

Empirical results indicate that the adjustment in production is severely lagged. Some of the factors affecting the level of elasticity are the availability of raw materials and time to respond. As mentioned it takes approximately 3-4 years until the farmer is able to harvest ready beans from a new crop, and it is therefore difficult for producers to change production in tact with changes in prices, decreasing the price elasticity of supply. The response in production of a price change is illustrated in figure 3. The two lines indicate the total production of coffee and the ICO indicator price, measured as a percentage change against the previous year.

Figure 3 - Percentage change in production and prices over time



Source: Own contribution from (FAOSTAT, 2013) and (International Coffee Organisation, 2013)

First it can be seen that prices fluctuate significantly more than the production of coffee, as was found previously. Since producers are aware of skewness in flexibility of production, they have an incentive to reduce change in production when the price changes. Furthermore, lower production volatility compared to price volatility can imply that information of changes in demand and price is not clearly available to farmers, due to market imperfections. This uneven relationship in prices and production results in large variations in producer income. When the change in production is modest, while changes in prices are highly volatile, producers face a highly volatile revenue level, increasing the risk faced by producers. If there is no possibility for farmers to adjust the production according to demand in a pace that makes sense, the best response is to produce what was produced yesterday. The fluctuations in the coffee production

can be explained by shocks to production, typically caused by climatic changes, as the production of agricultural goods is very sensitive to weather conditions.

Evidence has been found confirming that agricultural farmers seek to maintain income levels by actually planting more in times of price busts, to make up for the lost income (Tallontire & Vorley, 2005). This can be the root of a rising problem, as increased production caused by both price booms and busts, will only lead to even lower prices. This reaction to the market price is contradicting with the neoclassical school of economics, however it is observed. One certain outcome of low prices is that it will cause the least efficient producers to exit the market. Due to large fixed costs in production, the producer will not exit in the short run as long as prices cover variable cost of production. This holds even though prices falls below average total cost (Lindsey, 2004). Shifting production to other income generating agricultural products is not an option to many poor farmers, hereby the inelastic supply. There is a need for education and means to overcome price fluctuations in more efficient ways, an issue targeted by Fairtrade.

Besides this, there is low mobility in production factors. Since the production of coffee can be argued to be land intensive and the land is grown with coffee bean crops, it cannot be used to put into production of another more demanded good. The factors that can more easily be varied are labour supply and use of capital. Overall the supply and demand for coffee is said to be relatively inelastic. It is beyond the scope of this paper to measure the magnitude of the inelasticity. The curves will therefore have this character throughout the paper and when needed, an appropriate measure will be assumed.

5.2 The market for Fairtrade

In order to understand the relevance of the Fairtrade movement, and the changes it seeks to incorporate in general trade, it is relevant to understand the current state of the Fairtrade market as well as the historical evolvement of the Fairtrade movement. A brief historical development of Fairtrade will be given, followed by production techniques and a more thorough depiction of the Fairtrade market.

5.2.1 Historical development

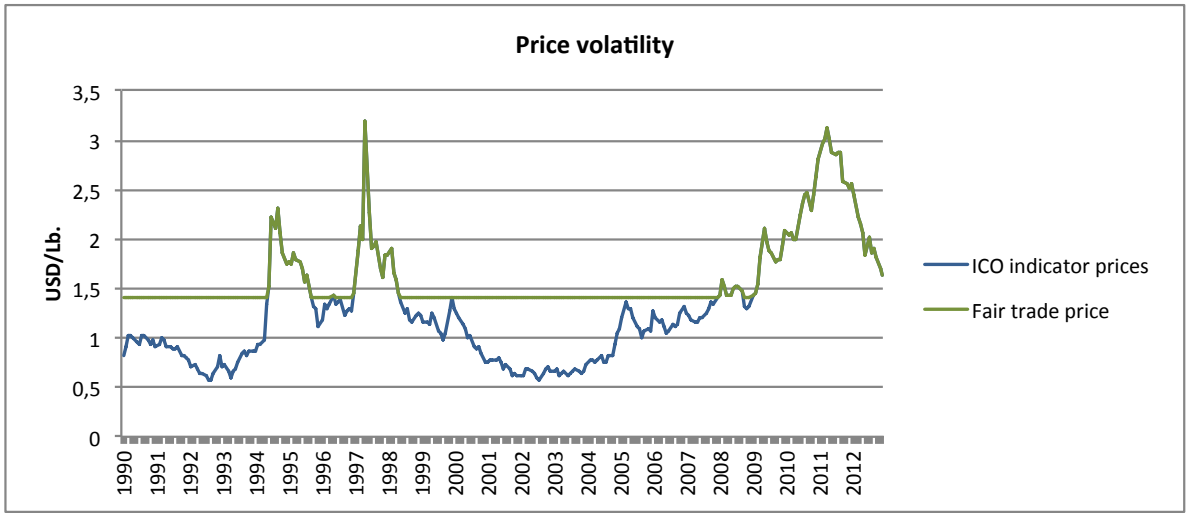
According to (Akiyama, 2001), Fairtrade as a concept was developed as a response to large market failures. The coffee market was liberalised in an attempt to remove trade barriers and move towards free trade standards, where markets are regulated by supply and demand. The trade liberalisation, however, did not accomplish to create a market free from failures. This has been explained by the basic assumptions of neo-classical theory not applying to developing countries. Small producers located in rural areas have low access to information and transportation is costly. As a result perfect information is not likely in developing countries. Furthermore farmers are unable to adjust production immediately. As farmers are often isolated, they are dependent on the buyer paying for transportation and are therefore forced to sell to a nearby buyer, who is able to attain huge interest rates in return for credit. Besides these, other mechanisms are also argued to be deviating from the basic assumption of neo-classical theory. Fairtrade is therefore seeking to address these market failures facing marginalised small producers.

The first history of Fairtrade began with Christianity faith-based groups to support disfavoured people. From this followed the opening of world shops, and in 1988 the first Fairtrade label was launched in the Netherlands as Max Havelaar. Max Havelaar was based on the intention to make small coffee producers independent of prices and middlemen, and on a producer desire to develop conditions for Fairtrade rather than aid. In 1997 FLO was established in Germany to unite all Fairtrade labelling initiatives, and to align standards and certification. FLO was a merge of Max Havelaar, Transfair and Fairtrade, and enhanced to several other European countries in the late 80's – early 90's. In 2002 the Fairtrade mark was introduced with the goal of reaching a standard within Fairtrade labelling. Two years later FLO was split into two separate and independent units; FLO International and FLO-CERT. FLO International determines the standards, while FLO-CERT perform inspections and the process of certification. While Fairtrade has been operating, demand has kept increasing. Fairtrade started out in coffee production but has expanded to several other product categories since Max Havelaar. The label has build consumer conscience towards support for small marginalised farmers in the South and the size of the program has created a strong brand name for Fairtrade.

One way to see the development in the Fairtrade movement is to investigate the development in prices and quantities through time. From 2010 to 2011 a 12% growth rate in sales, in consuming countries, was reported by FLO. Coffee is the product accounting for the largest profit within

Fairtrade, covering approx. 46% of total Fairtrade retail sale. However the entire Fairtrade coffee market only represents approximately 1% of total coffee production. Figure 4 shows the development in the conventional coffee price and the Fairtrade price. As illustrated, the fair price rises to the conventional price, when conventional coffee prices exceed the Fairtrade price.

Figure 4 - Price volatility and the Fairtrade minimum price



Source: (International Coffee Organisation, 2013b) and(Fairtrade International, 2012a)

The price of regular coffee is shown for Columbia mild, the finest Arabica bean. Similarly, the minimum price, indicated by the green line, is the minimum Fairtrade price of 1.40 USD/lb. given for Arabica coffee, with the price varying per sort. It is clear that the general coffee price is greatly volatile throughout the entire period. The peaks in the graph can be explained by external shocks as mentioned in section 5.1.4. Coffee is a primary commodity, causing fluctuations in the price to be highly sensitive to shocks in supply and demand in the short run, meaning that an external event can have a large impact on the price of coffee. As explained in section 5.1.4, both supply and demand is relatively inelastic, which can explain the great fluctuations. In the event of a shock to the market such as frost, demand will be nearly unaffected while supply will decrease resulting in increased market prices.

As can be seen in the figure, the price in the world coffee market was far below the Fairtrade minimum price of 1.4 USD/lb. in 1990 and continued to decrease for the following couple of years. This was a reaction to the collapse of the ICA in 1989, where the elimination of production restrictions caused supply to increase, lowering prices. In 1994 and 1997 Brazil was affected by climatic shocks in form of frost damage and draught respectively. According to FLO, regular

coffee prices reached a 30-year low in 2001, caused by oversupply. Prices have then continued to rise and peaked in 2011, which can be explained by uncertainty in supply from Brazil and Columbia and aggressive speculator activity (Fairtrade Foundation, 2011). As expected, volatility in the regular coffee price is triggered by external changes, and occurs because of the inelasticity in coffee supply. Furthermore the graph illustrates the magnitude of the minimum price, since the price of regular coffee is severely volatile, and often below the minimum price given by Fairtrade. As is the intention of Fairtrade, the minimum price creates price stability for small farmers. Farmer income, however, is not necessarily more stabilised, since farmers are not guaranteed a minimum quantity sold. If demand is greatly varying, the issue of volatility will still pervade as a problem for small farmers, lacking resources to smooth consumption.

5.2.2 Market structure

In this section the market structure of the Fairtrade coffee market is outlined. Following the description of the regular coffee market in section 5.1, and the evolvement of Fairtrade in the previous section, this section will continue to investigate the Fairtrade concept with a special focus on the significant aspects of the Fairtrade market, which differs from the regular coffee market structure.

As a result of skewed market power in the regular coffee market, many producers have lived on the edge of poverty since the collapse, with large corporate roasters capturing the large portion of revenue in the chain. Due to market imperfections, Nicholls and Opal questions whether the global trade system is suitable and successful. This is a view shared by several opponents to free trade, who find the exact mentioned effects to make conventional trade terms unfair. It is, among others, these shortcuts the Fairtrade program seeks to account for.

Players

One of the significant differences between the conventional and the Fairtrade coffee market is the dictation of Fairtrade coffee being produced by small-scale producers in joint cooperatives. Some of the largest coffee producing countries in the world, such as Brazil, produces large volumes in large coffee plantations, and has invested in production technology for large scale and cheaper coffee production (Lindsey, 2004), excluding the possibility of Fairtrade production. The result of this is an inconsistency between the largest conventional coffee

producing countries and the largest Fairtrade producing countries. This inconsistency is illustrated in table 5, displaying the largest players in the regular coffee market versus the Fairtrade coffee market.

Table 5 - Top 10 regular and Fairtrade producing countries

Top 10 Coffee producers, regular and FT coffee, 2011					
#	Regular coffee	Percentage of world prod.	#	FT coffee	Percentage of FT sales
1	Brazil	33%	1	Peru	26%
2	Viet Nam	14%	2	Dominican Republic	13%
3	Indonesia	8%	3	Columbia	11%
4	Colombia	6%	4	Honduras	10%
5	Ethiopia	4%	5	Mexico	9%
6	Peru	4%	6	Nicaragua	8%
7	India	4%	7	Kenya	7%
8	Honduras	3%	8	Ethiopia	5%
9	Guatemala	3%	9	Brazil	5%
10	Mexico	3%	10	Ecuador	5%

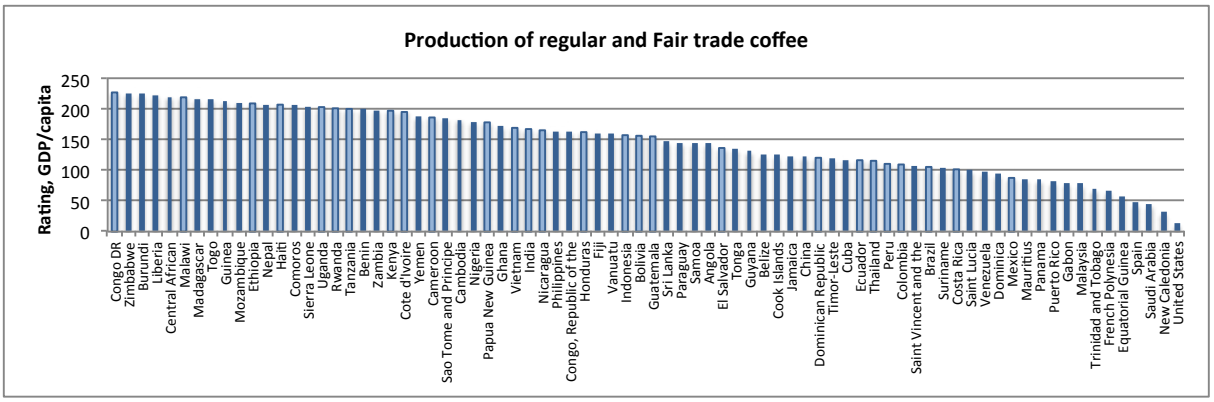
Source: Own contribution from numbers collected from (FAOSTAT, 2013) and (Fairtrade Labelling Organizations International, 2012)

The figure shows the largest producers of regular and Fairtrade coffee, measured by production in tonnes and sales numbers as a percentage of world production and sales. It has not been possible to collect the same measure of producer size for regular coffee and Fairtrade coffee, which explains why regular coffee producers are measured by production, and Fairtrade producer by sales. However the different measures can still be used to illustrate the largest producers present in the market. Comparing the numbers it is clear that the largest players in these markets are not the same. Mexico, for example, only accounts for 3% in the regular coffee market, but 9% in the Fairtrade market making the country the 5th largest producer of FT coffee relative to the 10th largest in the regular market. A possible explanation for the difference is, that large coffee plantations cannot become Fairtrade certified and countries where producers are relatively large will therefore not have the same opportunity to compete in the Fairtrade market. According to the National Coffee Association USA, coffee supply from Mexico is predominantly produced by small farmers rather than large coffee plantations (National Coffee Association USA, 2013).

Fairtrade is proclaiming to target marginalised producers, which makes it relevant to investigate the relationship between a country's wealth and Fairtrade existence. For the organisation to be successful in this objective, it would be expected of Fairtrade producing countries to be amongst

the poorest coffee producing countries in the world. This relationship is investigated in figure 5, illustrating the relationship between Fairtrade producing countries and the countries' GDP rank. On the horizontal axis, all coffee producing countries are presented. Coffee producing countries are represented by a blue bar, while countries that also produce Fairtrade coffee are represented by a light blue bar. The level of wealth is ranked and measured on the vertical axis, which displays the country's GDP rank, measured by CIA's display of GDP per capita (Central Intelligence Agency, 2012). Countries are ranked from the most rich down to the poorest, meaning increased ranking equals a lower GDP per capita. A larger more reader friendly version of the graph can be found in appendix 3.

Figure 5 - GDP rating of Fairtrade and regular coffee producing countries



Source: Own contribution based on GDP ratings and Fairtrade producing countries, (Central Intelligence Agency, 2012) and (Fairtrade International, 2011).

In the figure it can be seen that Dominican Republic of Congo is the poorest coffee producing country, measured by GDP per capita, and as displayed by the light blue bar, Fairtrade coffee production is present in the country. Looking at the distribution of light blue bars it is however clear that several poor coffee producing countries do not produce Fairtrade certified coffee. The distribution reveals a mixed pattern of poor and middle ranked countries being producers of Fairtrade and does not show clear signs of a correlation between countries where Fairtrade is present and the ranking of countries. Since Fairtrade claim to target marginalised, poor producers, this can be interpreted as a shortcoming of the program. However the distribution can be explained by several factors. First, it could be the case that Fairtrade is targeting the poorest in the above shown producer countries, since there can be argued to be poor producers in all countries, and thereby are helping out marginalised producers. Secondly, it could be imagined that the poorest producers do not have the ability to request a Fairtrade certification and become organised in cooperatives, creating inequalities in the application process. If this is

the case, small-scaled producer's in more resourced countries might have an advantage in getting certified. In a study by (Stoddart, 2011), it is investigated which countries the Fairtrade program target and what certain characteristics apply to these. By comparing countries with no Fairtrade export and countries with Fairtrade export, it is found that those countries that export Fairtrade coffee are poorer on average. Furthermore it is found that Fairtrade producing countries on average has a poorer legal system and poorer labour rights. However the difference from non-exports of Fairtrade is very small. Results show mixed signals about targeted Fairtrade countries and he therefore concludes that the lack of a trend signals that Fairtrade is not targeting the certain group of marginalised producers. This is in line with the above figure where a trend in targeted countries is also difficult to identify.

Overall, the distribution of regular coffee and Fairtrade coffee differ in large part. As mentioned, one explanation can be more centralised production in small-scale business. Another explanation can be that Fairtrade seeks to operate in poorer countries, but the above figure does not show evidence of this being the case.

Entry barriers

The Fairtrade label is what distinguishes Fairtrade coffee from regular coffee. As in the regular market for coffee, acquisition of land, plant and equipment is a necessity, but achieving the label is the entry ticket into the market. The social aspects put on a product must be labelled and require a regulatory organisation, such as FLO, to maintain legitimate criteria. The result is the establishment of entry barriers in the industry (Renard, 2005). Entry is restricted both for producers and retailers, to control production, secure quality and standards as well as quantities produced and hereby prices paid to producers. In this way the Fairtrade label serves as a guarantee that international Fairtrade standards are being met.

To become a certified Fairtrade producer and member of a Fairtrade cooperative, the producer must be a small-scale farmer. This excludes the big coffee plantations. Furthermore access to the program is argued to be restricted since not all farmers who wish to become certified are accepted. Many small-scale producers want to be Fairtrade certified to reduce the price risk and differentiate their product from large-scale producers with lower production costs. The supply side is much higher than the demand side, resulting in oversupply and therefore rejection of some producers who wants to join. Another important factor restricting access is the certification and license fees charged, as well as the yearly inspection costs, excluding producers

without sufficient capital to pay these costs. Estimating the exact certification cost and income to producers is rather complicated, as cost and income varies for each producer organisation. (Utting-Chamorro, 2005) performs an investigation of the income and cost difference associated with conventional and Fairtrade production of coffee, in a field study conducted in Nicaragua, 2003. Her finding reveals increased cost of production associated with Fairtrade production, but an even higher increase in income and hereby increased profits to producers of Fairtrade.

(Milford, 2004) focuses on delayed payments to producers as yet another factor restricting access to Fairtrade cooperatives. Selling coffee to a Fairtrade cooperative you agree on the possibility of delayed payments (Nicholls & Opal, 2005). As Fairtrade producers are small farmers, and most coffee producers belong to the rather poor part of population, delayed payments for production might not be an option. Delayed payments and certification fees therefore out limit a large number of producers, hereby creating entry barriers. Delayed payments can however be overcome by access to credit, which is improved by Fairtrade.

Mann (2007) states that organisations deal with market surpluses by establishing barriers, and that it is close to impossible for a new producer organisation to be registered by FLO. To be registered as a new producer organisation additional demand in the market has to be identified through a new importer. Importers create another barrier as they control the selection process of suppliers. Exclusive contracts and licenses therefore seem to be an artificial barrier to entry into the Fairtrade producer market, as they help producers who have won the contract but might be difficult to obtain for new producers wishing to enter the Fairtrade coffee market. The private economic rationale behind this artificial barrier can be argued to lie in the Fairtrade organizations incentive to support the most marginalised producers, by providing them with a higher and stable return for their coffee. Without barriers to enter Fairtrade, profits are assumed to approach zero in the long run. Barriers are therefore needed to make some producers better off. The socioeconomic rationale behind artificial entry barriers are established to address poverty, by investing in improved production means, education and society in the poorest areas of the south.

Retailers also face entry barriers to the Fairtrade coffee market. Fairtrade retailers are, like producers, required to pay several fees to obtain the right to sell Fairtrade. These consist of an exception fee, an audit fee and trade certification fees paid every three years (FLO-CERT, 2011a). Another barrier for retailers consist of the fact that, if requested, retailers have to be able to pre-finance 60% of the contract price (Fairtrade Canada, 2013). Pre-financing is used to reduce

volatility for farmers, one of the key aspects of Fairtrade. Finally the retailer has to be able to sign long-term contracts.

Regarding coffee exports, small producers are restricted by logistics and cost constraints. This is referred to as small lots, defined by lots less than a container load (International Trade Center, 2011). Specialised coffee may not be shipped in the same container as regular coffee at the risk of contamination, making shipment expensive and difficult. The extra cost from this creates barriers of entry for buyers and exporters who have to consider the increased production cost of exporting Faritrade coffee relative to regular coffee.

As Fairtrade seek to remove some of the barriers created in the regular trade market, it is clear that new barriers are created. These barriers can be argued to exist to persevere revenue for the farmers involved, ensuring success of the program. Furthermore the barriers are created to ensure the type of members that are enrolled. The program for example seeks to help marginalised producers and it is therefore not possible for large plantations to become certified. It can be discussed whether the design of the program, and hereby associated barriers, is created to attract marginalised producers who are poor, but not the poorest. This is based on an assumption of inefficiency among the poorest. Many theorists have argued that the poorest farmers are poor for a reason, namely that they do not posses the necessary ability and efficiency to compete in the market. If this hypothesis is true it can be argued that these farmers should not be helped, as resources could be used more efficiently. If, on the other hand, the poorest producers lack capital and stability to become competitive, the program is acting 'unfair' by the exclusion of these. According to (de Vaal & Breimer, 2012) high entry costs and required production standards causes a selection effect in the application to become Fairtrade certified, skewed towards the more productive firms. Fairtrade producers endure higher cost of production, since they have to obey certain standards to become certified. This is equivalent to and extra entry cost, which is argued to mean the most to least productive firms. A consequence of entry barriers can therefore be that Fairtrade is attracting more productive firms, in line with the above hypothesis of Fairtrade doing this on purpose to maintain a certain level of efficiency.

Concentration

The market for Fairtrade coffee consists of many small-scale farmers, producing and selling to a cooperative. The number of certified Fairtrade organizations with coffee as a part of their product portfolio reached 291 organizations in 2011 (Craxton & Rathke, 2011). FLO estimates

that the capacity of small-scale farmers worldwide that could meet Fairtrade certification standards is approx. seven times as large as the actual volume of Fairtrade exports (D. L. Murray, Raynolds, & Taylor, 2006). This indicates that the size of the Fairtrade market is limited and that the market is influenced by high competition between farmers to become Fairtrade certified producers. The Fairtrade coffee market is characterised by many producers and few buyers, as was found in the regular coffee market, decreasing the power for producers. According to a coffee report made by the Fairtrade Foundation, the biggest five roasters and marketers share approximately half of the market. These actors are Kraft, Nestlé, Sara Lee, Proctor & Gamble and Tchibo (Fairtrade Foundation, 2012). As was the case in the regular coffee market, there are a few big players covering large market shares, indicating an oligopsoni market.

Market power

The introduction of Fairtrade, leaving production and processing within the Fairtrade cooperative, results in producers obtaining a larger share of the profit chain and thereby increased market power. With the existence of Fairtrade cooperatives, more sales choices are available for producers, increasing competition between processing and exporting firms and hereby increasing bargaining power of producers. However, the cooperative is a democratic unit and the farmer will therefore have to be settled with the fact that personal interests might not be fulfilled. This is mentioned in a study by (Henderson, 2008), which points to the fact that it might not be in the best interest of all farmers to join a cooperative, if interests vary. The premium is paid to the democratic cooperatives, which also decides how the premium should be allocated or spend. Summing up, the farmer will therefore gain better bargaining power through the cooperative as a composed unit, but looses the power to act as an individual.

The inequality of power distribution in the coffee chain is one of the issues Fairtrade is seeking to address. One way to increase market power is by differentiating the product and creating a strong brand that consumers become attached to. Over the last decade demand for differentiated products has increased intensively, especially the demand for quality products. What defines a quality product varies with consumer preferences. It can be a sign of tastes and production terms, but also the attachment of social values to the product (Renard, 2005). Fairtrade is seeking to increase market power of marginalised producers by differentiating their product using the later strategy, namely differentiation by quality in production. By labelling coffee with the Fairtrade label it signals certain standards and increases recognisability and, if

consumers get attached to the label, increased market power is an outcome for all actors in the chain.

Some fair-trade cooperatives are able to provide producers with cheaper capital and better loan conditions, than offered by private intermediaries. Access to credit is a crucial element of productivity and growth. Retailers provide this through pre-financing of contracts, to cover cost such as harvesting cost (Fairtrade International, 2012b). Fairtrade is also argued to improve the cooperative image through observed increase in stability, due to stable prices and long term contracts required by Fairtrade, resulting in greater access to traditional credit institutions by Fairtrade cooperatives (Raynolds, Murray, & Leigh Taylor, 2004). Part of the certification process for a producer and buyer requires a contract between the two parts deciding on volumes, quality, price, payment and delivery terms. This way the buyer is obligated to purchase a minimum amount of beans from the cooperative, providing the producer with stability (Fairtrade International, 2011). Also credit worthy cooperatives are able to provide producers with access to lending where not accessible or where offered by private intermediaries at depraved lending terms. Improved credit options makes it possible for producers to operate with delayed payments in the Fairtrade program, resisting private intermediaries offering up front payments but at lower bean prices. (Sexton, 1990) finds evidence of the competitive yardstick effect; cooperative presence in the market pushing privately owned intermediaries towards a more competitive outcome. Cooperative market presence puts pressure on the other buyers as it acts as a possible substitute to the privately held intermediary forcing the intermediary to raise the price paid to producers, lowering the intermediary market power.

Even though the presence of Fairtrade cooperatives increases competition for privately owned intermediaries, increasing producer power, the Fairtrade market is affected by a structure where regulatory organisations play a significant role. The regulatory organisation ensures access to the market and distribution of differentiation rents and consequently gives power to the agent undertaking these functions. The power of the organisation has become more centralized with the growth in Fairtrade. FLO is the coordinating institution responsible of inspection and certification with regard to the Fairtrade mark. The institution administers registry of cooperatives, access to and exclusion from the Fairtrade market, and FLO hereby posses a great amount of power. Overall, the power is within the labelling organisations, and producers argue that there exists a lack of transparency within the FLO certification fee system. (Renard, 2005) argues that Fairtrade has evolved from a niche market developed to enable small farmers to compete with large agro industrial players, whom they could not compete against

without support, into a market controlled by the largest retailers and supermarket chains. Due to high sales volumes in supermarket chains and other large retailers such as Starbucks, Nestlé etc., producers have become very dependent on these customers, now risking losing control over quality and production choices. On top of that evidence has been presented of some retailers exploiting consumer willingness to pay more for the Fairtrade mark, with excessive retail prices, obscuring the consumer picture of how much of the price actually reaches the Fairtrade producer (Stecklow & White, 2004). It is claimed that only 10 pct. of the premium paid for coffee in a coffee bar actually reaches the producer, the rest is captured by the retailer (The Economist, 2006). Market power is therefore within the hands of these large retailers, as well as the labelling organisations, which leaves producers with little bargaining power, despite the prospect of creating fair conditions for the marginalized farmer.

Competitive behaviour

As mentioned in the description of the regular coffee market, the market is characterised by intense competition among coffee producers. Furthermore it can be difficult for small producers to compete with larger plantations with greater capital, production technologies and connections. By introducing the Fairtrade label, the organisation conducts a possibility of small producers to differentiate their product in contrast to other and bigger producers. Product differentiation is a way to decrease competition within a market either horizontally or vertically, increasing profit margins. Product differentiation can be a difference in consumer tastes, but also differences in the quality of production. Fairtrade addresses the latter type of product differentiation, by offering higher quality in production of the coffee. The coffee beans produced and sold as Fairtrade certified are the same as the coffee sold on the regular coffee market, but the consumer receives a moral utility because of guaranteed conditions and prices and it can therefore be argued to be of better "quality", not with respect to the coffee bean produced, but the way it is produced.

Certified Fairtrade producers compete in two markets, the Fairtrade market and the conventional coffee market. This is due to the fact that most producer cooperatives are not able to sell all produce as Fairtrade. Competing in two markets, with the Fairtrade market ensuring a minimum price for the product produced, is argued to result in quality dispersions. (Haight, 2011) argues that some Fairtrade producers sell their lower quality coffee as Fairtrade to maximize income. (Craxton & Rathke, 2011) shed light on the same problem, stating Fairtrade to be unfair to both producers and consumers. Selling coffee in the conventional market, produced

under Fairtrade standards result in extra costs not faced by conventional producers and possibly not covered by the conventional coffee price. This must be assumed to put pressure on capital reserves of Fairtrade producers to cover cost of production. The result is fierce competition for Fairtrade producers to sell as much possible as Fairtrade, which might cause smaller producers to be excluded from Fairtrade, as their small Fairtrade sales share does not cover cost of total coffee production. A field study conducted in 2005-2006 to study the roles of farmers, labourers, cooperative administrators and export companies in Fairtrade coffee production in Nicaragua, found evidence of an unfair system with early entrants controlling the Fairtrade market (Valkila & Nygren, 2010). An imagined outcome from unfair separation of the Fairtrade market between cooperatives can be exclusion of the most vulnerable and poor producers, and inclusion of the larger but still small producers that posses a certain amount of capital. (Haight, 2011) argues that an increase in the general coffee price in the last couple of years, not followed by an increase in the Fairtrade price, is causing many producers to default from their Fairtrade contracts. The question is whether these market rotations are aligned with Fairtrade principles, offering better trading conditions for the marginalized producers.

5.2.3 Supply and demand

A coffee bean producer has to decide if it is beneficial to enter the Fairtrade program or not. This decision depends on the distribution of supply and demand. There are several costs of becoming Fairtrade certified. These costs are independent of how large a fraction of the coffee that is actually sold as Fairtrade. If the demand for Fairtrade coffee is significantly low it will affect the Fairtrade certified producers negatively, since they endure the costs while only receiving a small and maybe insignificant benefit from the minimum Fairtrade price.

Coffee consumption seems to have reached a point where further price drops will not increase demand further in most developed countries. Increase of consumption is on the other hand assumed to be dependent on quality, which might indicate a rising market for Fairtrade. Fairtrade does not necessarily produce quality, but it produces a product consumed by preference. The demand for Fairtrade certified coffee has increased significantly over time. In a study by (Hainmueller, Hiscox, & Sequeira, 2011), demand for higher priced coffee was found to be inelastic, keeping demand steady while raising prices by 8%. The elasticity of lower priced coffee was found to be more elastic as an increase in the price of 9% led to a reduction in sales at 30%. This is an evidence of consumer preferences for ethically certified products, also referred

to as altruism. As found in section 4, this suggests that there is a market for certified coffee, due to evidence of consumer demand.

Before it was found that the elasticity for coffee is relatively low, partly because there are no close substitutes to coffee. Reviewing the demand for Fairtrade coffee the situation differs, when it is assumed that markets for regular and Fairtrade coffee are separated. Consumers now have a close substitute to buying Fairtrade coffee. It can of course be argued that the consumer is covering another need by purchasing Fairtrade coffee, namely the "warm glow effect", but since it was found that the coffee doesn't necessarily differ in quality, the consumer will receive the same utility minus the ethical awareness. On the other hand consumers purchasing ethically conscious coffee can be argued to be less price sensitive, as found in the previous mentioned study by (Hainmueller, Hiscox, & Sequeira, 2011). Overall the elasticity of Fairtrade coffee is very low, as was the case with regular coffee. Since there is very limited access to data of Fairtrade products, it is not possible to decide if the elasticity is higher or lower than for regular coffee. However Fairtrade coffee could be imagined to have a lower price elasticity of demand, until prices reaches a certain level.

Even though there is evidence of a market for Fairtrade produced coffee, demand is not high enough to match supply from producers willing to become Fairtrade certified. In 2001, 200 cooperatives were listed in the program consisting of approximately 500,000 smallholders. Evidence show that some certified producers only sell about 10% of the coffee produced as Fairtrade coffee, while others sell up to 50% (International Trade Center, 2013). This indicates that the supply potential is exceeding the demand for these products, leading to an oversupply of coffee. The appearance of the supply curve for Fairtrade coffee is similar to regular coffee, as the coffee is produced under the same conditions, though there are some standards that must be followed.

Partial conclusion

In chapter 5, similarities and differences between the regular and Fairtrade market has been identified. Amongst the main findings, the regular coffee market is characterised as a buyers market. Power distribution in the supply chain is unevenly distributed and as a consequence small-scaled producers are left in a poor bargaining position, resulting in low prices and high costs. Fairtrade is a response to many of the market imperfections identified in the regular coffee market, such as highly fluctuating prices, seeking to better conditions for marginalised producers in the developing part of the world. Fairtrade is attempting to remove these

imperfections by requiring cooperatives, introducing a minimum price and a Fairtrade premium, amongst others. By demanding that farmers must be organised in cooperatives, market power is allocated towards small producers, increasing their bargaining power. Introducing a minimum price of coffee diminishes fluctuations in prices, resulting in a more stable income for marginalised farmers. However farmers are not guarantied a minimum quantity sold, and it can therefore be discussed how effective this initiative is on income. Supply and demand is found to be inelastic in the regular coffee market as well as the market for Fairtrade coffee. This creates a potential for increasing prices through Fairtrade, since reactions in demand to price changes are relatively low. However when supply exceeds demand, profits are low and the question is whether the higher price can counter the effect of low demand. Following this introduction, Fairtrade will be analysed more thoroughly. Firstly a closer look will be taken on the program after which the effects will be analysed in an economic setting.

6. THE FAIRTRADE PROGRAM

In this section, the Fairtrade program will be introduced shortly in an objective manner to understand the guidelines that organisations has to follow and the means of becoming certified. This will create a basis for analysing and evaluating the program in chapter 7.

6.1 Objectives of the Fairtrade program

Since the introduction of the Fairtrade concept in the Netherlands in 1988, the concept has extended progressively, covering 28 Fairtrade producing countries in 2011 (Fairtrade Foundation, 2012). FLO, the umbrella institution for the different national institutions, works to achieve improvement in unequal distribution of wealth between North and South by providing the necessary means for small growers to take charge of their development as independent producers and not as recipients of charity (International Trade Center, 2013). This aim is argued to be retrieved by guaranteeing a fair price for producers and reducing the isolation of small farmers, giving them access to market information (Nicholls & Opal, 2005).

Table 6 – Fairtrade aims

Fairtrade aims
• Moving marginalised producers from a state of vulnerability to security and economic self-sufficiency. Sought through stabilisation of prices with a minimum fair trade price and fair trade premiums. • Empowering farmers and workers through partnerships as stakeholders in organisations. • Achieving greater equity in international trade, by improving trading conditions. • Promoting long-term economic and social improvements and opportunities of small producers and wageworkers through strengthening of participation and ownership in decision-making as well as training and capacity building for especially women, encouraging better and more sustainable methods of production.

Source: (Fair Trade Advocacy Office, 2001)

Achievement of the above is secured through a commitment of the member organizations to provide financial, technical and organisational support to producers. They also commit to increase awareness of Fairtrade and campaign for changed rules and practices of conventional trade (Fair Trade Advocacy Office, 2001).

The producer price should not only cover the cost of production but also the cost of basic necessities such as running water, health care, education and environmentally friendly farming systems. Besides stable prices, Fairtrade member organizations also commit to fair remuneration, securing producers not only a minimum wage but also a living wage (Fair Trade Advocacy Office, 2001). Whether Fairtrade creates the foundation for a future income increase or just a temporary peak in income level of marginalised producers is still to be explored though.

6.2 Determining the minimum price

A significant benefit to Fairtrade producers is the guaranteed minimum price received for produced coffee beans. The purchase price of Fairtrade coffee is set in accordance with Fairtrade conditions of which the most significant are mentioned in the following. The price provisions are set as of April 2011. The purchase price should equal the higher of the reference market price or the Fairtrade Minimum price, plus the Fairtrade Premium and the organic differential where applicable. Reference market prices are set in the New York (Arabica) and London (Robusta) futures markets and the Fairtrade minimum prices is a guaranteed minimum price. The Fairtrade premium is fixed at 20 cent/lb. contributing with at least 5 cents for productivity and/or quality improvements (Fairtrade International, 2012a). The determination of the Fairtrade price is summarised in the following figure.

Figure 6 - Determining the Fairtrade price

Source: Own contribution

The intention with the Fairtrade minimum price is that it should equal total cost of production, cost of living and cost of complying with Fairtrade standards. The strategic intention of adding the Fairtrade premium is to encourage business development. An important aspect of the Fairtrade system is that the minimum price is not fully captured by producers, as the joint cooperative body takes up operations. Besides, there is evidence of producers prioritizing debt repayment with Fairtrade financing provided, leaving little income for Fairtrade producers (Utting-Chamorro, 2005). Following the income chain in her study, Utting-Chamorro however

still finds a doubling of income and profit reaching the farmer after the introduction of Fairtrade compared to before the introduction. The social premium is typically invested in community project funds or improvement of cooperative capacity and efficiency. Money is also invested in producer funds, used for funding minor loans to farmers (Utting-Chamorro, 2005).

6.3 Certification standards

To produce Fairtrade products, Fairtrade certification is required. FLO uses a certification system run by FLO-CERT, which contains requirements for producers. FLO-CERT assures compliance with Fairtrade standards, which are set within the four areas; standards for small producer organisations, standards for hired labour, standards for contract production and trade standards. This paper mainly focuses on small producer organisations and the standards for these are therefore elaborated in the following.

According to FLO the small-scaled producer is defined as farmers who are not dependent on permanent hired workers and who run the production on the farm mainly by help from family members. This is the requirement for less labour intensive goods production, which covers coffee. Furthermore a small-scaled producer defined by FLO fulfil the requirements of 1) not exceeding the indicators for the region specific production area and number of permanent hired labour, 2) The main income of the producer is from agriculture, 3) The producer is involved in the work on the farm, such as physical work, administration, procurement, logistics or organisation. The first requirement regarding region specific production area is due to the fact that the definition of the small-scale producer may differ from one local context to another. FLO has therefore developed indicators from the following criteria; acreage (ha)/producer and the number of permanent workers on the farm. The exact values are given in a table on FLO's website (FLO-CERT, 2011b). Furthermore, to obtain certification there are certain requirements. Majority of members must be small-scale farmers and at least half of the volume sold, as Fairtrade must be from small-scale producers. As mentioned, small-scale farmers must be part of a cooperative, and at least half of the members in the cooperative have to be small-scale farmers (Fairtrade Labelling Organizations International, 2011).

The above-mentioned covers a few of the numerous rules and regulations that must be followed to become certified, both as a producer and trader of Fairtrade products. The total rules covers

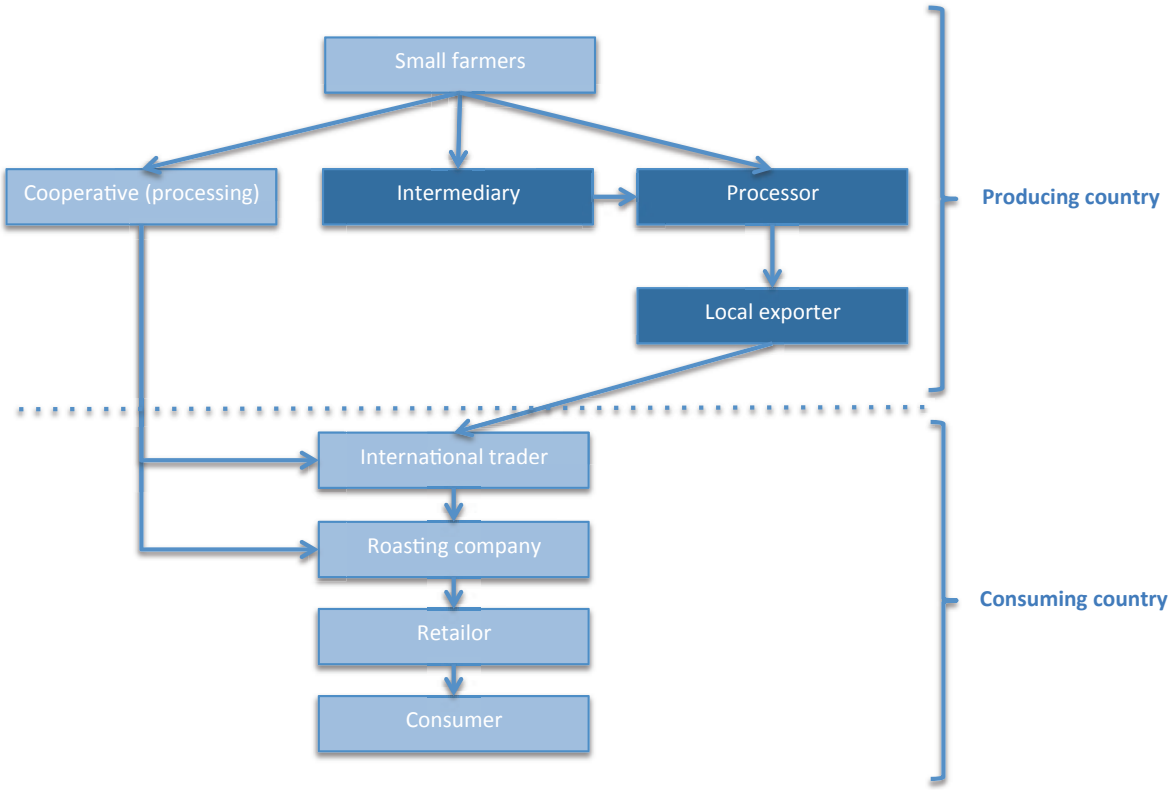
areas such as environmental regulations, discrimination, development, working conditions as well as certification, tracking, financing and prices.

Applying for or renewing the Fairtrade certificate several fees have to be paid, covering inspection and certification cost. These fees are rather costly and can be hard to cover for some farmers. As an example of the magnitude of the additional cost that is added compared to regular coffee, (Craxton & Rathke, 2011) compares the global import of Fairtrade coffee measured in money and weight respectively. They find that, measured in cash, Fairtrade accounts for 16% of the global trade, while measured in weight the coffee trade only accounts for 0.8% of global trade. According to them, this significant difference in the two measures is due to increased prices to producers and fees to become certified.

6.4 The Fairtrade Supply chain

The Fairtrade supply chain for the production of coffee consists of many steps and players. The coffee beans produced are therefore picked and bagged into two groups, one group sold in the regular coffee market and another sold with the Fairtrade mark at a higher price. The next step in the regular coffee supply chain would then be for the producer to either transport the coffee beans to the processor in the city or to sell the beans to a middleman hired by the processing company to transport the beans. After processing a local exporter would then sell the beans to the international trader. The Fairtrade supply chain cut off these links, as the cooperative takes over transportation and processing of the beans produced by members, and delivers directly to the international trader or the roasting company in the consuming country. The roaster puts a final touch on the coffee product before it is distributed to retail and lastly sold to the end consumer. In order to monitor the Fairtrade product through the entire chain, importers and coffee roasters have to sign a licensing agreement with Fairtrade in order to sell Fairtrade certified coffee (Global Exchange, 2011). The supply chain is presented in the following figure with the most common players present. FLO's role in the supply chain is also depicted. The chain may consist of more intermediaries in some cases, as the construction of the supply chain can vary.

Figure 7 - Supply chain for Fairtrade and regular coffee



Source: own contribution from various articles and websites

The figure illustrates the supply chain as described. Due to requirements of corporations in the Fairtrade program, the Fairtrade producer will sell coffee beans to the cooperative. As seen, the incorporation of a cooperative in the chain limits the number of actors, marked by a green shadow in the figure. Limiting actors can be a way to reduce costs. The dotted line in the figure divides activities in the producing and consuming country. The chain only differs in the producing country, by the number of middlemen before the bean is traded internationally. The role of cooperatives will be analysed in section 7.1.5, to investigate the effect of this element in the Fairtrade program.

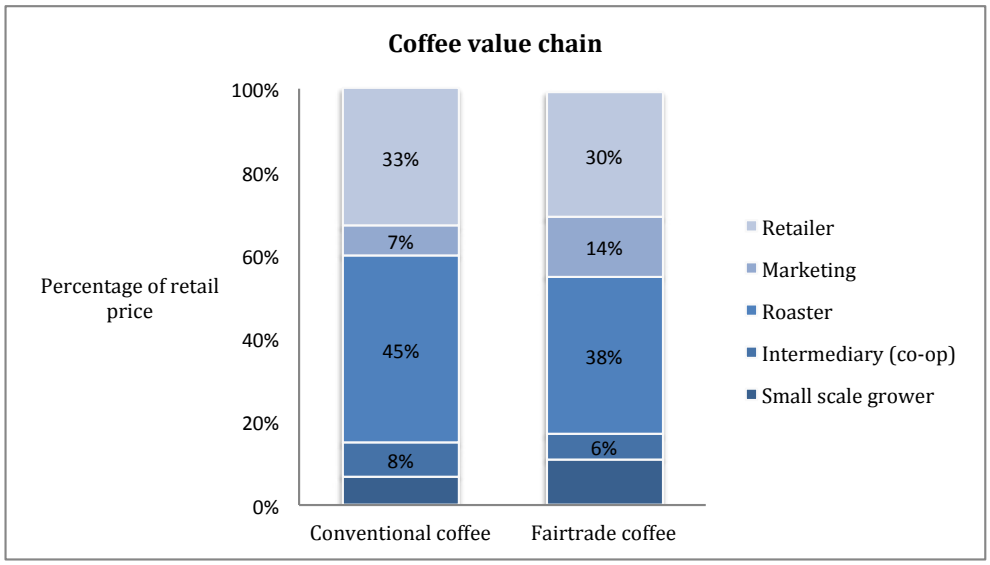
Most attention has been on the principal of retaining a fair price for marginalized producers, but the Fairtrade system also attempts to entrench principals of democratic decision-making as well as social and environmental sustainability in all stages of the supply chain. One of the biggest and most significant effects of incorporating the Fairtrade system is stability. Poor people do not save they consume everything. This makes the marginalised producer vulnerable to fluctuations in demand and prices and therefore creates an incentive to become certified within the

Fairtrade program. When cooperatives are strengthened as a result of Fairtrade, it often generates a multiplier effect as producers gain access to additional resources from beyond the Fairtrade program (MacDonald, 2007).

6.5 The Fairtrade value chain

The coffee supply chain of conventional and Fairtrade coffee is closely linked to a similar value chain. As explained in the supply chain, the value captured by producers is proven to increase with Fairtrade, cutting of links. In each part of the Fairtrade value chain, value is added to the product, and therefore the price of the end product is increasing. It is clear that the difference between the income of small-scale producers and the price that is faced by the end consumer is relatively large. When coffee beans are sold as a Fairtrade product, the producer will receive a higher price for the product, but the producer is at the same time obligated to pay the fees associated with being certified. To illustrate how Fairtrade differs, figure 8 compares the value chain for conventional and Fairtrade coffee.

Figure 8 - Value chain for Fairtrade and regular coffee



Source: adapted from (Nicholls and Opal, 2004)

The figure illustrates the value captured of the retail price by involved parties in the supply chain and other value capturing instances. Since very little is published on the value capturing bodies in the regular and Fairtrade coffee chain, the actors in the supply chain are not fully consistent with the value capturing parties in the value chain. However the chain illustrates the

overall picture. From the figure it shows that removing the middleman, i.e. the privately owned intermediary, provides the small-scale farmer with a larger share of the retail price. (Nicholls & Opal, 2005) argue this share to be 11% vs. 7%, in the absence of Fairtrade. Adding to this, the fact that the farmers own the Fairtrade cooperative in contrast to the investor owned firms, another 6% of retail price is captured for Fairtrade farmers that would otherwise had been paid to intermediaries. The authors also argue that due to the minimum price paid for the coffee, the financial return for cooperatives is higher. From the figure it can also be seen that the roasters share of the final retail value decreases with Fairtrade, however the roasters share is still large, which shows evidence of roasters large amount of power in the chain. Finally marketing costs are present in the end of the supply chain, when branding the product to the consumer. From the increased Fairtrade price it can be seen that twice as much, in percentage terms of the final retail price, is used on advertising. Advertising is an important part of increasing consumer awareness of the Fairtrade brand, however it can be argued whether money can be spent more efficiently to lower the share. The processor, which is an important value-capturing link in the chain, is not apparent in the figure. Investigating the value captured by the processor, it is found that the percentage value of the final retail price distributed to the processor falls with the introduction of Fairtrade (Mendoza, 2000). As processing is taken over by cooperatives to a large extent in the Fairtrade supply chain, this makes perfectly sense, as the cooperative is run by farmers and hereby does not make up yet another profit seeking actor in the chain.

The views of Nicholls and Opal, presented in the figure, should be taken with precautions. The two writers are both involved in the Fairtrade program, which on the positive side means that they have easier access to information and that this is more thorough. On the other hand they do have incentives to display a positive presentation of the program, and therefore may lack a critical voice. It can for example be questioned if the redistribution of profits is in fact true. Contrary views of Fairtrade, such as that of (Henderson, 2008), argue that much of the gain from the Fairtrade premium do not reach the farmers, but goes to the Fairtrade bureaucracy. (Craxton & Rathke, 2011) state that there has been evidence of 50% of Fairtrade premiums being used for administrative costs with regard to Fairtrade protocol. Costs, such as transportation costs are yet another element not included in the model. Specialty coffee, such as Fairtrade, has to be shipped in separate containers. As Fairtrade makes up much smaller shipments than regular coffee, increased costs are encountered, which creates a transportation problem(International Trade Center, 2011). Finally the Fairtrade organisation's activities must be financed, but fees and grants are expected to cover most of this part (Fairtrade International, 2012b). From the

value chain illustrated and discussed, there exist clear indications of the value chain being much more complex than expected at a first glance, lacking transparency in the flow of money.

Becoming certified ensures a higher price for the bean produced, but does not necessarily mean that the farmer has to endure higher production costs and therefore seem to be a good alternative to produce individually. There are certain requirements if the farm hires workers outside the family, but if the farm is small enough, this will not be relevant. For the small-scaled farmer the change in production processes might therefore not be too extensive. It was found that the way the cooperative is organised removes the incentive for the farmer to produce high quality coffee beans, as the cooperative collects the beans from all the individual member farmers and mix them for further sales. The price the individual farmer receives does not vary with quality and the farmer will receive the Fairtrade premium in any case. This creates a free rider problem, because each farmer will rely on the others efforts and will have no incentives to increase their own quality of beans (Henderson, 2008). The result might be lower production costs from producing lower quality coffee beans. It might therefore be the case that the individual farmer will gain higher profits from the coffee sold as Fairtrade, because of aggregated lower production costs and a higher sales price. However there are costs associated with becoming certified, in the form of fees that has to be paid to the Fairtrade Organisation. The overall benefit will therefore depend on the ability of the farmer to sell all coffee beans produced as Fairtrade coffee.

Partial conclusion

In chapter 6 the basic principles and guidelines of the Fairtrade program has been outlined and analysed in a supply and value chain. To conclude, Fairtrade is seeking to help marginalised producers through stabilisation and empowerment. To become Fairtrade certified farmers are required to be organised in cooperatives and be small-scaled, hence mainly dependent on work from family members. Certified members receive a minimum price for the coffee sold as Fairtrade and any profit will be spent or distributed to members by the cooperative in a democratic manner. The supply chain illustrates that Fairtrade removes a number of actors in the chain, and empower the certified producers through cooperatives. Furthermore the illustration of the value chain identifies that a greater part of the retail price is reallocated towards the small-scaled producer, indicating that the program is succeeding in generating extra profit for marginalised producers. However lack of transparency in the value chain is found to be a problem.

7. ANALYSIS

Throughout chapter 1-6 we have presented an introduction to the field of which Fairtrade is operating in, hereunder the historical development, structure of the Fairtrade and regular coffee market, supply and demand characteristics and a short analysis of the Fairtrade program as it appear today. It was found that Fairtrade is seeking to correct and adjust many of the identified market failures in the regular coffee market, such as unequal distribution of market power, lack of access to markets and volatile prices. Analysing the Fairtrade program, Fairtrade seeks to redistribute more power to marginalised producers and create greater access to markets through required membership in cooperatives. The program also seeks to stabilise the coffee market for producers, by introducing a minimum price and a Fairtrade premium. The minimum price should cover costs to the certified producers and while the premium is intended for development. Fairtrade was found to offer better trade terms by cutting linkages in the coffee chain, a chain found to be buyer driven, but with Fairtrade gaining larger profits for the implicated parts along with improved bargaining skills. To be able to evaluate the fairness of the program from an economic perspective the relevant question is what consequences these market regulations have on total welfare.

7.1 The effect of Fairtrade

This section takes the analysis a step further, as the true economic effect of the Fairtrade program is modelled and analysed. The analyses will be performed on the basis of economic theory, which will be presented along with the analysis.

7.1.1 Effect on equilibrium

In this section a partial analysis will be provided on the Fairtrade effect on quantities, prices and equilibrium. According to the measure chosen in this study, increased farmer income is only beneficial if total welfare is unaffected or increased, and there will therefore be solved for total welfare. Furthermore the effect on income to farmers will be investigated, since this is the measure used by Fairtrade to evaluate the success of the program. First the supply and demand equations are given for the market without Fairtrade. Second the effect from Fairtrade will be analysed when the world market price for coffee is given, and unaffected by the Fairtrade production, due to a limited Fairtrade market share. Third the analysis is extended with an

examination of the case with Fairtrade having an impact on the general market price for coffee. It can be discussed whether Fairtrade is big enough to impose a reaction to the general price level of coffee, and the analysis will therefore present both cases. Even though Fairtrade is relatively small at the moment, it is growing fast, and it must therefore be assumed to have an increasing impact on the market price.

The models are built on the assumption that there exist two markets, a Fairtrade market and a free trade market, supported by finding in the literature review. The two markets are initially identical and the price is set in a competing market. The broader understanding of Fairtrade by economists is that Fairtrade has the same effect as a tariff with the only difference being that the tariff is distributed to producers instead of being collected by the government, as it would be with a normal tariff. We therefore consider Fairtrade to be analogous to a tariff. For simplification, other links in the Fairtrade supply chain as well as certification costs are disregarded. The conducted analysis assumes limited access to the Fairtrade market, as excess profit cannot exist in the long run otherwise.

To see the effect from introducing Fairtrade, a simple model of markets before introducing fair-trade to the free trade market is presented, with Q_T^D and Q_T^S representing demand and supply in the free trade market at the given conventional price P_C. Q_F^D and Q_F^S represent demand and supply in the Fairtrade market. As the Fairtrade market size is only a fraction of the free trade market, Fairtrade supply and demand equations are multiplied by a fraction, a. Before introducing Fairtrade to the market, a is therefore considered to be zero. As discussed in section 5.2.3, it can be credibly assumed that supply and demand curves are inelastic. The slope of the two curves is therefore set to equal 2 in this simple model, to obtain steep curves. The supply and demand equations are written as follows.

$$Q_T^D = 0.5 - 0.5P_C$$
$$Q_T^S = -0.25 + 0.5P_C$$
$$Q_F^D = a(0.5 - 0.5P_C)$$
$$Q_F^S = a(-0.25 + 0.5P_C)$$

Solving for equilibrium below, there is found a price, P_C, of 0.75 and a Fairtrade quantity and free trade quantity of 0.25, as seen in the following.

$$Q_F^D + Q_T^D = Q_F^S + Q_T^S \Rightarrow a(0.5 - 0.5P_C) + (0.5 - 0.5P_C) = a(-0.25 + 0.5P_C) + (-0.25 + 0.5P_C)$$

$$P_C = 0.75; Q_T = 0.25;\ Q_F = 0.25a$$

Introducing Fairtrade to the market, a higher demand price, P_F^D, is set in the Fairtrade market. It is assumed that the consumer demand curve does not shift, which however could be the result if consumers view the product as a differentiated product, due to its moral aspect. At the Fairtrade price, demand is set at $Q_F^D = a(0.5 - 0.5P_F^D)$. As not all Fairtrade produced coffee beans can be sold in the Fairtrade market, the rest must be sold in the conventional market. The supply price, P_F^S, is therefore an average of P_F^D received for Fairtrade and excess production, $(Q_F^S - Q_F^D)$ in the free market. The price and quantity supplied is then computed as follows.

$$Q_F^S P_F^S = P_F^D Q_F^D + (Q_F^S - Q_F^D)P_C <=> P_F^S = \frac{P_F^D Q_F^D + (Q_F^S - Q_F^D)P_C}{Q_F^S}$$

$$=> P_F^S = \frac{Q_F^D}{Q_F^S}(P_F^D - P_C) + P_C$$

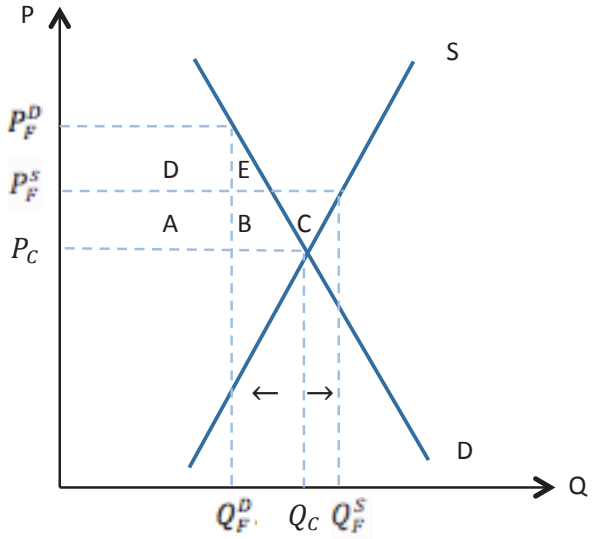
The Fairtrade quantity is the same as found with the two separate markets

$$Q_F^S = a(-0.25 + 0.5P_F^S)$$

This is illustrated in figure 9, depicting the case where Fairtrade is too small to have an impact on the market price. The graph shows supply (S) and demand (D) for coffee. The intersection of demand and supply is at equilibrium for the conventional coffee market. Equilibrium is found at quantity Q_c and price P_c. Introducing Fairtrade to the market, Fairtrade producers will receive the higher Fairtrade price for their coffee, P_F^D. As illustrated in the figure, the higher Fairtrade price will result in lower Fairtrade demand, Q_F^D. However not all Fairtrade production can be sold in the Fairtrade market (Valkila & Nygren, 2010), and excess supply will therefore be sold in the conventional market at the price P_c. Fairtrade producers will therefore sell at an average price, which lies between the price for conventional coffee and the Fairtrade price, at P_F^S. At this price there is excess supply of coffee, as supply exceeds demand. In the figure, the average price is portrayed at an equal distance from the Fairtrade price and the conventional price, indicating that the Fairtrade producer is able to sell half of production as Fairtrade and the second half as conventional coffee. However, depending on how much is sold as Fairtrade and conventional

coffee respectively, the average price will be situated either closest to the Fairtrade price or the conventional price in reality. In chapter 4 empirics were presented showing that in some cases only around 30% pct. of Fairtrade coffee production can be sold as Fairtrade, and we are therefore aware of the fact that a depiction of the average price closer to the conventional price probably presents a more realistic picture. However the figure presented does not contain units, and is only made with the purpose of illustrating the qualitative relations in the Fairtrade framework.

Figure 9 – Equilibrium with Fairtrade having no impact on world supply



Source: Own contribution

As illustrated in the graph, Fairtrade coffee producers gain the area A+B+C. The consumers lose the area A+B+D+E and the area D+E-C captures net loss from Fairtrade. Since it was found in section 5.2.3 that demand for Fairtrade and regular coffee is relatively inelastic, the slope of the demand curve will not approach zero, which means that area D+E will constitute a larger area than C. To test this hypothesis, a model is set up using Excel and calculating areas for different elasticities with trial and error. By comparing the two areas for different values of elasticities of demand, it is found that the area D+E is superior to C, accepting the hypothesis. The result is a welfare loss from introducing Fairtrade to the coffee market. It is important to notice that as the Fairtrade price changes, the price elasticity of demand changes as well, as price elasticity of demand is not constant along the linear demand curve. Increasing the Fairtrade price will result in an increasing reduction of income to the producers, as the consumer will demand less. This

could be illustrated by a kink in the top of the demand curve. In this analysis we will present the simple case, and the demand curve is therefore plotted as a straight line.

Analysing the case where Fairtrade has an impact on the general price level, a new market price will be generated in the market as a reaction to oversupply in the conventional market. The demand and supply functions in the free market are unaffected, given by the following equations:

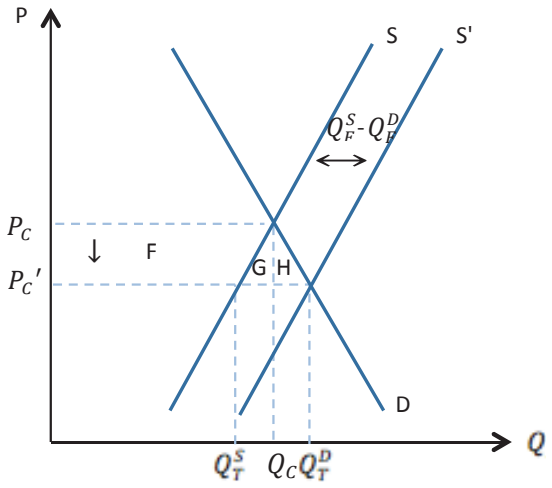
$$Q_T^D = 0.5 - 0.5P_C, Q_T^S = -0.25 + 0.5P_C$$

The new market price in the free market is found where the sums of supply from producers in the free market and excess Fairtrade production sold in the free market equals demand. In other words, the quantity demanded in the world market will equal the quantity supplied in the world market plus the excess supply from the Fairtrade market:

$$Q_T^D = Q_T^S + (Q_F^S - Q_F^D)$$

In figure 10 it is shown how an excess supply will shift the supply curve, when the world market is affected. The result is a falling coffee price, illustrated by the move from P_c to P_c' in the world coffee market. Due to the lowered price in the conventional coffee market, caused by excess supply, demand for conventional coffee increases from Q_c to Q_T^D.

Figure 10 - Equilibrium with Fairtrade affecting world supply



Source: Own contribution

The conventional coffee producer faces a producer loss equal to area F, while the consumer gains area F+G+H. The result is a net gain of area G+H. Assuming that Fairtrade has an effect on the market price for coffee, there is a welfare gain consisting of G+H, which is distributed to the consumer. The Fairtrade producers will also gain from the higher price received for their production, however it is at the expense of the conventional coffee producer receiving a lower price for its production.

Consumer surplus equals the area above the respective price, bounded by the demand curve, and measures welfare allocated to the consumer. Producer surplus is calculated as the area below the respective price, bounded by the supply curve, similarly measuring welfare allocated to the producer and thereby farmer income. Equations calculating consumer and producer surpluses are therefore as follows:

$$CS_F = (1 - P_F^D) \times \frac{Q_F^D}{2}$$

$$CS_T = (1 - P_C{}') \times \frac{Q_T^D}{2}$$

$$PS_F = (P_F^S - 0.5) \times \frac{Q_F^S}{2}$$

$$PS_T = (P_C{}' - 0.5) \times \frac{Q_T^S}{2}$$

The summed producer and consumer surpluses constitutes the total welfare gain as seen in the equality:

$$W = CS_F + CS_T + PS_F + PS_T$$

From the equations summarised below, $P_C, P_F^S, Q_F^S, Q_F^D, Q_T^D, Q_T^S, CS_F, CS_T, PS_F, PS_T$ is estimated for different Fairtrade prices, to see the exact effect on total welfare and income to farmers. As mentioned in the introduction, there is solved for the effect on total welfare, as increased farmer income is only beneficial if total welfare is unaffected or increased. Furthermore the effect on income to farmers is investigated, since this is the measure used by Fairtrade to evaluate the success of the program.

$$\begin{bmatrix} Q_F^D = a(0.5 - 0.5P_F^D) \\ Q_F^S \cdot P_F^S = P_F^D \cdot Q_F^D + (Q_F^S - Q_F^D) \cdot P_C \\ Q_F^S = a(-0.25 + 0.5P_F^S) \\ Q_T^D = 0.5 - 0.5P_C \\ Q_T^S = -0.25 + 0.5P_C \\ Q_T^D = Q_T^S + (Q_F^S - Q_F^D) \\ CS_F = (1 - P_F^D) \times \frac{Q_F^D}{2} \\ CS_T = (1 - P_C) \times \frac{Q_T^D}{2} \\ PS_F = \left(P_F^S - 0.5\right) \times \frac{Q_F^S}{2} \\ PS_T = (P_C - 0.5) \times \frac{Q_T^S}{2} \\ W = CS_F + CS_T + PS_F + PS_T \end{bmatrix}$$

11 equations with 11 unknowns therefore have to be computed. The Fairtrade price, P_F^D, is set exogenously in the equation system, testing the outcome with several prices between 0.75 and 0.9. Results for Fairtrade prices under 0.75 do not make sense, since the Fairtrade price per definition is above the world market price, found to be 0.75. The system of equations is solved using Matlab's built-in nonlinear solver, fsolve. The results are summarised in the following table, for a = 0.01, meaning that the Fairtrade market represents 1% of the world market. This measure is chosen since this is approximately true in time of writing. Each result in Matlab returns two solutions, but only one of the solutions makes economic sense. The solution for each value of Z is shown in table 7.

Table 7 – Matlab results for different Fairtrade prices

Results from Matlab, a = 0.01						
Variables						
Z	P_{DF}	0.75	0.80	0.85	0.875	0.90
A	Q_{DF}	0.00125000	0.00100000	0.00075000	0.000625000	0.00050000
B	Q_{SF}	0.00125000	0.00142480	0.00149840	0.001506700	0.00149720
C	P_C	0.75000000	0.74958000	0.74925000	0.749120000	0.74900000
D	P_{SF}	0.75000000	0.78497000	0.79968000	0.801340000	0.79943000
E	Q_{DT}	0.12500000	0.12521000	0.12537000	0.125440000	0.12550000
F	Q_{ST}	0.12500000	0.12479000	0.12463000	0.124560000	0.12450000
G	CS_F	0.00015625	0.00010000	0.00005620	0.000039062	0.00002500
H	CS_T	0.01562500	0.01567800	0.01571900	0.015735000	0.01575000
I	PS_F	0.00015625	0.00020302	0.00022452	0.000227010	0.00022415
J	PS_T	0.01562500	0.01557200	0.01553200	0.015515000	0.01550100
W	W	0.03156200	0.03155300	0.03153100	0.031516000	0.03150000

Source: Own contribution from calculations in Matlab

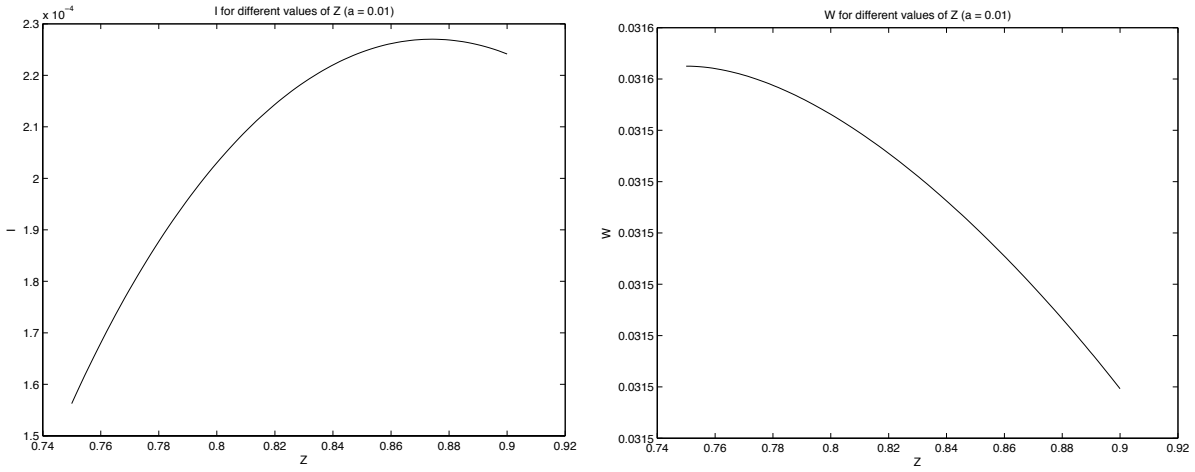
The variables are denoted letters $A - J$, W and Z, which will be used in the following graphs. Increasing the Fairtrade price from 0.75 to 0.80 results in a decrease in the conventional price of coffee and an increase in the quantity demanded of conventional coffee. The average price for the Fairtrade producer increase, as a result of the increased Fairtrade price, which leads to an increase in Fairtrade producer surplus of 2.0302×10^{-4}-1.5625×10^{-4} = 0.4677×10^{-4}. The free trade producers lose an income of 0.015572-0.015625 = -0.53×10^{-4}. It is clear that the free trade producer loss is greater than the gain to Fairtrade producers and overall this therefore constitute a net loss to producers in the economy. Comparing the Fairtrade producer increase in income of 0.4677×10^{-4} with the Fairtrade consumer loss in surplus of 1.0×10^{-4}-1.5625×10^{-4} = -0.5625×10^{-4}, the producer gains approx. 83% of what the consumer loses from the Fairtrade price increase. The result is a total welfare loss when increasing the Fairtrade price from 0.75 to 0.8 of 0.031553-0.031562 = -0.089×10^{-4}. While Fairtrade producers gain, due to the increased Fairtrade price, the overall economy loses.

Increasing the Fairtrade price to 0.90, income of farmers further increase while total welfare continues to decrease. Due to the price increase, demand for Fairtrade coffee decreases, as would be expected from basic market mechanisms of supply and demand. As excess supply from the Fairtrade coffee market is growing, total supply in the free market increases. This will cause the conventional coffee price to drop even further, which leads to increased demand in the free market. The result of increased excess supply is a lower producer surplus for Fairtrade producers dropping to 2.2415×10^{-4}. Total welfare continues to decrease for higher values of the Fairtrade price.

The market mechanisms can be explained as follows. When the Fairtrade price increases, excess supply from Fairtrade producers increases accordingly, which pushes the supply curve S', in figure 10, further out. Prices in the free market will continue to drop as a consequence, which increases consumer surplus in the market for conventional coffee, since conventional producers face a lower price. Producer surplus for conventional producers drop as a result to this. Fairtrade consumer surplus is strictly decreasing as was expected, since consumers continue to face a higher Fairtrade price. The two main variables of interest are the total welfare and producer surplus for Fairtrade producers, measuring their income. It is seen that income to producers attains its maximum when the Fairtrade price equals 0.875. Above this value, demand for Fairtrade is decreased significantly, due to high prices, and income therefore decreases as too much coffee is sold as excess supply. As mentioned, total welfare is decreasing for every

increase in the Fairtrade price. From this it can be concluded, that the marginalised Fairtrade producers maximise their income at a Fairtrade price of 0.875, but operating at this price is costly to the economy as a whole, illustrated by a drop in total welfare. The following figure show how the income of farmers and total welfare depend on the Fairtrade price.

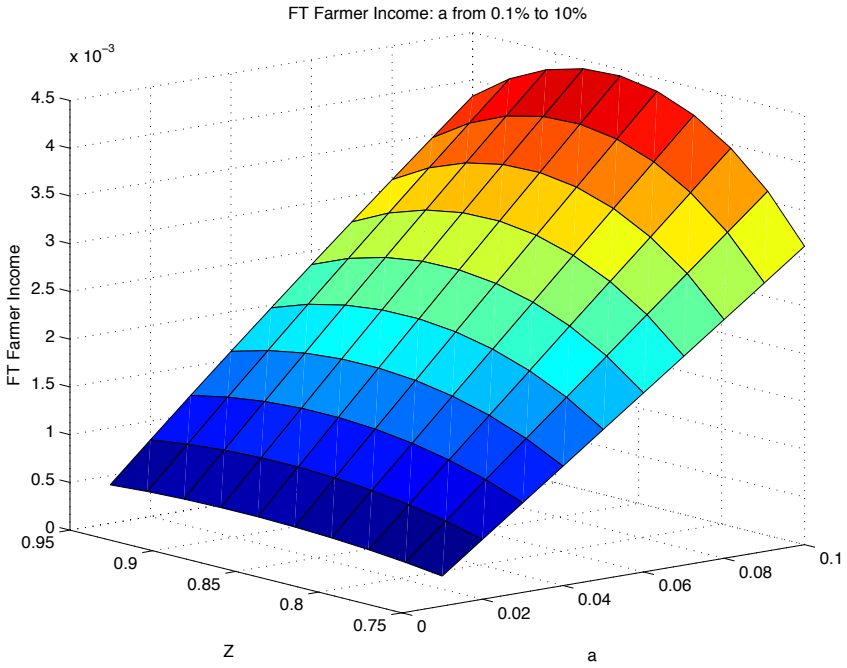
Figure 11 - Welfare and income distribution as a function of the Fairtrade price



Source: Own contribution, using Matlab

The left graph illustrates changes in farmers' income (I), on the vertical axis against changes in the Fairtrade price (Z) on the horizontal axis. As shown, farmers' income is increasing in the Fairtrade price until the price equals 0.875, as was found in the numerical outcome. Similarly, the right graph depicts changes in total welfare (W) for changes in the Fairtrade price (Z). It can be seen that total welfare is a decreasing function of the Fairtrade price; meaning that the higher the Fairtrade price the lower is total surplus as was found before. The model is calibrated with the assumption that the Fairtrade market only accounts for 1% of the total coffee market, i.e. a equals 0.01. In the following 3D figure farmers' income is shown as a function of the fraction a and the Fairtrade price Z, to investigate the effect of both unknown variables.

Figure 12 - Distribution of farmer income depending on a and Z



Source: Own contribution, using Matlab

The figure illustrates that farmer income is strictly increasing in a. Furthermore farmer income is a concave function of the Fairtrade price. When the Fairtrade price increases, farmer income will increase to a certain point after which it is a declining function of Z. The magnitude of the concaveness in the function appears to be greater for larger values of a, i.e. when the Fairtrade market is bigger. The figure only shows values of Z between 0.75 and 0.95. As found earlier, the regular price without Fairtrade being present was 0.75. A lower Fairtrade price than this value would not make sense in this setting, since the Fairtrade price is always equal or above the regular coffee price. Furthermore a is shown in the interval 0% to 10% market size. Today Fairtrade is argued to account for approximately 1% of the coffee market; therefore it seams an appropriate measure to investigate numbers up to 10% for the time being. A similar figure illustrating the effect of Z and a on total welfare is shown in appendix 4. In the appendix it is illustrated that total welfare increases as the Fairtrade market size increases and decreases as the Fairtrade price increase. This indicates that total welfare is optimised when the Fairtrade market is large and the Fairtrade price kept equal to the price of regular coffee. This result is not realistic however, as the Fairtrade price will always be above the conventional price, due to the Fairtrade premium. Increasing sales at the conventional price will of course increase welfare, but this will not be a result of Fairtrade.

The following conclusion can be made from the analysis. In the case of Fairtrade having no impact on the general price level of coffee, due to its rather small share of the total coffee market, Fairtrade results in a net loss to consumers, but a gain to Fairtrade producers. As the consumer loss exceeds the producer gain, there is a total welfare loss from introducing Fairtrade, when Fairtrade has no impact on the general price level of coffee.

In the case where the Fairtrade volume is large enough to have an impact on the general price level of coffee, Fairtrade producers gain by producing more at a higher price, even though facing higher production costs. On the other hand, producers in the conventional market lose by producing less to a lower price, even though facing lower cost of production. Pricing at the optimal Fairtrade price, the increase in Fairtrade producer income is less than the loss to Fairtrade consumers. This indicates that the Fairtrade solution is inefficient for consumers that want to support poor producers. A more efficient alternative would be for the consumer to transfer money directly to the producer, to use in better production facilities and social development. Consumers in the Fairtrade market face a loss that is larger than the consumer surplus in the free market, which results in a net loss to consumers. Total welfare falls as a result of Fairtrade, and it can hereby be concluded from the model that Fairtrade is shown to be inefficient from a socio-economic perspective. A final fact is that pricing Fairtrade too high will even result in a loss to Fairtrade producers, as the high price results in a significant decrease in the amount of Fairtrade demanded, and hereby a significant increase in supply in the free market, causing the market price to fall heavily, and hereby the average price to fall. As most of the Fairtrade production is sold in the free market, Fairtrade producers will lose from the high price.

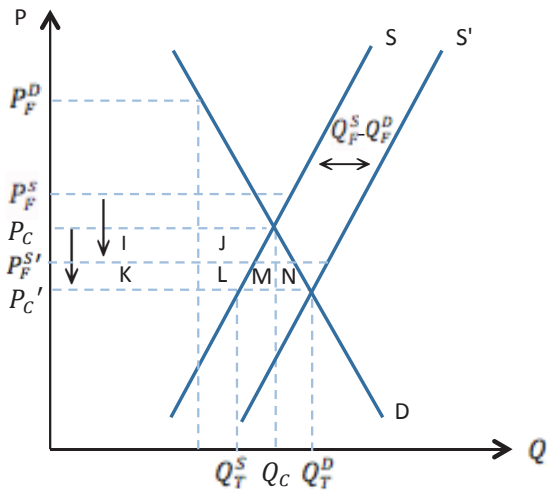
The model analysed is built on the assumption that the demand curve stays unchanged from introducing Fairtrade. However, Fairtrade could also be assumed to result in a shift in the demand curve. One reason why it might shift to the right, for example, could be that consumers demand more coffee when Fairtrade is introduced. This can be imagined, but to a very limited extent, as most Fairtrade demand probably will come from consumers already consuming coffee and therefore substituting from regular coffee to Fairtrade coffee. It could be argued, as it was found in the literature review, that some consumers regard the Fairtrade product as a separate product for which they are willing to pay an increased price. This would shift the demand curve, but due to the limited demand for Fairtrade the shift is likewise assumed to be limited. Furthermore, demand for regular coffee and demand for Fairtrade coffee is not necessarily equal. As argued in section 5.2.3, demand for consumers buying Fairtrade can be argued to be

more inelastic than demand for consumers buying regular coffee, meaning that they are willing to pay a higher price before substituting to another product. This is not incorporated in the simple model presented above. If there are differences in elasticity of demand it will cause a reduction in the found market distortions. This is due to the fact, that demand will be less sensitive to price changes, resulting in a smaller excess supply by Fairtrade producers and thereby a decreased change in the regular coffee price.

As mentioned in chapter 4, Fairtrade producers can be argued to be less efficient than conventional producers, which increases their marginal costs. As found in the literature review, an empirical study indicated that small-scale farmers do not use their full capacity and are therefore not efficient. In this case costs to Fairtrade producers will be larger and probably cause an even larger loss of efficiency by supporting marginalised producers. Furthermore, Fairtrade producers engage in extra costs from certification fees and requirements for production standards, however there was also found to be lower quality cost, due to the minimum price. Whether costs are increased or decreased for the Fairtrade producer can therefore not be determined for sure, The cost difference is not incorporated in the model, but if the result is increased cost, which we find the more possible than lowered cost, the distortion will be larger than indicated above.

It was found how pricing Fairtrade too high, can cause a loss to Fairtrade producers. Taking this observation a step further, it could be imagined that pricing too high or Fairtrade becoming too large, could affect the general price level heavily, hypothetically resulting in the average price for Fairtrade producers falling below the initial price level of coffee in the free market. This hypothetical model is presented in figure 13. It is built on the assumption that Fairtrade is large enough to affect the general price level of coffee, and either the Fairtrade price being raised enough or Fairtrade becoming large enough to affect the price level extensively. From the figure it shows that the Fairtrade producer will lose area I+J instead of gaining area A+B+C as was the case in figure 9. This will result in a welfare loss to all producers, with an unintended effect working in the opposite direction of the actual social strategy.

Figure 13 - A hypothetical equilibrium model



Source: Own contribution

Learning from chapter 4, that many Fairtrade producers can only sell on average 30% of Fairtrade, some as little as 10%, there is the risk that the lower price in the conventional coffee market, will affect these producers even more than first assumed and more than illustrated by the average price in the graph. Evidence of early entrants controlling the Fairtrade market, in chapter 4, as well as retailers controlling an increasing amount of the market, also indicates that there might exist unfair distribution of Fairtrade volumes that can be sold between producers. Combining this knowledge with the hypothetical model, it could be interesting for further research to investigate the spread in the Fairtrade volume share of total sales by producers. This would require a thorough empirical study of a large amount of Fairtrade producers, which is out of the scope of this thesis. For now however, it seems reasonable to conclude that this hypothetical example will not occur, due to the empirically found small market share of the Fairtrade market.

7.1.2 Effect on factor prices

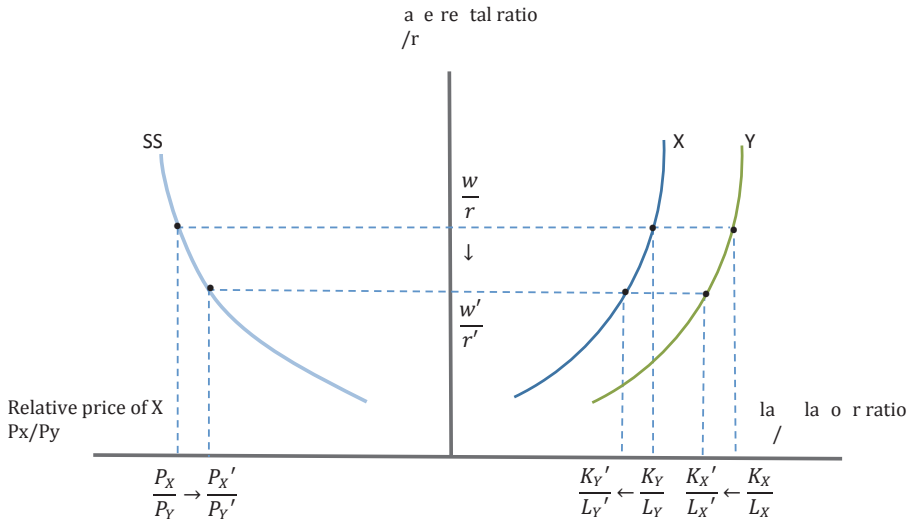
In this section the introduction of the Fairtrade price will be analysed from an international economics perspective. Trade is a main factor in the coffee industry since approximately 2/3 of all coffee produced is exported and consumed in a different country. The conditions for trade are therefore an important determinant of the amount of coffee demanded and world coffee prices. Introducing barriers to trade, for example in the form of a tariff, will result in decreased demand, lower production and lower prices. As mentioned Fairtrade is argued to be analogous to a tariff,

but with profit being distributed to the producer instead of the government and many therefore argue Fairtrade to be inefficient from an economic perspective. The aim of introducing the Fairtrade premium and minimum price is to improve conditions for poor or marginalised producers. One way to measure if Fairtrade is doing a good job at this is to investigate how the price of coffee affects factor prices.

Two-factor model in a Heckscher-Ohlin setting

A basic model often referred to in international trade theory is a two-factor Heckscher-Ohlin economy, with two countries, two products and two factors of production. This model is an extension of the standard Ricardian model that explains trade as a result of differences in productivity. Heckscher-Ohlin however explains the basis of trade as a result of both differences in productivity and differences in countries resources (Krugman Paul, 2006). The model has been criticised for its simplicity and unrealistic assumptions. The assumptions underlying the model are identical production technologies, constant returns to scale in production output, technologies used in production differ between goods, labour and capital mobility within but not between countries and perfect internal competition. Based on these assumptions they find that the country that is abundant in a certain factor of production will export the good whose production is intensive in that factor (Krugman Paul, 2006). Consider two countries, a home country and a foreign country, which is labour and land abundant respectively. If there are two goods, the labour-intensive good X and the land-intensive good Y, opening up for trade will result in the home country exporting X, since this product is labour-intensive and the country is labour-abundant. In this basic Heckscher-Ohlin setting, also known as the 2x2x2 model, the effect from an increase in the relative price of goods on the factor prices and input choices can be analysed. This is done in the following figure.

Figure 14 - Effect on factor prices in a H-O setting



Source: Own contribution from (Krugman Paul, 2006)

The X-curve shows the land/labour ratio choices in production of X, while the Y-curve shows the same ratio choices for the production of Y. As illustrated in the figure, Y production uses a higher land/labour ratio for any given value of factor prices and Y is thus a *land-intensive* good. The relationship between factor prices and the wage/rental ratio is illustrated in the figure as the SS curve. Due to the fact that one good is labour-intensive and the other good is land-intensive there is a one to one relationship between the factor price ratio and the relative price of X.

Analysing the effect on income depends on the effect of goods prices on input choices. The increase in the price of Y results in a lower relative price of X decreases, as seen on the move from $\frac{P_X}{P_Y}$ to $\frac{P_X\prime}{P_Y\prime}$ on the SS curve. The decrease in the price ratio means that the wage to rental rate declines since Y is land intensive. When the rental rate increases relative to the wage rate, demand for capital will decrease, lowering the ratios $\frac{K_X}{L_X}$ and $\frac{K_Y}{L_Y}$. This is shown by the movement to the left of the land to labour ratios for X and Y. When wages decrease relative to the rental rate, the land-labour ratio decreases consequently. This will in effect lower the purchasing power of workers and raise the purchasing power of landowners. From this theoretical example it can therefore be argued that raising the price of coffee, will increase the purchasing power of the abundant factor, either landowners or workers depending on the abundance.

Three-factor model – the effect of an increase in the coffee price

The above mentioned is a very simple model of the result of trade between two countries, producing the same two products, but with different productivity and resources. In this setting an increase in the coffee price will benefit the small-scale farmer, when coffee is a land-intensive good. In this section we develop a three-factor model to explain the effects of an increase in the coffee price, applying a simple economic model to the present problem statement. First, we discuss the model intuitively, and then a mathematical model is presented to investigate the certain effects.

Consider an economy with three factors of production, namely land (terra, T), labour (L) and capital (C). Land and labour is self-explanatory, while capital can be defined in different ways. In this setting, capital is defined as production equipment, investments, buildings, fertiliser and other similar factors in production. In contrast to the Heckscher-Ohlin setting, capital is mobile between countries. There are three sectors of production, Traditional Agriculture (A), Coffee production (K) and Manufacturing (M). Traditional agriculture is defined as growing crops and livestock that is not exported and therefore consumed in the producing country. Similarly there are three factor prices related to the factors of production. The return on land is given by the rental rate and denoted r, labour is paid the wage rate w, and cost of capital is given by the interest rate i.

The three sectors differ in the production of goods, as they use a different combination of production factors. To produce traditional agriculture, land and labour is needed. Since this production is small-scaled, it is assumed that there is no significant use of capital in the production, such as machines, pesticides or other investments. These agricultural goods are mainly produced by the hand of family members without assistance of developed production technologies. In the production of manufacturing goods the main factors of production are labour and capital, since this production has a far more developed technology of production and uses no land but capital in the form of buildings in stead. The production of coffee is similar to the production of traditional agriculture, but since this production is more commercial, factors consists of land, labour and capital. This is a very simplified definition, since the technique of producing coffee beans depends on the resources and technology of the individual farmer. However this industry is overall highly commercial since demand outside the producing countries is substantial and the income from coffee has been an important factor in the economy

of producing countries. Correspondingly it can be discussed if or how much capital there is present in the production of traditional agriculture.

It is assumed that all income is used for production factors and that markets are perfectly competitive, meaning that the price is set to equal marginal cost of production. The price of each good can therefore be defined as the following.

$$P_A = a_{TA}r + a_{LA}w$$
$$P_M = a_{CM}i + a_{LM}w$$
$$P_K = a_{TK}r + a_{LK}w + a_{CK}i$$

P_A is the price of the traditional agricultural good, determined endogenously since the product is not exported and therefore not determined in the world market. P_M, P_K and i, the price of manufacturing, price of coffee and the interest rate respectively, are in contrast to P_A, exogenous factors since these are determined in the world market, while the wage rate w and the rental rate r are determined endogenously. From the above equations it can be seen that traditional agriculture uses land and labour, manufacturing uses capital and labour and coffee production uses all three production factors. We are interested in solving these equations with respect to the endogenous variables to investigate how a change in the exogenous variables affects the endogenously determined variables. The above equations can be written in matrix notations. First, the endogenous variables, P_A, w and r, are isolated on the left hand side in all three equations:

$$P_A - a_{TA}r - a_{LA}w = 0$$
$$a_{LM}w = P_M - a_{CM}i$$
$$a_{TK}r + a_{LK}w = P_K - a_{CK}i$$

The matrix system is then setup as follows:

$$\begin{bmatrix} 1 & -a_{TA} & a_{LA} \\ 0 & 0 & a_{LM} \\ 0 & a_{TK} & a_{LK} \end{bmatrix} \begin{bmatrix} P_A \\ r \\ w \end{bmatrix} = \begin{bmatrix} 0 & 0 & 0 \\ 1 & 0 & -a_{CM} \\ 0 & 1 & -a_{CK} \end{bmatrix} \begin{bmatrix} P_M \\ P_K \\ i \end{bmatrix}$$

To see the effect of a change in one of the exogenous variables on the endogenous variables, the endogenous variables are isolated on the left hand side. This is done by taking the inverse of the

first matrix on the left hand side and multiplying by $\frac{1}{\det(A)}$, where $det(A)$ equals the determinant of the matrix itself (Shores Thomas, 2007).

$$\begin{bmatrix} P_A \\ r \\ w \end{bmatrix} = \frac{1}{\det(A)} \begin{bmatrix} 1 & -a_{TA} & a_{LA} \\ 0 & 0 & a_{LM} \\ 0 & a_{TK} & a_{LK} \end{bmatrix}^{-1} \begin{bmatrix} 0 & 0 & 0 \\ 1 & 0 & -a_{CM} \\ 0 & 1 & -a_{CK} \end{bmatrix} \begin{bmatrix} P_M \\ P_K \\ i \end{bmatrix}$$

The inverse of the first matrix on the right hand side can be rewritten as the following:

$$\frac{1}{det} \begin{bmatrix} 1 & -a_{TA} & a_{LA} \\ 0 & 0 & a_{LM} \\ 0 & a_{TK} & a_{LK} \end{bmatrix}^{-1} = \begin{bmatrix} 1 & \frac{a_{LA}a_{TK} - a_{TA}a_{LK}}{a_{LM}a_{TK}} & \frac{a_{TA}}{a_{TK}} \\ 0 & -\frac{a_{LK}}{a_{LM}a_{TK}} & \frac{1}{a_{TK}} \\ 0 & \frac{1}{a_{LM}} & 0 \end{bmatrix}$$

The inverse matrix, multiplied by $\frac{1}{\det(A)}$, and multiplied by the second matrix on the right hand side then becomes:

$$\begin{bmatrix} 1 & \frac{a_{LA}a_{TK} - a_{TA}a_{LK}}{a_{LM}a_{TK}} & \frac{a_{TA}}{a_{TK}} \\ 0 & -\frac{a_{LK}}{a_{LM}a_{TK}} & \frac{1}{a_{TK}} \\ 0 & \frac{1}{a_{LM}} & 0 \end{bmatrix} \begin{bmatrix} 0 & 0 & 0 \\ 1 & 0 & -a_{CM} \\ 0 & 1 & -a_{CK} \end{bmatrix} =$$

$$\begin{bmatrix} \frac{a_{LA}a_{TK} - a_{TA}a_{LK}}{a_{LM}a_{TK}} & \frac{a_{TA}}{a_{TK}} & -\frac{1}{a_{LM}a_{TK}}(a_{LA}a_{CM}a_{TK} + a_{CK}a_{TA}a_{LM} - a_{CM}a_{TA}a_{LK}) \\ -\frac{a_{LK}}{a_{LM}a_{TK}} & \frac{1}{a_{TK}} & -\frac{a_{CK}a_{LM} - a_{CM}a_{LK}}{a_{LM}a_{KT}} \\ \frac{1}{a_{LM}} & 0 & -\frac{a_{CM}}{a_{LM}} \end{bmatrix}$$

The endogenous variables can therefore be determined by the intensity in production technologies and the exogenous variables P_M, P_K and i in the following relationship:

$$\begin{bmatrix} P_A \\ r \\ w \end{bmatrix} =$$

$$\begin{bmatrix} \frac{a_{LA}a_{TK} - a_{TA}a_{LK}}{a_{LM}a_{TK}} & \frac{a_{TA}}{a_{TK}} & -\frac{1}{a_{LM}a_{TK}}(a_{LA}a_{CM}a_{TK} + a_{CK}a_{TA}a_{LM} - a_{CM}a_{TA}a_{LK}) \\ -\frac{a_{LK}}{a_{LM}a_{TK}} & \frac{1}{a_{TK}} & -\frac{a_{CK}a_{LM} - a_{CM}a_{LK}}{a_{LM}a_{KT}} \\ \frac{1}{a_{LM}} & 0 & -\frac{a_{CM}}{a_{LM}} \end{bmatrix} \begin{bmatrix} P_M \\ P_K \\ i \end{bmatrix}$$

The relationship shows several implications. In this study we are interested in the effect of an increase in the coffee price P_K. The equality shows that the wage level is independent of the coffee price and uniquely determined by the price of manufacturing and the factor price on capital, i. The rate of return on land is increasing with an increase in the coffee price, seen from the positive factor $\frac{1}{a_{TK}}$. Not surprisingly, an increase in the price of coffee will cause a higher return to landowners, since coffee production can be argued to be land-intensive. The last endogenous variable, the price on traditional agriculture depends positively on the price of coffee as seen from the equation. A higher coffee price will therefore mean an increase in the price of traditional agricultural goods and it will decrease the budget constraint for consumers in all sectors.

Discussion of results

The results show Fairtrade to be optimal from a private economic perspective, since all landowners, including marginalised coffee producers, enjoy increased rental rate. While landowners are better of from introducing Fairtrade, workers are worse off since wages are independent of the coffee price and their budget constraints are decreased as a reaction to a higher price on traditional agriculture. It can be discussed if the poorest in developing countries are the workers at the coffee farms, or the marginalised landowners owning the farms. The Fairtrade program is targeting the small-scale producers, in this setting landowners, and the increase in return to landowners is therefore a logical effect of the Fairtrade regulation. If workers are in fact considered to be poorest relative to farmers in developing countries, the Fairtrade program is indirectly excluding these by targeting family farms, thereby leaving them in a worse state. In this case Fairtrade is not benefitting the most marginalised in society, but in fact decreasing their conditions through a reduction in the budget constraint and exclusion from the Fairtrade program. When landowners face increased income, demand for several products will increase as a result, thereby increasing prices. If the poorest in the society, such as workers,

are demanding the same goods, they will also face increased prices, further worsening their position.
It can of course be argued, that it is not the aim of the Fairtrade program to help the poorest, but to increase trading conditions for marginalised producers. Considering this, it is still an issue however, that conditions for workers are degraded, since this makes it difficult to defend the consequences of the Fairtrade program. From the available information, it is not possible to determine who is poorest and the effect is therefore hypothetical as this state.

Another factor to be considered is the effect on demand from raising prices on coffee. (Maseland & de Vaal, 2002) conduct a study on the welfare effects of introducing Fairtrade. They compare three states free trade, Fairtrade and Autarky. By comparing the three states the reader is able to analyse Fairtrade against alternative states. It can be argued that the autarky state is irrelevant to take into account as a realistic alternative. However it is relevant to compare free trade to Fairtrade, as it compares a simplified version of two states where markets are either regulated or not. As mentioned, raising prices can be compared to introducing a tariff on exports, resulting in less demand from the importing country. The effect of Fairtrade compared to free trade is thus ambiguous. On the positive side, the farmers enjoy rents from the higher price they receive. On the negative side, the demand has decreased due to increased prices and farmers therefore sell less than a situation under free trade. According to (Maseland & de Vaal, 2002), the net effect of Fairtrade compared to free trade is dependent on the product price elasticity of demand. A lower elasticity of demand will reduce the loss from decreased trade and can therefore result in a net gain for farmers in the situation of Fairtrade. On the other hand, a high elasticity will result in an amplified reduction in demand for traded coffee. In this case, free trade will be superior to Fairtrade with respect to the net gain of farmers.

To sum up, the first model in a Heckscher-Ohlin 2x2x2 setting showed that an increase in the price of one good will increase the purchasing power of landowners if this good is land-intensive and vice versa. Since this model represents a very simplified economy, with two countries trading, the 2-factor model is extended in a three-factor model. A model consisting of three sectors producing three goods differing in production technologies. It was found that the endogenous factors P_A, w and r depend on the exogenous factors P_M, P_K and i, in different ways. The object of interest is the exogenous variable P_K since this is the instrument that is regulated by the Fairtrade program. It is concluded that Fairtrade affects the landowners positively, due to an increase in the return on land. Conversely, the increase in P_A, caused by the increase in the coffee price, will lower the purchasing power of all consumers, i.e. workers in all sectors,

because the price of traditional agriculture has increased. Holding all other factors equal, in this model, Fairtrade seams to benefit the marginalised producer. However, restricting trade also causes negative demand effects, affecting farmers adversely. The question remaining is therefore which effect is largest. This will according to (Maseland & de Vaal, 2002) depend on the elasticity of depend.

After analysing the effect on factor prices, it would be interesting to measure the actual effects of a change in the coffee price. Have prices of traditional agriculture increased as an effect, and is wages unchanged. The above economic model is of course to be considered ceteris paribus and it will therefore be difficult to see the separate effects in the economy. An extension of the model to include various variables is desired with an extended analysis of the separate effects to the small-scaled producers and workers. This could be a subject for further research.

Critique of the model

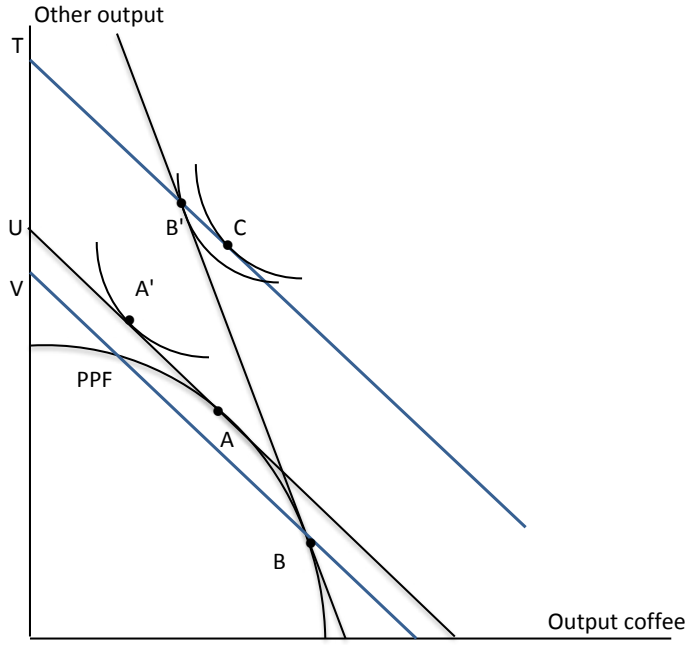
The simplified model above does have its limitations. Many models in international trade are based on the assumption of markets being perfectly competitive and the basic trade model used assumes perfect markets and perfect competition. As mentioned before, this is most likely not the case in the coffee market. According to (Tedeschi & Carlson, 2011), the market for Fairtrade coffee is not perfectly competitive and it is therefore difficult to draw conclusions from these models. The level of competition will depend on the linkage in the coffee value chain, but the overall market is defined as a buyers market with uneven power distribution. When boarders are open and two countries are able to trade, the price will not adjust to a perfectly competitive level. Transportation costs are still an issue since it is costly for the farmer to transport the beans, resulting in a limited number of relevant buyers. These buyers are therefore able to decrease the price below the competitive level. This discussion illustrates that it is important to take precautions when making conclusions from the above analysis, since the assumptions can be questioned.

In this paper, Fairtrade is evaluated on the net effect of introducing Fairtrade to the small-scaled producers. Even though farmers can be better off from increased prices, the model does not take into account the effect on other groups. (Yanchus & De Vanssay, 2003) use a Heckscher-Ohlin model and show that producers of Fairtrade coffee are better off but that this comes at a cost to the rest of the world. The conclusions from this article will be replicated in the following sub-section to take the focus of the economic analysis beyond that of the marginalised producer.

7.1.3 Cost of Fairtrade to the world economy

The model in the previous section explains the relationship between prices and input choices. An economy must fully employ the supplies of labour and land and determines this allocation of resources dependent on prices (Krugman Paul, 2006). In a simple model of international trade the resource allocation is illustrated with two factors, for example output of coffee and cloths. The slope of the curve is non linear and downward sloping because of diminishing returns to scale, meaning that the last worker creates less value to production than the first worker and is given by the price ratio of the two goods. The curve is referred to as the PPF or the production possibility frontier since it shows all possible choices of production. (Yanchus & De Vanssay, 2003) develop the model and look at the output of the product of interest, namely coffee, and output of all other goods on the other axis. The graph from the article is reproduced in the following figure.

Figure 15 - Costs of Fairtrade



Source: (Yanchus & De Vanssay, 2003)

The increased price that consumers choose to pay for a Fairtrade product affects the market by changing the relative prices in the production countries, which leads to a change in incentives. Introducing a fair price for certified coffee raises the price in the production country, which leads to a shift in productive resources. The countries terms of trade (TOT) is improved and the

aggregated income increases. The effect is unambiguously positive for the poor country, but the Fairtrade labelling also has more complicated negative effects.

These can be divided into three subparts, all cost components to the rest of the world. The first cost component is from the difference between the price of the Fairtrade product and the market price of the regular product. The cost of the increased price is measured by the movement of the tangent line in point A to the tangent line in point C, or the distance UT. Without Fairtrade, the country would produce at point A and consume the amount in point A'. Theoretically the price in a Fairtrade setting is collected at B' because of the increased price and thereby the movement of the tangent line.
The second is a result of the change in the price of the targeted good, leading to a shift in the production resources toward the production of coffee. When the price of coffee increases, the country optimises by producing more of this good relative to others. This results in a shift from point A to B in the figure, and the distance UV thus measures the second cost component to the rest of the world. The total cost can be measured as the distance VT.
The third effect is indirect and follows from the fact that world consumption of coffee is inelastic. When the production of Fairtrade coffee increases, due to increased prices, the production in non-targeted countries is reduced. While targeted countries are better off, non-targeted countries are forced to reduce their output, worsening their position.

The introduction of Fairtrade products can have effects on markets as it presents an incorrect view of a country's long run comparative advantage. Despite the instant positive effects, the targeted country can become dependent on the premium from the Fair price. (Yanchus & De Vanssay, 2003) introduces a more efficient approach than fair pricing. They pose the question of what would be the effect of transferring assistance directly instead of through commodity prices. One effect is a lower transfer to cause the same increase in aggregated income. The cost reduction from a transfer compared to Fairtrade is seen in the figure by the distance UV. This means that the size of a transfer needed to reach the same increase in aggregated income is smaller, because it doesn't cause price distortion Secondly price incentives or resource allocations are not affected since the transfer is not targeted to certain groups but spread out. Third, the developing country is able to maximise its consumption relative to world prices instead of distorted domestic prices if the assistance is transferred directly, which will increase the level of aggregated income. This is shown by point C in the above figure. The country is able to reach a higher indifference curve than at the point B' and is therefore better of. This means that the country is able to reach point C instead of point B' and thereby consume on a higher

utility curve. Lastly the non-targeted groups will be better of without the Fair price, as they can avoid the third cost component of decreased production. They conclude that the attempt of raising aggregated income by distorting prices can be reached with greater efficiency by a simple transfer instead of imposing the Fairtrade price.

In this section, it is therefore concluded that fairtrade is not an optimal solution to market failures. According to this model, introducing Fairtrade decreases utility of consumers and causes decreased production in non-targeted countries. In this view of consequences to the world, Fairtrade is again found to benefit the targeted, but leaving un-targeted countries worse of, as was the conclusion made regarding targeted and non-targeted farmers.

7.1.4 Effect on labour supply

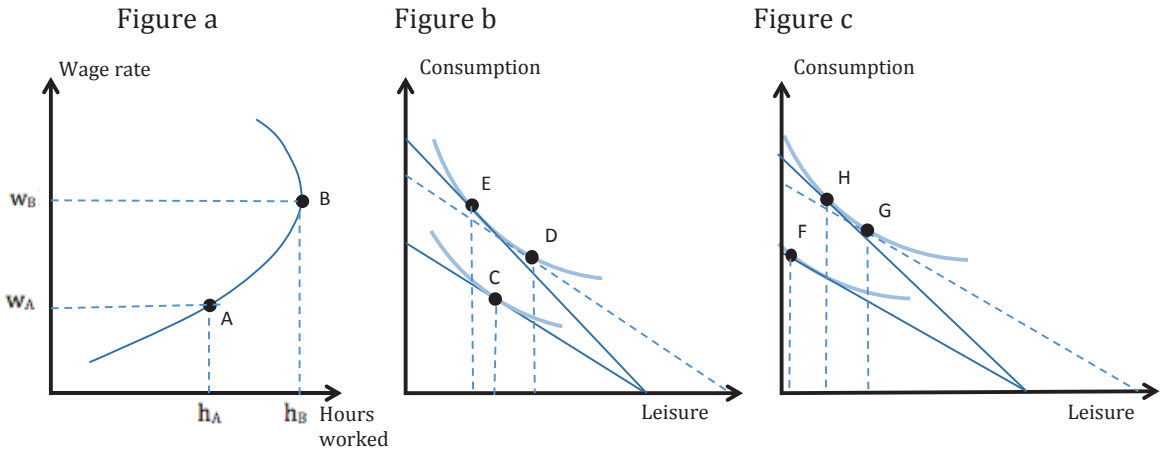
According to basic microeconomic theory, Fairtrade causes a number of market distortions as for example the before mentioned effects on prices, quantities and thereby equilibrium. In the following, the effect of an increase in the price of coffee will be analysed with respect to labour supply, investigating the consequence of a price increase on individual farmers in regards to supply of work hours, i.e. coffee production, and hours allocated to leisure.

Producers maximizing utility base their choice between leisure and labour on relative prices. An increase in the coffee price, relative to leisure has an ambiguous effect on coffee supply, depending on farmer's individual utility curves. When the coffee price increase, as a result of the Fairtrade minimum price, it is assumed that wages increase as a consequence, which will increase a farmers income, i.e. consumption. The effect of an increase in income is dependent on how the farmer weighs consumption relative to leisure and can be decomposed into two effects, the substitution- and income effect. Only the total effect is relevant in a real setting, however the effect can be split into two separate parts. Assuming that leisure is considered a normal good, the income effect from an increase in real income will result in a shift in the consumption-leisure constraint curve outwards, as the farmer is now able to consume more and enjoy more leisure for the same amount of work hours. As leisure is a normal good, and the increased wage makes it possible to work less to obtain the same amount of consumption, the income effect results in the individual demanding more leisure. On the other hand, when the wage increase, the opportunity cost of leisure becomes more expensive and farmers therefore substitute toward more work. This is the substitution effect, illustrated by a change in the slope of the supply

curve. Depending on which of the two effects that dominates, a price increase will result in the producer shifting either towards more leisure or more work hours.

The following figure presents the three graphs. Figure 16a depicts the wage rate against hours worked, illustrating the producers supply curve, while figure 16b and 16c shows the two different cases of the effect in labour supply. It is assumed that hours are spent either on working, generating consumption, or on leisure.

Figure 16 - Labour supply



Source: Own contribution.

Figure 16a depicts the labour supply curve for the marginalised Fairtrade farmer. As argued, the amount of hours worked will increase as a reaction to a wage increase, as long as marginal utility from working more hours is larger than marginal utility from increasing leisure. When the substitution effect from a wage increase dominates the income effect, the producer will be at any point below point B, for example point A, and a wage increase will hence result in more hours worked. Contrary, the producer receiving no further utility increase from increasing work hours is argued to be situated in point B or above.

Due to farmers poor economic position, it can be argued that the substitution effect of increased effort will dominate the income effect of increased demand for leisure, which means that a rise in price will lead to increased coffee supply. This is true if the producer faces a higher marginal utility from consumption, than from leisure, since increased supply increases income and hereby consumption. Marginal utility of consumption is decreasing with the level of consumption, but as producers are believed to have a very low income level, marginal utility from consumption can

be argued to be higher for producers. This case is reflected in figure 16b. The substitution and income effect works in opposite directions, the first increasing leisure (move from point C to D) and the second decreasing leisure (move from point D to E). Since it is argued small-scaled producers are very poor and therefore have a high marginal utility from working more, increasing their consumption drastically, the substitution effect will dominate the income effect. The result is a rise in working hours, i.e. consumption, and decreased leisure.

Contrary it can also be argued that producers are so poor, that they are already working maximum possible hours of a day. This could very well be true for the marginalised producers which Fairtrade is targeting. If it is not physically possible for the producer to work more, the producer will face a higher marginal utility from increased leisure. In this case an increase in the relative price of coffee will result in the income effect dominating the substitution effect, and the farmer will hereby enjoy a larger gain from increasing the amount of leisure. This case is illustrated in figure 16c. The effect is equivalent to a 100% effective tax back rate on labour income, where people being taxed one euro for every euro earned will reach no marginal utility from increasing labour supply (McGraw-Hill Higher Education, 2002). Figure 16c resembles point B and above on the labour supply curve in figure 16a. The income effect will result in a move from point F to G, increasing the amount of leisure. The substitution effect causes a move from point G to H, resulting in a net effect of an increase in leisure.

The figures represent the possible outcomes of the Fairtrade producers choice between working more, i.e. producing more coffee and demanding more leisure, as a result of the distorted market price. In either case, farmers are better of from Fairtrade, since they are able to reach a higher utility curve, either by consuming more or enjoying more leisure. This is however based on the assumption that a higher Fairtrade price will result in a higher income, ignoring a possible increase in costs from Fairtrade production.

7.1.5 Effect of cooperatives

In this section, the role and effect of cooperatives in the coffee chain is analysed. The analysis will be inspired by (Milford, 2004), and seeks to investigate the effect on coffee producers from cooperative presence in the purchasing market, that producers deliver to. Cooperatives are a central part of the Fairtrade program and therefore a main factor to consider in the evaluation of Fairtrade. It should be noted that producers organising in cooperatives is required by Fairtrade,

but also exist to a large extent outside the program. The analysis of cooperatives is therefore not necessarily connected to Fairtrade, but will be linked to Fairtrade in the analysis.

As illustrated in the coffee supply chain, the coffee producer has three options after harvesting, drying and bagging the coffee beans. The first option is for the producer to transport the coffee him self to the city processor, through troubled roads. This option is mainly used by producers of large amounts of coffee, as smaller producers who are often not in possession of a vehicle, cannot carry the risk of transporting at longer distances. The second option for the producer is to sell the beans to a privately owned intermediary, later referred to as an IOF, a person hired by the processing firm, to transport the coffee. The intermediary then caries the risk of transportation, but pays a price well below what the producer can sell the coffee for directly to the processor. The third option is to join a cooperative, which will take up the work of transporting and processing (Milford, 2004).

A crucial problem for small coffee producers is that the intermediary market, in which they are required to sell their coffee beans, often is characterized by oligopsony, tangent to local monopsony in stead of perfect competition. This results in coffee producers having close to no bargaining power over price when selling to a middleman. (Milford, 2004) conducts a field study in Mexico and finds evidence of intermediaries dividing areas between them, agreeing on prices creating local monopsonist/cartel market conditions for coffee producers. Fairtrade is believed to improve the conditions for farmers, removing the middleman and processor from the supply chain, as the cooperative takes over transporting and processing. Selling directly to either the international trader or the roaster in the consuming country through the cooperative is believed to result in increasing bargaining power for producers compared to the market without Fairtrade where the middleman can exercise his buying power to a large extent.

In this section an analysis is provided on the impact of cooperatives and IOF's on farmer welfare. It is important to acknowledge that cooperatives have been established and functioning long before Fairtrade was introduced to the market. However, the conditions for establishing cooperatives in rural and poor farming areas are not well suited, due to lack of education and means. (Mosheim, 2002) finds location to be a key difference between successful large and small firms, and he finds small successful firms to be located in less developed regions but also to be supported by NGO's for them to succeed. This indicates that there is a need for financial and educational support for cooperatives constituted by small producers, to run a profitable business in rural areas, which is exactly what Fairtrade organisations provide. FLO as a source of

financial support requires Fairtrade production through cooperatives, and it is therefore plausible to conclude that more cooperatives will be established in areas with Fairtrade production. Cooperatives established in rural areas, with support of a Fairtrade organisation, will therefore have a better probability of lasting in the long run.

Equilibrium with cooperatives and IOF's

This section first investigates what effect cooperative market presence can have on farmer income when the market they are selling to is characterized as a monopsonist market. The option of selling to the cooperative will be compared to the alternative of selling to the IOF, while the alternative of the producer transporting and selling directly to the roaster will be disregarded in the analysis, due to this being the rather uncommon sales choice for small producers. The model is motivated by (Milford, 2004), who investigates the profit maximising, income maximising and output maximising cooperative. The profit maximising cooperative exploiting its monopsony power will price where marginal revenue equals marginal expense, maximising profit but not income to members. As a cooperative is a democratic institution, this output choice will never be chosen, and is therefore not included in the analysis. The income maximising cooperative will maximise income to its members, by limiting output to the joint optimal level, where the producers supply curve intersect with the cooperatives marginal revenue curve. Lastly the output maximising cooperative also referred to, as the open membership cooperative, is a cooperative without membership- or output restrictions, producing at the output level where no excess profit is left in the market. According to Fairtrade standards for small-scale producers, the cooperative principles of Fairtrade are built on normal cooperative principles such as no membership- or output restriction(Fairtrade International, 2011). In our model the income maximising cooperative, also referred to as the restricted cooperative, is explained by deterred entry, caused by fees and standards. This type of restriction, which does not violate cooperative principles, makes it relevant to investigate the restricted cooperative along with the output maximizing cooperative.

The model is based on the following assumptions. Farmers are price takers in the local market, and the price is determined by the farmer's supply and the processors demand for coffee. The processors demand is determined by the purchasing price and the final market price, equal to the coffee price in the international market. Capital (coffee bushes) and land is fixed in the short run. It takes 3-4 years for coffee bushes to start producing, which indicates that the only way to

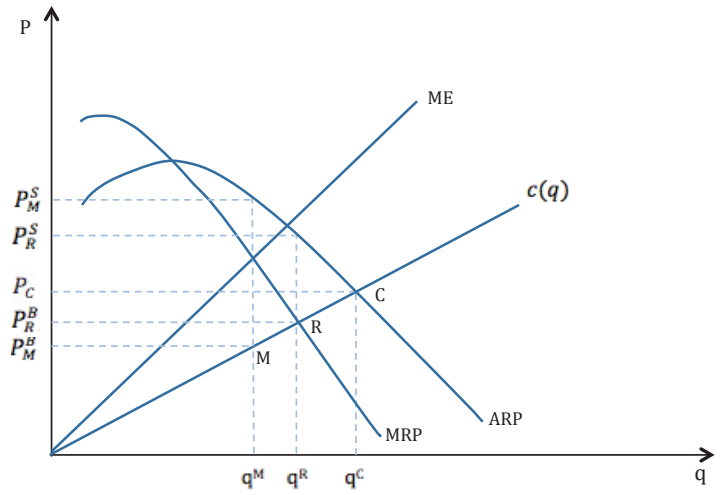
increase production within a season is to increase effort. Effort has a 16-hour a day, time constraint.

In a monopsonistic purchasing market, where the producer sells beans to the IOF, the IOF faces the profit function,

$$Profit = P \cdot q - c\,(q) \cdot q - F$$

P is the price received by the IOF for the beans when selling it to the next link in the chain for each q, while $c(q)$ is the price paid to the producer for each q, representing marginal cost to the IOF. Fixed costs in processing and transporting is denoted F. Since the monopsonist as a single buyer influences the general price level, the monopsonist faces marginal cost of $c(q)$ and not $\bar{c}$, i.e. marginal cost is depend on q instead of being fixed. The monopsonist purchases where marginal revenue of production equals marginal expense, MRP = ME. As the monopsonist is able to influence the price level, the ME curve lies above the farmers supply curve, $c(q)$. The monopsonistic processor will hence buy coffee from producers in point M. At point M the processor maximises profit by purchasing coffee at a price P_M^B, and selling it to the next link in the chain for the price P_M^S. Equilibrium for the monopsonist IOF is depicted in figure 17 along with the open cooperative and the cooperative with restricted output.

Figure 17 - Equilibrium with IOF's and cooperatives



Source: Own contribution from Milford (2004)

Introducing competing cooperatives to the market, the level of competition is increased. The perfect competitive cooperative is a price taker, making $\bar{c}$ independent of q. The competitive cooperative will seek to maximise the profit function, subtracting total production costs from income received from selling produced coffee beans in the international market.

$$Profit = P \cdot q - \bar{c} \cdot q - F$$

A cooperative maximizing return to its members while following the core cooperative principles, which include no member- or output restriction, will produce at point C. The cooperative will purchase and sell coffee beans at the same price, P_C. At this point excess profit is eliminated in the market, as average revenue of production (ARP) equals the price paid to members. As a cooperative follows general cooperative principles, this is where the cooperative in theory will produce.

For the cooperative to generate excess profits to its members, as is part of the Fairtrade strategy for marginalized producers, it is necessary for the cooperative to restrict output purchased. In thought the restricted output choice is not possible, as a cooperative is expected to adhere to general cooperative principles and can hereby not restrict output. However Fairtrade cooperatives work with membership fees and standards, which can be difficult to meet for producers and might work as barriers to enter Fairtrade cooperatives, as argued in section 5.2.2. This hypothesis is supported by (Novkovic, 2008) who mentions fees to be deterring entry to cooperatives. In the case of the cooperative membership fee and standards actually working as a barrier to entry, restricting cooperative output, the restricted cooperative hence buys a smaller amount than at point C. Point R will then be the optimal output level for the cooperative seeking to maximize total return to its members. At R, and at any output choice smaller than C in general, ARP for the cooperative member producers is above the supply curve, which means that there is excess profit in the market. The cooperative will therefore be able to distribute excess profits to its member producers. However, as profits are passed on to members, it creates an incentive for non-member producers to become cooperative members, and this outcome will therefore not be very likely sustained in the long run. Reaching a profit at the output choice, R, in the long run, does require that the cooperative is large enough to obtain power to dictate the price it is selling at, which is opposite to the assumption of cooperatives being price takers. If the assumption doesn't hold, and the cooperative is able to dictate the price, excess profit can be generated to cooperative members. If this is not possible, there is no gain from reducing output, and in that case the cooperative will be better off producing at point C, with no interest in producing less

than this. Regarding Fairtrade it can be discussed, whether the cooperative is acting as an open or a restricted, income maximising cooperative. Due to large barriers to become certified it can be argued that the cooperative can restrict entry to some extent. However control of this is limited, since the organisation has to follow the stated rules and standards. In reality, cooperatives are creating profits for its members, which indicates that some restriction is possible (Fairtrade Foundation, 2012). The incentive for the cooperative to limit output can be questioned, as in thought it should make the producers better off the more is sold, even if some of production is sold in the conventional market. However, Fairtrade targets the marginalised producers, and by restricting this producer group to fit Fairtrade demand, there is a private economic rationale behind restricting access, as these producers become better off.

It is evident from the above illustration that cooperatives adhering to cooperative principles in theory cannot sustain an excess profit for its members, as more producers will join until average revenue from production is at level with marginal cost of production. As mentioned above, Fairtrade standards and fees can be argued to deter entry to cooperatives, and it can therefore be argued whether some Fairtrade cooperatives are able to distribute an excess profit to its marginalized members. If this is not the case, and no output restriction is withheld, there is still argued to be positive effects stemming from cooperative presence. (Milford, 2004) finds evidence in her field study of the competitive yardstick effect, as cooperative presence forces intermediaries to price higher. This is due to the threat of producers shifting to cooperatives, and the fact that cooperative presence can reveal exploitation of producers by IOF's. (Milford, 2004) argues that the effect results in better prices for both cooperative members and non-members. She also finds the effect to be most dominant with open cooperatives, due to the larger threat of producers shifting their production into cooperative production. High membership costs will however reduce the effect, as it disables some producers to join a cooperative.

Comparing regular cooperatives with Fairtrade cooperatives, (Mosheim, 2002) finds from his 5-year field study in Costa Rica, that cooperatives can benefit in scale efficiency by shifting to larger farmers, due to increased cost of controlling many small-scale farmers. At the same time he finds that cooperatives constituted by small farmers, are mostly succeeding in less developed regions and with support from NGO's. On the other hand, cooperatives succeeding in developed regions were mainly consisting of medium sized members. This is an observation indicating that Fairtrade can increase the impact in the long run by increasing awareness of location of farmers, when deciding on whom to support. As Fairtrade supports small-scale farmers, there might be

most potential for an economic gain to producers in rural, less developed areas, according to Mosheim's studies. Supporting small-scale farmers in developed areas, they might be operating with increased cost not able to compete with the harsh competition, where general cooperatives and IOF's can work with better scale efficiency. In locations where Fairtrade supports small-scale farmers in both less-developed and developed areas, their lower efficiency might result in cooperatives not surviving in the long run in developed areas.

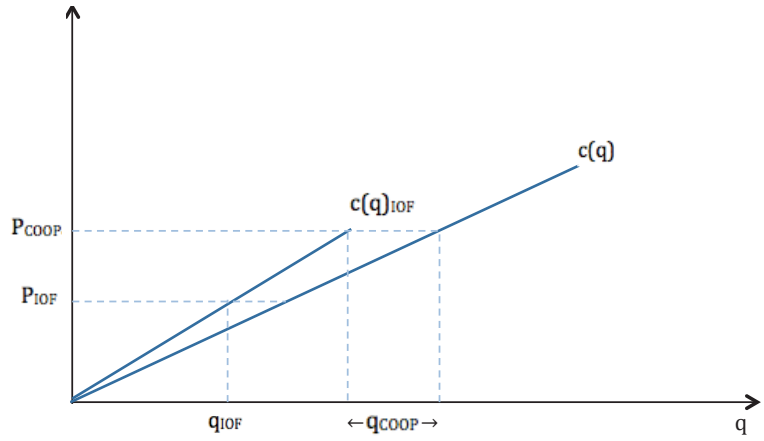
The cooperative effect on producer prices

In the case with the open cooperative, the cooperative will in thought capture the entire market, if offering a better price to producers than the IOF. However, the Fairtrade cooperative fee and standards were argued in the previous section to possibly deter entrance for some producers. In section 5.2.2 Fairtrade was argued not to target the poorest population as well, and as the most marginalised producers might not have the resources to organise in a joint cooperative or the means to pay membership fees, these producers might have no choice but selling to the IOF. Fairtrade international states that producers have a weak negotiating position as deprived access to markets and prices make small producers vulnerable to local middlemen (Fairtrade Foundation, 2012). Further, access to a cooperative will not be possible in all areas with coffee production, and some producers will therefore not have any other possibility than selling to the IOF.

The following model, inspired by (Milford, 2004) will be used to clarify the difference in income effects and income distribution stemming from a market consisting of the two types of actors, the IOF and the cooperative deterring entry by fees and standards, hereby obtaining a restricted output. The model is based on the assumption that the cooperative is facing capacity constraints, due to its member-base. The cooperative can buy the total maximum coffee amount produced by all members together, and will then face its constraint. The difference in price levels is perceived to be an important factor, and competition will therefore be driven by price. With constant returns to scale, the buyer offering the highest price to farmers, in this case the cooperative, will normally purchase all coffee produced. Due to capacity constraints, however, the cooperative offering the highest price will not be able to buy all coffee produced, but only until reaching its capacity constraint, and the leftovers will therefore be sold to the IOF offering the smaller price. As the cooperative cannot buy more coffee, the IOF is the only purchaser left in the market, which makes the IOF act as a monopsonist buyer. (Milford, 2004) arranges the analysis as a two-stage game. In the first stage, farmers choose whether to become members of the cooperative or

not. Based on the amount of members, the cooperative is acquainted with the amount of coffee to be purchased. The second stage is a price game where, if the cooperative offers a higher price to producers than the IOF, it will possibly make some non-members become cooperative members. Figure 18 illustrates the market with an IOF and a cooperative.

Figure 18 - Costs of IOF's and cooperatives



Source: Own contribution from Milford (2004)

$c(q)$ represents the farmers' initial supply curve. Due to the cooperatives capacity constraints, it buys the amount q_{COOP} at the price p_{COOP}. As q_{COOP} is insufficient in covering the total market supply of coffee, the residual supply curve of the IOF, $c(q)_{IOF}$ starts where cooperative demand ends. The IOF pays the price P_{IOF} to producers. The residual supply curve is steeper than the initial supply curve, due to the fact that an amount of coffee has already been sold to cooperatives making residual supply less than initial supply. The cooperative market share is set by its capacity to produce, process and export. Increasing q_{COOP}, will result in a decrease in q_{IOF} unless the IOF price rises. A reduction in cooperative demand or a decrease in p_{COOP} will increase IOF market share. Figure 18 illustrates how coffee producers denied access to cooperatives are actually made worse off compared to operating in a market without cooperatives, with an IOF pricing as a monopsonist. This is illustrated by the steeper residual supply curve, as some beans have already been sold, and the IOF is able to price as a monopsonist for the resisting amount of beans left for sale in the market.

This illustration could work in the short run, however It is important to pay attention to the fact that the IOF has to take into consideration the existing threat of producers finding an incentive to seek alternative organisation in cooperatives. If not meeting the requirements for Fairtrade cooperatives, they can also organize in general cooperatives. However there is assumed to be

areas in which this option does not exist, which means that the presence of Fairtrade cooperatives might actually harm the left out producers. This is exactly what the model seeks to explain. This illustration is expected to illustrate the short run picture though, as the IOF might not be able to price as a true monopsonist in the long run due to the threat of producers shifting to new established cooperatives. However, producers might not be able to keep their business running for the long run to shift production.

Partial conclusion

To conclude, the coffee producers suffer from a buyers market with little market power and buyers acting as local monopsonists. Introducing cooperatives might better the terms for these farmers, increasing competition in the buyers market. Fairtrade cooperatives seek to help the poorest farmers, securing a minimum price and excess profit for investments in social development. To ensure this profit in the long run though, access has to be restricted to these cooperatives. The only way to deter entry is if fees and standards set by cooperatives naturally exclude some members from entering. However, producers' deterred entry to a cooperative can be argued to be worse off than operating in a market without cooperative presence at all, but instead IOF monopsony. This was depicted in figure 18, with the steeper residual IOF supply curve, caused by the lower quantity left for the IOF to buy, due to the cooperative buying at its capacity constraint first. As a contrary effect the competitive yardstick effect from open cooperatives is discussed to have a positive impact on IOF pricing. The effects can therefore be concluded to be ambiguous, and dependent on whether the IOF is the only buyer left in the market besides Fairtrade cooperatives.

7.1.6 Macro economic aspects

Market distortions caused by Fairtrade causes reactions on a macro economic level. Fairtrade supports small-scale coffee growers, who do not exert economies of scale. As growers are given no incitement to produce under economies of scale, efficient production is not secured on a macro level. Classical trade theory states that countries should produce the goods in which production they posses a comparative advantage (Krugman Paul, 2006). As the price of coffee is raised artificially through the premium and minimum price, the relative price of coffee compared to other goods increases. This will result in a distortion of free prices and optimal allocation of resources. Due to the increased price, production will be increased, resulting in

increased supply. This was illustrated in section 7.1.1, where it was also stated that the effect is dependent on the relative size of the Fairtrade market. No matter the size of the market though, as Fairtrade supports small inefficient producers, this will result in a substitution of inefficient producers into coffee production, leaving the large and efficient producers with relative worsened competitive conditions. Opposite it can be argued that small-scale farmers produce a large part of coffee production at the moment, and that future coffee production is within small-scale farming and therefore is the right producers to target. In Africa approx. 95 per cent of production comes from farmers owning between 1-10 hectares of land, and more than half of total coffee production is measured to come from coffee farms less than 5 hectares(International Trade Center, 2013). This indicates that some small-scale farms can run a profitable business. It must therefore be essential for Fairtrade to survive in the long run, that it supports these farmers.

As found in section 5.1.4, coffee production is sensitive to changes in demand, as changes in supply has a time lag of approx. 3 years. This is the time it takes for newly planted coffee plants to become productive. The supply of most other agricultural products can be changed within a year, but coffee is the exception (Milford, 2004). This is a problem for especially poor coffee producers, as they are even more vulnerable to outswing, due to low reserves. Many of the farmers cannot afford to invest in production changes either, making them very immobile to market responses. Due to the artificially raised Fairtrade prices, producers will need a higher price on other products as well to be able to shift production into other goods without obtaining a negative return. This will worsen the immobility problem for poor farmers. The Fairtrade program can therefore be argued to capture a country's producers in coffee production, leaving them little possibility to shift their production. In the long run this will lead to oversupply, and lowered prices in the coffee market, as illustrated in section 7.1.1.

Human capital and technological growth are important factors for a country's growth. The coffee market is a well-established market, which mean that there is not much potential for development left. As producers are kept in production, other labour intensive countries might face a higher potential for development.

Fairtrade organisations argue that money is invested in advancement of production technology. The problem is that coffee is part of the primary sector, which does not carry great advancement opportunities. As described in section 5.1.2, a large part of coffee production stems from the use of labour rather than machines, such as handpicking of cherries. However (Binam, Sylla, Diarra,

& Nyambi, 2003) find evidence of technological efficiency of farmers depending negatively on the number of people in the household and the membership of farmers' club or association. This can be an evidence of the poor management skills of family and informal labour force in rural areas, leaving room for improvements through education, funded by organisations such as Fairtrade. Conducting an analysis of the technical efficiency of 81 peasant farmers in the low-income region of Côte d'Ivoire, they find that the average level of efficiency equals 36 or 47 per cent depending on the chosen measure. The numbers indicate that substantial gains in output and lower costs can be achieved with the existing technology. This means that production could become significantly more efficient without requiring additional inputs or new technologies, but investing in agricultural and managerial education instead. It is important that Fairtrade focus on the premium being spent right, to optimize where there is actually room for optimization, so money is not lost. Considering the macro economic pitfalls of the Fairtrade program, the question left for analysis is, why is the Fairtrade model constructed the way it is?

7.2 Discussion

In the previous chapters the Fairtrade program has been outlined and analysed from an economic perspective, identifying good and bad aspects of the program. In this section, conclusions from the subparts will be assembled to evaluate the Fairtrade program on the basis of these findings. Aspects from the literature review and the analysis will be discussed throughout the section.

The demand for Fairtrade has increased significantly and as found in the literature review, many studies argue that there is a market for Fairtrade separate from the regular coffee market. Empirically, evidence shows that demand for both regular coffee and Fairtrade coffee is relatively inelastic, as coffee has changed from being a luxury good to become a normal good in many high-income countries. Furthermore, since production of coffee beans is very inflexible to changes in prices and demand, supply is also found to be inelastic. The measure of elasticity of demand can be claimed to be an important aspect in quantifying the efficiency of the program. A high elasticity would cause a greater incentive for consumers to substitute towards other goods when prices increase. Introducing Fairtrade will result in decreased demand and smaller volumes will be traded as a consequence. The more inelastic the demand of the good traded, the smaller a reduction in trade and thus greater profits for small farmers in this case.

According to findings in the literature review, there have been many debates about the Fairtrade program, most of them negatively skewed but also some positive. Firstly, there is found evidence that fewer small-scaled farmers go out of business during recessions. As argued previously, this result is ambiguous depending on the character of the farmers staying in business. If these farmers are inefficient, liquidation can be argued to be the result of basic market mechanisms and therefore an efficient outcome in equilibrium. If, on the other hand, farmers fail due to lack of capital, i.e. to much exposure to a very volatile market, supporting these vulnerable farmers is both efficient and in the context of fairness. However empirical studies find, measuring the technical efficiency, that low-income farmers only use 36-37 percentage of their capacity (Binam, Sylla, Diarra, & Nyambi, 2003). From this it can be inferred that efficiency can be improved, but not necessarily by external forces. There is ground for optimisation with resources available instead of investing in new technologies. As stated in the macro economic analysis, Fairtrade supports small inefficient producers, which can be reasoned to result in a substitution of inefficient producers into coffee production, leaving the large and efficient producers with relative worsened competitive conditions. Oppositely it can be argued that small-scale farmers produce a large part of coffee production today, and that future coffee production is within small-scale farming which make them the exact producers to target. Finally, since the decision on how to spend the premium lies with the cooperatives members, optimisation by the marginalised members can be argued to be short run instead of long run.

Statement 1: Premium should be targeted on the basis of analysis, optimising on a long run basis and targeting areas where it will be most efficient.

One of the biggest debates regarding the Fairtrade program is the quality discussion. As described, there are no written requirements of the quality that each farmer can deliver to the cooperative. Issues of moral hazard and free rider problems arise on behalf of this, since each farmer has an incentive to rely on the delivered quality of other member farmers. Furthermore, the design creates incentives for selling the lowest quality as Fairtrade marked and the highest quality in the regular market, where the received price is dependent on quality. The Fairtrade price is thus independent of quality and production. Many analysts criticize Fairtrade for delivering low quality coffee while promising something else. This can however be debated. Empirical evidence shows evidence of the “warm glow effect”, meaning that consumers value moral issues and incorporate this when maximising utility. The quality debate therefore contains several aspects. If the consumers are receiving a moral utility from buying Fairtrade labelled coffee, the quality is not an issue. On the other hand it is not efficient from an economic

perspective, since this removes incentives for producers to increase efficiency and hereby quality in production.

Since Fairtrade is a response to fluctuating prices and exposure of small producers it makes sense that the price is independent of numerous factors, such as production terms and demand. However it also creates issues, as the incentive to produce an improved product is eliminated. Furthermore, the stability created in prices is one thing; another important variable is farmer's income. While prices are stabilised, Fairtrade cannot guarantee a minimum quantity sold as Fairtrade certified, resulting in fluctuating income. Some analysts have argued that the most efficient way to help farmers is by increasing the disposable income and not through a transferred premium.

Statement 2: Could the program incorporate a quality measure to increase consumer knowledge and incentives, along with initiatives, to increase productivity with available resources i.e. efficiency?

The effect of Fairtrade on market equilibrium on both certified members and other producers was analysed in section 7.1.1. Introducing a Fairtrade price results in a decrease in the conventional coffee price and the quantity demanded, leaving the conventional producers worse of. Certified members receive a higher average price for coffee sold in the regular market and the Fairtrade market, while selling a larger quantity. Thus the introduction of Fairtrade is benefitting the targeted marginalised producers. However there was found an overall welfare loss from Fairtrade.

Through the analysis of the effect on equilibrium, it was acknowledged that the effect of the program is dependent on the size of the Fairtrade market and the price. At the moment the Fairtrade premium, which determines the Fairtrade price together with the price of regular coffee, is calculated to cover costs. According to the analysis there consist a certain Fairtrade price where farmer income is optimised, indicating that the there exist an optimal price if the aim is to optimise farmer income. Furthermore farmer income depends positively on the size of the Fairtrade coffee market. The fact that Fairtrade is estimated to account for approximately 1% of the entire coffee market, signals that benefits from Fairtrade are very small relative to the prospects of the program. From this point it is difficult to decide whether Fairtrade is welfare enhancing or the opposite, since the market has grown significantly since it was introduced. Whether it will represent significantly more than 1% of the entire coffee market is questionable, as the market has grown to 1% since FLO was established in 1997, i.e. in a period of approximately 15 years.

Statement 3: Income to farmers can be optimized at a certain Fairtrade price. However this is inconsistent with optimising total welfare, which is increasing as the Fairtrade price approaches the regular coffee price.

Evaluating the program, it is also relevant to investigate effects on factor prices to identify changes in the endogenous variables, price of agriculture, wages and return to landowners, determined by the exogenous determined variables price of manufacturing, price of coffee and the interest rate. Introducing Fairtrade, the price of coffee is increased. In return landowners are better off from increased return on land as was expected from classical trade theory. Fairtrade is targeting marginalised producers, and from this aspect the program therefore appears to be successful. However wages are unaffected, i.e. independent of changes in the coffee price. Marginalised workers are not targeted directly through Fairtrade, but they are a part of the written standards through requirements on hired labour. According to this analysis, marginalised producers are benefitting while marginalised workers receive the same pay. Furthermore it was found that price on agricultural goods increase when the coffee price increases, meaning that the budget constraint of all workers is decreased. This indicates that marginalised workers are in fact worse of. Besides this, according to classical trade theory, demand is affected negatively by raising prices. Farmers will therefore sell less, while enjoying higher return on land and the net effect of this is ambiguous.

Statement 4: The increased coffee price will affect marginalised landowners positively, while making marginalised workers worse of. However, farmers face decreased demand as a consequence.

A number of factors in the Fairtrade program were found to be criticised in the literature. Inspections are performed on a regular basis, but preannounced. This creates opportunities for farmers and cooperatives to embellish working conditions, which will display a false image of the effects. Overall lack of data and objective information regarding the certified farmers makes it difficult to quantify effects of Fairtrade. Positive effects found in the existing literature was identified as log run effects such as increased productivity and technologies, and creation of business connections increasing the bargaining power of small farmers. Even though many criticise the appearance of Fairtrade, it has unquestionably increased the awareness amongst consumers, increasing demand and thereby enlarging help from the developed part of the world.

In the literature review it was found that the design of the program create barriers of entry, due to requirements to become certified and large fees. As found in the analysis, where the role of cooperatives was investigated in an economic model, generating excess profit for joined members require restrictions in access to the program. In the absence of entry barriers, farmers will keep entering until profits are eliminated. It can therefore be argued that the design of Fairtrade is 'unfair' in the sense that a fraction of poor farmers are denied access and affected by possible changes in the market caused by the existence of the program.

Statement 5: There exist a Fairtrade paradox; for the program to create profit to its members access is restricted, but by restricting access some small farmers are left worse of.

Furthermore the role of cooperatives was discussed in the analysis, investigating market equilibrium with cooperative presence, finding that the outcome depends on the definition of a cooperative. From the definitions of cooperatives in the Fairtrade setting, they follow basic cooperative principles, meaning that access is non-restricted, also referred to as an open cooperative. On the other hand, as mentioned, Fairtrade causes barriers of entry through fees and standards. Therefore it can be argued that the cooperative is in fact restricted to some extent. Restriction will cause IOF's to price as a monopsonist, if the producer is left with no other sales options in the area, affecting non-certified farmers negatively. On the other hand, cooperatives increase bargaining power of farmers, changing inequality in the power distribution, which has a positive effect on all farmers. This is caused by the competitive yardstick effect, having the greatest impact if cooperatives are fully open to members.

Statement 6: Cooperatives has an ambiguous effect on small farmers. Members receive improved prices for production and cooperative presence might also improve bargaining power of non-members, however there is a possibility of non-members being forced to sell to the IOF monopsony at low prices.

The effect of an increase in prices causes market distortions and causes changes in the labour market as a consequence. The effect on labour supply is found to be ambiguous depending on each farmer's individual utility curve. In the analysis two different cases was presented, firstly where workers were able to substitute toward more consumption and secondly where workers had reached maximum hours of working. It can be discussed which case is suitable for analysing workers in the Fairtrade setting.

On one hand, it can be argued that workers have reached their maximum constraint of working per day and are therefore not able to substitute toward more consumption. In this case workers will choose to substitute toward increased leisure. On the other hand it can be argued that workers are so poor that they enjoy a great utility from working more, since this will increase their consumption significantly. In this case workers will most likely substitute toward more consumption relative to leisure. It can therefore be discussed if an increased coffee price will result in increased labour supply, or increased leisure for workers. Either way, in this setting Fairtrade can be argued to make workers better of from a private economic perspective, since utility is increased from either being able to increase consumption or leisure.

According to (Yanchus & De Vanssay, 2003) Fairtrade comes with a cost to the rest of the world. The paper so far has ben structured so that focus has mainly been on small-scaled farmers and workers in an economy and how these are affected by the mentioned market distortions. However, (Yanchus & De Vanssay, 2003), conduct a model, from where it can be seen that Fairtrade has three main shortcomings in the form of costs to the rest of the world. The first cost is from the increased price, i.e. the difference between the price of regular coffee and Fairtrade coffee. The second cost is measured by a reallocation of resources, since the country will substitute towards more production of coffee. Fairtrade is only present in some countries, the so-called targeted countries. Countries that are not targeted are argued to attain an indirect cost, followed from the fact that coffee is inelastic. While targeted countries are better of, non-targeted countries are forced to reduce output and are therefore made worse of. According to this analysis a direct transfer of aid is more efficient than Fairtrade. However the effects are analysed in a closed setting, not considering spill over effects or changes market dynamics.

Statement 7: In an economic setting ceteris paribus, a direct transfer is more efficient than aid through Fairtrade. Targeted countries are better off, while non-targeted countries are made worse off.

Coffee production was found to be sensitive to changes in demand, as changes in supply has a time lag of approx. 3 years, which exceeds time of supply for most other agricultural products. This makes poor coffee producers with low reserves even more vulnerable to outswing. As investments in production changes is not an option, coffee producers become immobile to market responses. Due to the artificially raised Fairtrade prices, producers will need a higher price on other products to shift production into other goods without obtaining a negative return, and Fairtrade therefore worsens the immobility problem for poor farmers. The program can be

argued to capture a country's producers in coffee production, leaving them little possibility to shift their production, leading to oversupply, and lowered prices in the coffee market in the long run. Human capital and technological growth are important factors for a country's growth. With the coffee market being a well-established market, there is not much potential for development. As producers are kept in production, other labour intensive countries might face a higher potential for development. Fairtrade organisations argue as an answer to this that money is invested in advancement of production technology. The problem is that coffee is part of the primary sector, and as production is found to be reliant on little machinery, there is hereby left little room for technological advancement.

Statement 8: Fairtrade makes coffee producers dependent on the increased price, and immobile to market responses. This captures producers in coffee production, leading to oversupply.

In the above, different factors and the effect of Fairtrade have been discussed from an economic perspective, leading to seven statements covering the main findings from the secondary literature and economic modelling and analysis. The overall effect from Fairtrade is ambiguous, but the identified strengths and weaknesses can be used to evaluate the program and provide suggestions for an improved model.

8. CONCLUSION

The focus of this thesis has been on coffee producers. Fairtrade encompasses several other agricultural goods as well. However, as each good differs in the structure of the supply chain, including power distribution, each good has its particularities to analyse and evaluate. As a result, coffee has been the focus of this thesis.

The research approach in this paper has been to investigate the existing literature written on Fairtrade, to be able to identify the main effects of the program. With knowledge gathered from existing literature, it has been the aim to conduct a theoretical and analytical approach to answer the problem statement; *what are the economic effects of Fairtrade and how can a review of economic implications be incorporated in an evaluation of the Fairtrade program?* To answer this problem statement thoroughly, several sub questions has been answered.

Evaluating the structure of conventional coffee market and identifying market failures the coffee market reveals several important implications for the market mechanisms and the motivations behind Fairtrade. The coffee market is found to be characterised as a buyers market, resolving in unevenly distributed market power, compromising the marginalised producers. Furthermore, coffee prices are greatly volatile, which has meant the ruin for many small-scaled and vulnerable farmers in the past. The production of coffee beans is greatly inelastic, since farmers are unable to adjust production according to demand, in great part explaining the volatility of coffee prices. Identifying these shortcomings in the coffee market, Fairtrade is seeking to better conditions for marginalised producers by targeting certain market failures. Requiring a Fairtrade minimum price, a Fairtrade premium and farmers to be organised in cooperatives are a few of the elements Fairtrade is using to change conditions for marginalised producers. By requiring cooperatives it is possible to remove several links in the supply chain and thereby empower producers by increasing market- and bargaining power.

The Fairtrade minimum price is one of the many disputed instruments used to support marginalised producers, and its effect on market equilibrium has therefore been investigated. Despite Fairtrade appearing to be an optimal solution at first glance, it was found that the artificially high prices received by the Fairtrade producer create market distortions. In chapter 7 the economic effects of introducing Fairtrade to the coffee market was analysed, considering changes in total welfare and gains or losses to individual groups. Fairtrade has been criticised for causing an excess supply in the coffee market, since farmers are guaranteed a minimum price

for the coffee produced. In a partial equilibrium model this is found to be the case. The excess supply drives down the regular coffee price and thereby decreases producer surplus for regular coffee producers, however only in the case where the Fairtrade market is big enough to influence world supply. Fairtrade producers will gain, due to the fact that they receive a higher price and are able to produce more, despite facing higher costs. The remainder of producers in the regular coffee market are affected negatively by this change, even though facing lower cost in production caused by a combination of lower prices and lower output. Solving the system of equations reveals an optimal Fairtrade price in terms of maximising farmer income, i.e. income to marginalised producers. At the optimal Fairtrade price, the increase in the Fairtrade producer income is smaller than the loss to Fairtrade consumers and conventional producers. Thus, total welfare is adversely affected and continues to decrease as the Fairtrade price increases. The program is therefore a non-optimal solution to market imperfections in this context. In a hypothetical model, where the average price received by the Fairtrade producer becomes smaller than the original price in the world coffee market, all producers endure a net loss and the program is therefore not successful in this case either.

Investigating the Fairtrade price, a three-factor model was also presented to analyse the effect of an increased coffee price on factor prices. Increasing the price of coffee will result in different changes to the endogenously determined factors, price of traditional agricultural goods, the return on land and the wage rate. Not surprisingly, an increase in the coffee price will increase the rental of land, hence serving the landowners favourably. Contrary, the wage rate received by workers is independent of the coffee price, while the price of traditional agriculture increases as well. The consequence is a lower budget constraint for consumers caused by unaffected wages and higher prices on agricultural goods.
This result makes it relevant to discuss whether it is in fact landowners or workers who are the most marginalised in developing countries. It is argued that Fairtrade is only targeting producers and the Fairtrade program can therefore not be criticised for not addressing poor workers. However, the design of the Fairtrade program has indirect negative effects on workers, and by excluding them from the program, Fairtrade neglect an important group.

Landowners or producers were found to face augmented return on land from an increase in the coffee price. The effect on labour supply is dependent on the total effect, which for an illustrative purpose was separated into the substitution- and income effect. Two different cases with various outcomes can be identified. Marginalised farmers can be argued to enjoy a significant increase in utility from increased work hours, if their income is relatively small with little

resources for buying necessities. In this case the substitution effect is dominant and leisure decreases as a consequence. In the other case considered, marginalised farmers are working maximum hours of the day and the total effect therefore results in increased leisure. The effect is thus found to be ambiguous as an increase in the income of farmers can both result in an increased or decreased amount of leisure demanded. In either case, farmers are able to reach a higher utility curve and are therefore better off.

The requirement of cooperative production was found to be one of the significant differences between regular coffee production and Fairtrade coffee production. Gathering in cooperatives is a known concept of agricultural producers, but it is not a requirement in conventional production. The emergence of cooperatives is therefore expected to increase with Fairtrade, which makes it relevant to consider how this occurrence affects trade terms for producers. It was found that cooperative presence changes the power distribution in the market and in turn profits to certified producers and regular farmers. For cooperatives to create excess profit to member farmers, limited access is compulsory. Restricting access to a cooperative is against basic cooperative principles, but it is argued that the design of Fairtrade is creating artificial barriers through fees and standards, assuring that only a limited number of farmers are getting certified. Since it is found in the literature that it is fairly difficult to become certified, this indicates an existence of barriers to some extend. Furthermore, FLO has reported profitable earnings to certified members. Investigating the effect from cooperative presence to other non-certified producers in the market, the effect can be ambiguous. It is found that cooperative presence can have a positive effect on IOF pricing, due to increased competition, referred to as the competitive yardstick effect. However, in areas without cooperative presence, decreased residual supply makes producers worse off, as the missing threat of cooperatives makes the IOF price as a monopsonist. The mentioned outcomes are of course dependent on a set of assumptions and are therefore possible but not resolute.

When the marginalised producers receive a higher price of their product, independent of production or quality, they are claimed to become dependent on the new price level. When producers become reliable on a higher price received for producing coffee, it becomes more expensive to shift production into other goods, and a result can therefore be, that producers become captured in coffee production, causing oversupply. Further, investigating the estimation of cost from fair trade to the world economy in a model, Fairtrade was found to have three shortcomings measured in costs to world. A direct transfer of aid was found to be more efficient, due to lower costs associated with the transfer, resulting in more money reaching the producer

without distorting the market. Nonetheless, it can be discussed whether direct aid is supported to the same extent as Fairtrade, as no physical product reaches the consumer in return.

Overall, Fairtrade causes various economic effects to market mechanisms and the actors within the market. Amongst main findings is the fact that the targeted producer gains, while the left out producers are worse off. This is the case in both the partial equilibrium model and the analysis of effects on factor prices. From an economic perspective measuring total welfare, Fairtrade is found insufficient as a solution to market failures in all contexts. However it does improve the conditions for the marginalised producers. Subsidising actors in a market must be expected to distort mechanisms, as some kind of relative reallocation of resources is a consequence. The outcome can, as a result, not be expected to be superior to the current market equilibrium. The question is if Fairtrade, with the incentive to better trade terms for marginalised producer is a second best solution.

9. IMPLICATIONS FOR FURTHER STUDIES

Investigating the economic effects of Fairtrade, total welfare was found to be adversely affected. However, the economic framework is delimited to some extent, due to limitations in time and resources in this study. Total welfare was measured for individual groups, including producers and consumers. Another approach to investigate the aim of Fairtrade could be to investigate welfare reallocation between countries. As Fairtrade is focusing on marginalised producers in developing countries, the welfare picture might be different if separating the effect into welfare effects to the developing country and welfare effects to the developed country. Furthermore, evidence of early entrants of Fairtrade controlling the market, resulting in uneven distribution of market shares between producers, was found in existing literature. As a result it could be relevant to estimate the spread in the Fairtrade volume share of total sales by producers, as uneven distribution might leave some Fairtrade producers worse off than in the absence of Fairtrade. This is a very hypothetical notion, and would require a thorough empirical study, including a large amount of Fairtrade producers.

Following the analyses of the effect on factor prices, it would be interesting to measure the actual effects of a change in the coffee price in an empirical study. An extension of the model to include various variables is needed to analyse the separate effects to the small-scaled producers and workers. Fairtrade has been operating for a substantial time period and it should therefore be possible to conduct a reliable dataset to test actual effects on factor prices and thereby economic consequences to producers and workers. Succeeding this extension, a study investigating which groups are in fact the poorest in developing countries is relevant in evaluating the concept of Fairtrade. If workers are the poorest and most marginalised in the economy, Fairtrade might make these worse off and foreign aid can therefore be argued to be better used in alternative organisations to Fairtrade.

This study has focussed on the design of Fairtrade as it appears today. It can be imagined that the certified producers, enrolled in Fairtrade, will lose the title as marginalised in time, due to increased earnings and conditions. It could be interesting to investigate whether Fairtrade organisations consider this element, hereby excluding producers when reaching a certain standard of living, maintained without support. Even though Fairtrade is a highly debated topic, many areas of research still remain unsolved. This thesis has presented Fairtrade in a broad view, delimited by an economic perspective, and more thorough investigation into many aspects of the study is therefore interesting to study in a further investigation of the effects of Fairtrade.

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APPENDIX 1

Imports by consuming countries (000 bags)

Country of origin/year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	pct change 2000-2012	Pct change 2006 -2012
European Union	52706	54926	56294	57411	59599	59615	63914	65762	67985	66794	69430	69844	71814	36%	12%
Austria	1257	1432	1447	1336	1538	1577	1601	1968	1901	1309	1369	1452	1559	24%	-3%
Belgium	3491	3209	3792	3818	3968	4063	4605	4014	6792	5916	5924	5828	5668	62%	23%
Bulgaria	281	355	343	400	367	441	435	393	517	523	528	482	560	99%	29%
Cyprus	69	59	57	59	59	80	74	71	78	72	77	82	84	22%	14%
Czech Republic	809	899	888	974	929	1063	940	1037	1037	930	951	952	1127	39%	20%
Denmark	1022	1103	1076	1002	1119	993	1004	995	900	860	1015	909	914	-11%	-9%
Estonia	105	161	120	134	176	221	254	277	334	357	263	167	157	50%	-38%
Finland	1063	1084	1075	1105	1152	1156	1168	1207	1285	1243	1274	1287	1238	16%	6%
France	6520	6753	6925	6652	5940	5714	6191	6420	6252	6670	6717	6992	6840	5%	10%
Germany	13895	14753	15516	15727	17356	16716	18543	19564	19876	19416	20603	20926	21816	57%	18%
Greece	798	868	897	998	942	931	897	1081	1056	1046	1061	1155	1244	56%	39%
Hungary	790	833	828	864	977	852	901	894	811	704	727	640	748	-5%	-17%
Ireland	155	180	177	227	264	251	252	266	127	142	165	210	252	63%	0%
Italy	6315	6542	6523	6929	7032	7269	7548	8028	8172	8078	8236	8355	8691	38%	15%
Latvia	181	156	164	186	188	191	221	151	154	132	138	141	157	-13%	-29%
Lithuania	213	267	263	221	256	284	317	336	390	411	376	289	325	53%	3%
Luxembourg	232	210	253	289	316	331	336	360	351	330	349	324	322	39%	-4%
Malta	9	9	10	11	16	16	29	16	23	14	12	17	21	133%	-28%
Netherlands	2966	2794	2760	3176	3159	2988	3293	3531	2304	2502	2583	2678	2730	-8%	-17%
Poland	2576	2719	2643	2664	2687	2792	2654	2264	2460	3162	3279	3404	3539	37%	33%
Portugal	811	843	838	834	838	831	862	911	885	887	1010	1058	1028	27%	19%
Romania	552	633	738	755	828	874	854	840	826	811	839	844	903	64%	6%
Slovakia	286	317	300	303	298	308	347	508	611	458	655	777	772	170%	122%
Slovenia	187	194	201	177	196	191	187	205	205	210	218	223	221	18%	18%
Spain	3768	4058	4026	4136	4173	4356	4538	4875	4864	4811	5034	4821	5094	35%	12%
Sweden	1344	1432	1463	1435	1495	1693	1820	1770	1804	1659	1727	1647	1680	25%	-8%
United Kingdom	3012	3062	2971	3002	3329	3433	4046	3781	3967	4131	4302	4183	4126	37%	2%
Japan	6908	6996	7307	6923	7254	7408	7632	7086	7060	7090	7407	7544	7025	2%	-8%
Norway	662	716	698	691	716	753	731	780	722	724	759	795	735	11%	1%
Switzerland	1171	1255	1217	1322	1236	1641	1503	1823	1978	2101	2318	2498	2478	112%	65%
Tunisia	192	233	236	123	264	190	209	253	318	289	304	429	439	129%	110%
Turkey	292	294	363	372	411	472	509	530	500	534	625	656	722	147%	42%
USA	23767	21415	21639	22760	23184	23042	23709	24219	24277	23578	24378	26093	26066	10%	10%
Total	85699	85835	87754	89602	92664	93121	98207	100454	102839	101099	105222	107859	109279	28%	11%

Source: (FAOSTAT, 2013)

APPENDIX 2

Coffee production by country (tonnes)

Country	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995
Angola	48533	46307	11982	4000	11523	5000	3500	1980	2040	1260	3300	4260	3300	5100	3840	2820	3300
Belize	45	47	70	90	45	95	54	231	229	227	229	165	70	93			
Benin	0	0	57	62	60	60	92	66	60	100	150	275	230	249	220	232	251
Bolivia (Plurinational State of)	33555	28815	28270	27305	27012	25272	24976	24546	24700	24513	24086	27696	26931	22532	22608	22015	20323
Brazil	2700440	2907270	2440060	2796930	2249010	2573370	2140170	2465710	1987070	2649610	1819570	1903560	1631850	1689370	1228510	1369200	930135
Burundi	23856	6820,6	25130	7305	29946	31000	7800	36000	20100	36000	15834	18500	29130	16937	19991	26875	25516
Cambodia	357	358	350	330	320	300	295	310	303	290	300	300	300	290	280	250	200
Cameroon	70000	66584	48123	50687	47792	62300	60000	54000	48000	41000	70500	86200	98000	112532	63600	104121	74000
Central African Republic	6000	5270	3544	3300	2400	1500	3300	4320	5520	13000	12300	12900	11260	12037	15000	18000	9000
China	32460	29000	27000	26500	26000	25655	21919	21659	23144	19456	17202	11568	8743	6237	3573	3023	3196
Colombia	468120	514128	887661	688680	757080	724740	667140	674400	694080	696840	656160	637140	546720	766980	642239	671401	821820
Comoros	129	97	116	111	121	95	120	89	100	102	101	98	108	96	79	94	104
Congo	2725	2600	2700	2400	3000	3000	3300	2800	2000	1687	1612	1550	1490	850	1338	1600	1606
Cook Islands	0	0	0	0	0	0	0	3	5	5	4	5	10	15	20	15	8
Costa Rica	99909	97305	91403	111959	121058	101038	125669	126000	132259	140874	150289	161395	147868	152385	132015	154131	150061
Côte d'Ivoire	102523	94321	142945	67940	170849	117618	95569	154081	140027	182001	301127	380000	307331	311000	279219	167786	194968
Cuba	8688	9833	7980	6240	13500	8400	10800	15240	15000	14700	15720	16500	22020	13500	19980	16680	17100
Democratic Republic of the Congo	33371	31840	31870	31900	31930	31960	31990	32020	32050	32080	34723	46767	48605	55991	70299	73975	84714
Dominica	225	180	292	276	405	383	389	372	380	355	361	408	370	422	379	360	306
Dominican Republic	27296	21876	37950	47642	50297	53688	40303	35421	36929	37330	35476	45546	34609	56943	41682	41641	44877
Ecuador	23829	31347	33624	37096	38687	31461	102923	86522	82720	79149	164790	138030	132939	48190	87350	190696	148205
El Salvador	82095	112636	76591	97727	96355	85350	87963	83088	81157	91513	112201	114087	160782	117214	124239	148859	139513
Equatorial Guinea	4400	4200	4000	4500	5625	4500	4000	4000	5000	5000	5000	5000	3500	5000	5000	5000	4500
Ethiopia	370569	265469	260239	273400	325800	241482	171631	156171	221580	225360	228000	229980	217450	229980	228000	229980	229980
Fiji	18	18	15	13	14	12	15	11	13	15	12	15	16	15	14	13	10
French Polynesia	20	12	17	16	12	10	16	15	18	17	16	20	18	16	11	10	10
Gabon	167	159	128	107	125	120	116	125	120	180	60	198	125	145	154	219	159
Ghana	1300	1200	1860	1620	1860	1740	1200	1140	900	1464	1379	1956	3965	8370	2880	6330	3759
Guadeloupe	17	14	23	20	30	28	25	19	30	35	35	35	32	29	27	24	26
Guatemala	242839	247501	249275	248471	243599	234712	248277	250279	244200	221820	275700	312060	293520	253080	271440	240300	210920
Guinea	29000	29018	28173	27353	26556	23226	20770	20220	20880	19680	14160	22080	20217	20888	20000	22750	28000
Guyana	168	174	170	177	160	147	133	144	129	150	153	15	140	136	261	285	300
Haiti	24922	19973	32479	35000	47000	35000	35000	29000	30000	27000	28000	30000	28000	27239	28394	27000	29000
Honduras	282361	229368	231288	240948	236302	213636	190640	185090	175284	172727	205545	193309	157409	172772	162658	148830	132400
India	302000	289600	262300	262000	288000	274000	275500	270500	275275	301000	301000	292000	265000	228000	205000	223000	180000
Indonesia	634000	684076	682591	698016	676475	682158	640365	647385	663571	682019	569234	554574	524687	512165	426800	421751	457801
Jamaica	11381	9121	12456	9035	15117	12390	8897	2400	3300	2760	2880	2220	2340	1740	2887	2580	2580
Kenya	36260	42000	54000	42000	53368	48300	45200	48431	55443	51900	51700	100700	68100	53715	68642	97976	95400
Lao People's Democratic Republic	46954	47052	46035	38985	33200	25250	25000	23100	27850	32197	25796	23500	17530	16999	12300	10020	8576
Liberia	652	600	1800	2400	3180	4260	4080	1796	1628	2040	3200	4113	3444	3728	3289	3470	3759
Madagascar	52813	81250	65000	59556	67000	61635	55500	67775	70315	61520	64530	58080	65000	60000	55000	68000	68000
Malawi	4015	4176	5510	1122	1403	2091	1181	1590	2584	2980	4320	3780	3540	3840	4552	4797	5460
Malaysia	16478	15768	16332	23061	21213	32779	40000	39200	40000	39200	38500	39800	35000	28000	20000	15000	11300
Martinique	22	18	29	29	42	35	36	34	35	33	34	40	35	40	40	33	35
Mauritius																	
Mexico	237056	245271	264472	260442	268565	279635	294364	312413	310861	313027	302996	338170	302119	277372	368315	374153	324526
Mozambique	1275	957	1141	1088	1190	933	918	868	728	722	518	600	1073	953	1000	950	900
Myanmar	7400	7367	7143	6384	4800	4000	3500	3010	2700	2415	2135	1814	1714	1913	1696	1550	1550
Nepal	402	307	268	500	460	300	250	218	188	139	89	72	45	56	37	29	25
New Caledonia	21	13	9	33	21	25	25	60	18	20	56	18	39	43	25	37	44
Nicaragua	103664	78712,3	92204,5	75957	100000	70455	95455	57533	82727	60235	66799	82206	91791	65420	65169	49900	54587
Nigeria	2450	2400	2040	3000	2520	5340	4990	4660	4360	4100	3850	3830	3750	3700	3700	3780	3090
Panama	12011	12470	12961	13324	13790	12844	13153	12778,8	11586,5	11390	15074	10255	12024	11434	10527	10478	11067
Papua New Guinea	39957	39957	60240	61680	58080	48420	76080	59820	69300	65100	63720	83000	83040	80940	64524	65091	59589
Paraguay	370	370	281	273	3100	3040	2900	3353	3085	2434	2751	3588	4726	4750	4823	4024	4008
Peru	313647	264605	243479	273780	225992	273178	188611	231447	203148	212770	196232	191651	167145	144763	133296	106520	96697
Philippines	88526	94536	96433	97428	97877	104093	105847	102865	106388	107080	112271	107557	104124	107802	120006	117226	127412
Puerto Rico	4486	3595	5846	5524	8100	8000	7938	10206	9308	7600	8650	8250	7000	13393	11567	12175	12701
Rwanda	21820,4	937,33	19371,9	20724	14683	22223	18597	20017	13805	19427	18366	16098	18800	14268	14830	15285	21952
Saint Lucia																	
Saint Vincent and the Grenadines	168	135	220	200	180	175	165	150	145	150	155	160	170	176	158	150	160
Samoa	12	12	8	8	8	4	6	5	8	8	8	8	9	10	11	12	13
Sao Tome and Principe	36	34	27	22	26	30	28	27	28	25	22	18	58	36	45	21	17
Saudi Arabia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	150
Sierra Leone	33478	30800	22000	21200	21000	20500	20000	18000	17000	7628	11963	15000	15350	25000	30700	25000	25025
Spain																	
Sri Lanka	5320	5240	5410	5450	6050	6460	7240	7670	9110	9780	10210	9790	10580	10498	11348	11760	11481
Suriname	9	9	9	10	10	6	4	4	4	4	4	4	10	11	16	33	50
Thailand	42394	48955	56315	50442	55660	46873	59644	61765	53907	53447	86009	81057	54923	78444	83810	80287	86450
Timor-Leste	8320	12653	10122	14009	14000	14000	14500	14500	12000	14000	14134	13000	12000	11000	9723	10987	10000
Togo	12500	11500	11700	9143	9300	8900	7200	9300	5500	7900	16900	15200	17000	20000	10600	22400	12080
Tonga	15	15	22	23	22	18	17	14	16	17	16	20	18	17	16	15	14
Trinidad and Tobago	75	60	51	60	60	720	350	109	586	247	406	553	343	367	1102	352	831
Uganda	191371	166968	195871	211726	175346	133310	158100	170081	150871	209547	197410	143475	251881	205056	219624	287925	181465
United Republic of Tanzania	60575	40000	62350	43100	54800	34300	54000	32500	61602	37500	58100	47800	46670	38002	43568	52490	41971
United States of America	3760	3990	3950	3950	3400	3311	3719	2540	3760	3400	3630	3950	3630	3450	3260	2320	1960
Vanuatu	11	11	16	15	13	11	14	14	16	12	15	30	51	50	42	40	36
Venezuela (Bolivarian Republic of)	69138	71782	70000	72000	70311	74332	64484	71503	64265	84470	91877	78440	79854	66840	63000	73026	65088
Viet Nam	1167900	1105700	1057540	1055810	1251000	985300	831000	913800	793700	699500	840600	802500	553200	409300	420500	320100	218000
Yemen	20000	19029	18924	18788	18330	17292	11331	10260	11608	11499	11906	11363	11182	11283	10325	10600	8993
Zambia	8659	6500	4889	5869	5100	5033	4500	5000	6060	6480	5760	5400	3480	2628	2167	1580	1232
Zimbabwe	2797	2100	1380	1440	1860	2700	3960	5800	10000	8050	7518	9100	10000	10000	9300	11500	7860
Total	8284135,4	8254392,2	8178131,4	8309711	8209125	7965557	7248744	7709573,8	7184416,5	7871312	7405439	7564402	6789533	6633835	5992640	6212988	5532202

Source: (FAOSTAT, 2013)

APPENDIX 2

Coffee production by country (tonnes)

Country	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980
Angola	2160	4620	5000	5000	5000	10000	11000	8700	14800	12000	15000	13000	17400	20640	43260
Belize															
Benin	200	300	200	180	120	800	2700	1900	1100	700	3000	1000	1629	585	321
Bolivia (Plurinational State of)	19216	13153	15179	14071	24378	26740	25450	25200	24153	23361	21566	21141	21179	21325	20540
Brazil	1307290	1278760	1294370	1520380	1464860	1532340	1348010	2202710	1041410	1910650	1420280	1671590	957931	2032210	1061200
Burundi	41293	22991	37215	34204	32694	31400	35247	37338	31290	32493	27005	35954	20221	43824	18894
Cambodia	190	181	180	170	160	150	140	130	120	100	90	80	70	68	70
Cameroon	73743	68417	76200	115080	100980	115700	119400	82560	132000	100020	137900	63700	128237	109286	112207
Central African Republic	14500	9124	9036	17625	14314	20808	24482	21346	20100	13300	18400	15400	17000	17000	16808
China	3250	4000	3800	3500	6300	8000	10000	8600	7700	7000	9000	6000	6054	6052	5051
Colombia	721860	818220	1100000	970740	845000	664000	708700	651600	713500	643100	807800	768600	773600	782200	724380
Comoros	99	91	92	91	90	87	87	85	85	85	84	83	82	82	80
Congo	1553	1501	1450	1401	1354	1843	1830	1028	1444	3480	2980	3360	2900	2580	2700
Cook Islands	4	5	2	2	1	1	2	2	2	2	2	2	2	2	2
Costa Rica	147998	156927	168000	158000	151100	157000	144900	138000	128227	124000	136857	124008	115087	113102	106389
Côte d'Ivoire	145576	138937	257000	198909	285164	221350	186705	270130	265199	277082	85203	270581	247708	366839	249608
Cuba	17040	17100	18720	22740	24900	28920	28801	26165	24509	23783	22051	18410	28684	21616	18973
Democratic Republic of the Congo	88346	90109	92400	95000	101594	94740	103080	97200	95000	91600	92700	84200	93400	93400	89000
Dominica	350	340	204	205	178	193	196	192	195	192	187	175	171	168	164
Dominican Republic	37077	37744	42464	55222	59377	64611	67939	67134	68504	71965	72109	68027	63493	52206	60091
Ecuador	186797	137004	137671	138579	134980	129309	144401	111720	118000	120861	97258	81075	83938	86085	69445
El Salvador	140534	140576	175720	149450	147200	121900	120290	147890	138184	148810	163852	154560	174616	180000	184230
Equatorial Guinea	5000	3784	5500	6000	6500	7000	7000	7000	7000	7000	6800	6700	6700	6600	6000
Ethiopia	207000	180000	216000	210000	204000	200000	190000	186000	186000	155200	145306	157824	202000	202000	187200
Fiji	11	176	226	354	660	97	63	30	45	40	30	40	30	20	20
French Polynesia	9	8	4	13	6	10	4	4	14	55	63	142	56	121	168
Gabon	259	256	193	451	269	1920	1774	1724	1332	1295	1200	1400	1850	750	680
Ghana	3000	4000	2400	2300	1000	700	377	791	531	500	700	1300	1500	1500	1500
Guadeloupe	23	53	47	20	20	35	40	40	26	40	40	20	10	10	10
Guatemala	213900	208650	206586	196190	202400	193200	179400	193200	196560	181630	196610	183010	189330	193830	177430
Guinea	30000	28800	28804	30000	30000	27500	20000	6500	6500	14900	14800	14700	14500	14400	14400
Guyana	300	300	300	300	300	300	300	240	430	370	358	1020	1260	1560	1560
Haiti	31000	33600	27355	37000	37200	38447	37693	30088	37752	36900	37250	36000	32250	33250	42900
Honduras	126182	110481	111660	101890	119784	100234	94046	79877	76318	75091	72545	79474	72420	75347	64228
India	208000	162000	180000	170000	118100	214700	122700	192100	122400	195100	105029	130000	152100	118600	149835
Indonesia	450191	438868	436930	428305	412767	401048	391095	388669	356822	311398	315489	305648	281251	314899	294973
Jamaica	2460	1500	1920	2280	1560	1260	2231	1658	1697	1274	1745	1632	1516	1379	2216
Kenya	79900	75100	85300	86400	103900	116900	128700	104679	113926	93600	118500	86064	87436	99717	91334
Lao People's Democratic Republic	9035	7622	6582	8017	5204	5413	7829	5312	4711	6144	5780	5320	5200	5031	4442
Liberia	3000	3000	3000	1300	1600	4800	3600	4200	9000	9000	11500	7500	11734	8400	12742
Madagascar	70000	78000	79882	83865	85000	88200	83500	80750	82280	78500	81400	80855	81225	83460	79880
Malawi	5040	3780	8160	7500	6180	6780	4320	4966	3692	3480	1860	1140	1020	1000	1000
Malaysia	11200	11100	9000	7600	7215	6732	9500	11500	10300	10900	11900	11900	11300	10400	10100
Martinique	74	77	75	75	0	600	600	600	600	600	600	2400	2400	2400	2400
Mauritius					0	50	40	40							
Mexico	324500	335627	359665	334330	440000	343440	423000	336180	374828	260197	239870	307948	251768	262904	220040
Mozambique	800	1000	700	900	937	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Myanmar	1423	1220	1337	1431	1378	1571	1501	1488	1414	1253	1217	1195	1167	1044	1114
Nepal															
New Caledonia	59	60	68	135	300	273	107	438	472	552	304	377	347	597	659
Nicaragua	40551	41818	44505	47421	27996	45167	43447	38626	43332	35360	51290	49205	72145	61087	59107
Nigeria	3720	3580	3380	3200	3030	2570	1570	1500	1200	6000	4000	3000	3000	3000	3500
Panama	11224	10456	10945	12174	11547	9757	10274	10160	10596	9390	10750	8854	8142	7062	7272
Papua New Guinea	67136	63540	50460	47220	60000	65640	62000	62520	44310	56206	43675	55894	41108	49837	54762
Paraguay	5002	4950	4850	20000	17576	17605	18335	18276	19070	18134	18359	15031	13865	12856	7800
Peru	91340	85603	86519	82635	81142	105753	99414	98538	96054	90736	83357	85637	79422	79360	86177
Philippines	123553	124415	126832	125017	125659	155900	141892	140119	145301	135354	116755	146927	171400	146700	125285
Puerto Rico	12700	15478	12701	12701	12927	14515	13154	15967	11340	14061	12247	15649	12973	13608	11884
Rwanda	1274	27510	38824	35000	34680	30591	42666	41797	41348	43000	32500	33500	27200	29200	22600
Saint Lucia						0	20	20	19	18	17	16	15	12	17
Saint Vincent and the Grenadines	155	150	155	140	150	145	145	140	140	130	130	130	120	120	115
Samoa	14	15	16	17	18	20	20	20	20	20	20	20	20	20	20
Sao Tome and Principe	22	20	13	11	37	8	31	9	22	14	54	60	60	60	60
Saudi Arabia	250	386	300	260	240	220	200	180	160	140	120	243	120	120	120
Sierra Leone	27805	24700	26000	26000	25800	25600	25300	24200	23100	26000	18000	16500	8658	9288	10146
Spain	5	5	5	7	9	14	13	11							4
Sri Lanka	11056	10090	8672	7861	7567	6760	5600	6030	5622	9300	10500	16600	13179	12500	11688
Suriname	42	50	43	55	46	49	39	36	44	35	40	47	44	53	45
Thailand	78175	70426	80386	47328	71483	59580	35154	25220	31455	26641	18099	18035	18539	12060	9120
Timor-Leste	9000	8000	7734	8649	8631	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000
Togo	10600	11000	6300	24900	12800	12121	14500	13611	8179	10044	2689	5941	9237	8878	10385
Tonga	15	14	11	10	13	14	14	14	14	14	12	10			
Trinidad and Tobago	1015	874	707	914	1944	1206	582	1842	1334	2141	852	1389	1794	2433	2240
Uganda	198371	144551	110334	147366	128747	169042	151157	167067	159881	143995	145971	148224	161866	97500	135200
United Republic of Tanzania	34151	59574	56030	46210	53420	48800	45510	57653	54756	45808	56943	52129	53120	66441	47802
United States of America	1560	1056	871	1016	1016	1160	725	653	1088	671	635	1016	360	802	522
Vanuatu	40	38	30	42	15	25	15	53	57	65	55	38	21	61	60
Venezuela (Bolivarian Republic of)	68404	66476	69340	68404	76412	72594	71040	70188	66232	64370	60861	58848	58037	59566	58173
Viet Nam	180000	136100	119200	100000	92000	40900	42000	27500	25000	12300	4800	5700	5300	5300	8400
Yemen	8480	8727	8218	5430	7411	6807	6474	5111	5012	4913	5152	3917	4305	4405	4390
Zambia	1582	1531	1792	1740	1380	1500	540	540	600	377	200	76	66	40	30
Zimbabwe	9420	4000	4995	12091	13569	14601	12627	11599	13486	11354	10720	8234	6073	5476	5261
Total	5728104	5554295	6086765	6101024	6063289	5908766	5646238	6385904	5237944	5825194	5222023	5584425	4942961	6085334	4841429

Source: (FAOSTAT, 2013)

APPENDIX 2

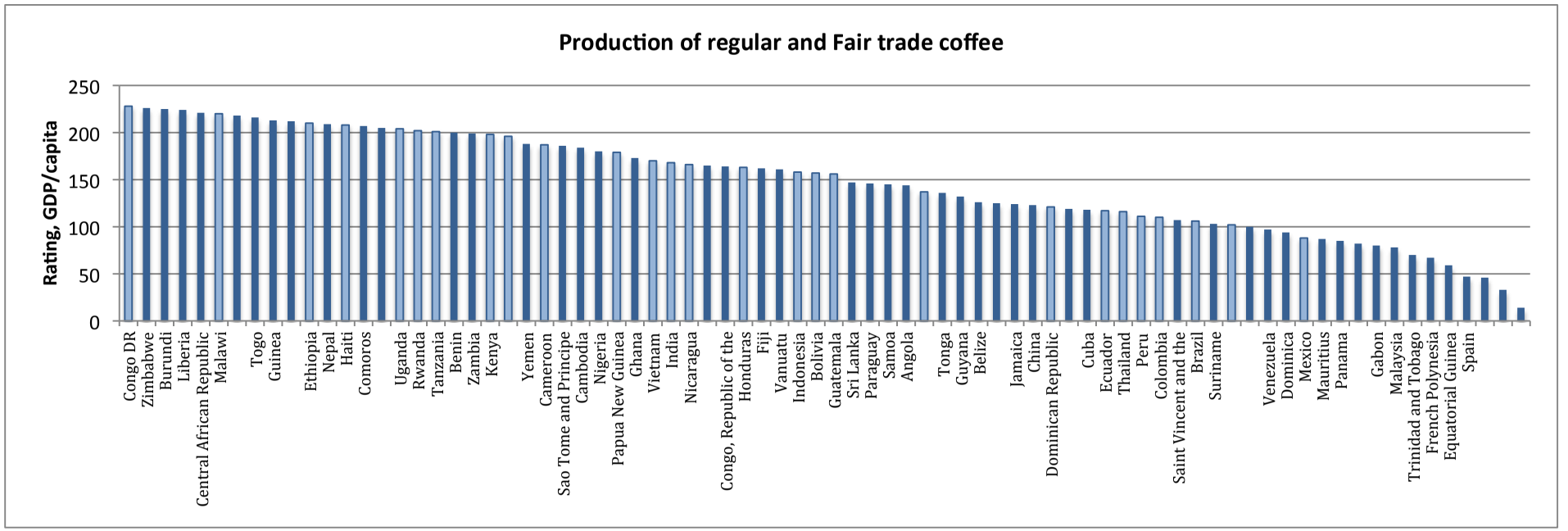
Coffee production by country (tonnes)

Country	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961
Angola	17340	34320	57060	57480	180000	224772	210000	225000	228000	204000	215000	198000	235200	225700	205000	198200	168300	185000	168600
Belize																			
Benin	31	185	610	599	477	161	1341	2724	2229	1940	2268	511	1086	1041	891	1065	1002	1730	2090
Bolivia (Plurinational State of)	15700	13424	13372	14664	14900	13870	13400	13000	12400	11200	10100	9500	8200	7700	4700	7400	4400	4400	4400
Brazil	1332770	1267660	975385	375985	1272300	1615310	872897	1495710	1551460	754800	1283500	1057700	1507500	1202870	2294050	1042010	1650530	2190300	2228700
Burundi	27728	22783	17030	21428	16924	28140	21395	19403	25051	22084	14551	16539	18682	14071	12831	17737	5777	13001	14000
Cambodia	50	72	85	90	100	100	124	470	600	600	460	350	433	480	400	350	400	350	240
Cameroon	101166	107993	86448	79599	92488	104442	93913	96165	94790	92993	81815	81700	79600	63300	74100	59100	53600	45000	44700
Central African Republic	16073	15183	14800	13900	14300	13200	10001	8359	6065	10665	12163	8826	8207	9127	11400	7600	12600	5800	8200
China	5036	4047	4052	4009	4066	6068	6017	5029	3934	3836	3748	3540	3566	3236	2577	2346	2042	1756	1612
Colombia	713340	683220	639420	483000	513200	470000	528000	432000	468000	507000	474000	480000	456000	492000	492000	468000	450000	482100	450000
Comoros	90	90	70	60	60	120	120	120	120	180	180	180	180	180	100	100	150	100	100
Congo	3120	4843	5244	2160	1050	1292	1035	1021	1286	1102	1111	890	920	910	2700	1500	1500	1300	900
Cook Islands	2	3	2	10	10	10	10	10	10	10	10	12	11	10	11	7	5	3	
Costa Rica	98575	98549	87183	81784	80248	84287	95721	78787	89350	73192	84549	69372	76014	68344	58384	47219	62295	54523	61769
Côte d'Ivoire	277048	195565	291339	308400	270400	195935	301804	268836	239706	279610	210124	287760	130759	272566	202105	260698	194639	97071	185500
Cuba	22674	14807	16826	27151	20112	28795	21028	25391	25987	19742	31649	29246	34246	33407	23880	32028	34691	52206	37000
Democratic Republic of the Congo	86700	85600	88500	91100	82500	77100	77700	79200	74600	69600	68000	63300	60000	54000	58500	57000	66000	66000	54000
Dominica	171																		
Dominican Republic	60391	43405	60208	56997	51855	54311	58682	45300	45000	42494	43550	44500	42400	44535	43072	51974	44783	45968	36210
Ecuador	89728	75447	82680	87101	76437	69638	74980	71385	62252	72053	44345	60493	61731	57222	66200	47000	42800	55500	53500
El Salvador	185625	158490	147465	138690	161415	159436	126500	147476	144624	129490	143980	123800	144800	123100	109200	123100	122700	98300	122500
Equatorial Guinea	6000	5400	4800	5400	5400	6600	6300	6900	6900	7200	7200	7500	8700	6400	6664	8235	6700	8100	6600
Ethiopia	188000	190000	191400	178600	171000	153400	180080	163500	182200	170000	165000	160000	155000	140000	140000	170400	139100	132700	127400
Fiji	20	20	15	15	15	13	13	13	13	11	11	8	5	2	1	1	1	1	
French Polynesia	180	125	84	102	160	130	120	110	110	102	145	190	126	173	89	200	141	271	113
Gabon	269	502	360	145	259	600	540	900	600	900	1200	1200	900	900	1100	1100	1100	2500	1100
Ghana	1700	1770	3800	5500	4000	2455	3910	7550	7322	6510	4700	6440	4057	8610	1644	6700	2650	3920	1700
Guadeloupe	20	20	95	116	100	120	180	220	270	300	300	300	300	300	200	400	300	500	500
Guatemala	164810	169636	168217	158433	139091	157437	145642	142682	128386	126546	118685	112392	102363	106200	126100	105200	104400	117700	100600
Guinea	14405	14283	14121	13975	13949	13809	13673	13000	12500	11500	10000	14500	13000	13000	9600	9000	12300	13000	15000
Guyana	1320	1140	1020	900	900	900	746	762	761	703	684	1302	1290	1122	1156	1129	659	1039	860
Haiti	40140	26580	31140	32280	39000	31200	33000	31500	32400	32610	27000	30180	31600	30540	36720	36000	34980	31860	45720
Honduras	72547	59796	49757	48285	46814	45342	41778	42399	40927	39456	37984	36512	35041	33569	32195	29276	29014	27939	21450
India	110488	125000	102300	84000	92506	86388	91072	68948	110231	63619	73430	57331	78500	63900	60900	69300	56200	46000	43200
Indonesia	273675	222690	193966	193377	170372	149811	150163	178735	180916	185091	173613	157347	153478	142200	134500	118200	139600	106700	103100
Jamaica	958	1477	1208	1929	1186	1486	1146	1040	1358	1805	1589	1972	1991	1861	2170	1997	2009	1969	2546
Kenya	75082	84332	101218	80303	66152	70103	71190	62048	59500	58300	52400	39600	48000	56900	39300	41400	40500	50000	28100
Lao People's Democratic Republic	3500	2980	4315	2780	1800	2070	1800	2300	2800	3200	3450	3500	3500	3500	3500	3500	2000	1500	1000
Liberia	8200	8665	10076	4238	4150	3424	6935	5594	5521	4967	4261	4686	4327	8911	3187	3500	3670	3754	3400
Madagascar	81565	78200	91520	78930	83560	80900	73880	68585	57710	66555	63945	70850	73065	71535	65640	70415	62000	73000	54000
Malawi	900	900	880	880	788	625	187	186	153	263	154	145	151	166	128	133	230	198	167
Malaysia	5880	6120	5400	8100	6240	5880	4920	4200	3960	3540	3780	3600	3420	3480	3120	3120	2820	2580	2700
Martinique	2400	2400	2400	2400															
Mauritius																			
Mexico	220191	241602	182010	212200	228264	220767	221718	203462	187495	185293	172734	212656	224505	183005	162149	156477	137069	139794	126616
Mozambique	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Myanmar	1017	1079	940	923	1024	956	1026	957	917	1016	1210	1406	1506	1292	1534	1162	1688	949	200
Nepal																			
New Caledonia	664	507	538	1500	1500	727	1500	1100	1000	780	1620	870	1537	1770	2200	2437	2250	2125	2250
Nicaragua	56304	65092	55200	56580	49137	40972	36694	35073	42013	39418	33904	30246	33233	24921	31500	40200	26200	29800	23200
Nigeria	3200	3100	3100	3000	3000	2400	2300	4171	3600	2826	4776	2360	1712	4000	3000	3000	2000	2000	1100
Panama	6100	6146	5516	4677	4801	4504	4318	4944	5307	4436	5139	4500	5166	5000	4300	4300	4500	4400	5000
Papua New Guinea	49532	45945	38224	39466	36945	34084	34798	29015	26967	27495	21478	14570	15720	11700	9240	7500	5280	4140	2520
Paraguay	7560	7200	6000	3910	8340	8480	6930	7660	5810	4310	6090	7340	7110	6510	6018	7200	7140	6180	6000
Peru	105478	88166	80190	65445	65387	69855	70396	70195	70587	65368	68439	64652	52753	52380	48264	52740	48940	46356	42643
Philippines	115500	118750	105100	80800	91444	53031	50910	51600	49500	49017	44172	43862	44300	42793	44145	39311	32900	43100	32300
Puerto Rico	9526	11927	8707	11428	11430	10478	13698	12247	10886	15422	9078	11793	14742	12882	13600	17010	14288	17917	15876
Rwanda	25500	21994	20684	20334	18045	14062	14160	10602	15245	14240	12399	12015	11157	8603	9998	8100	4700	10000	10500
Saint Lucia	18	19	20	21	22	23	24	24	24	24	24	25	25	25	25	25	25	25	25
Saint Vincent and the Grenadines	110	105	100	100	100	100	90	90	90	80	80	70	70	60	60	55	55	50	50
Samoa	20	20	20	20	20	40	40	40	150	150	150	150	150	150	135	120	130	130	115
Sao Tome and Principe	60	60	60	45	28	93	61	143	70	125	151	133	175	158	214	197	258	297	258
Saudi Arabia	100	100	100	100	100	200	200	200											
Sierra Leone	13690	4367	10273	4702	7416	3188	11971	7297	9527	6188	8257	4131	3000	9593	3937	6029	3958	2419	5103
Spain	9	9	9	8	8	8	6	6	6	8	7	8	8	8	6	5	5	5	5
Sri Lanka	10100	12318	10387	8876	8838	8624	7032	6806	8358	7306	10943	10020	11488	6660	7008	8395	5520	3754	4002
Suriname	59	52	90	76	88	91	89	98	200	207	233	359	431	377	397	380	378	329	342
Thailand	7500	6900	6300	7635	5816	4020	2240	1657	1140	600	240	180	120	120	120	60	60	60	60
Timor-Leste	8000	8500	8500	6000	4500	4500	5355	4701	5275	4906	5025	1023	6602	2088	2806	2378	2453	2127	1700
Togo	6229	4707	10430	8512	10800	7694	6756	6806	6459	13877	13795	17208	10500	7900	13500	13800	13800	11600	10300
Tonga																			
Trinidad and Tobago	2497	2500	2918	2671	4024	1940	2717	3300	3894	2302	3191	4586	3117	2920	4198	4181	3625	3900	2885
Uganda	103000	121300	155900	137100	199000	199100	212600	183700	175500	201500	247200	133000	166400	153900	152100	172400	158200	119000	94100
United Republic of Tanzania	47875	51359	50216	43278	62291	59454	54997	52126	49700	46140	51545	51100	49600	66900	56400	43600	40900	35000	33000
United States of America	794	610	823	770	675	559	1103	1321	1063	1560	1498	2068	1974	2918	2722	3600	2400	4900	3100
Vanuatu	80	60	60	60	60	120	120	120	120	120	180	240	300	250	250	200	200	200	240
Venezuela (Bolivarian Republic of)	53935	58977	57682	40350	64611	45878	65926	40406	58385	60586	60665	45886	61824	61000	54387	56141	60678	54228	57050
Viet Nam	5100	5400	5600	9700	6800	6000	6600	7000	6500	7300	6500	6000	7000	6300	7500	5500	4500	4020	4100
Yemen	4410	4716	4710	3810	3810	4313	4313	4313	4823	4813	5013	4423	4423	5323	6300	5700	5800	6300	6300
Zambia	20	80	50	37	25	13	12	7	10	7	3	0	0	0					
Zimbabwe	4603	4977	4310	4639	3415	2581	1553	1255	745	615	212	212	62	52					
Total	4975198	4727366	4401638	3524668	4603048	4769535	4185196	4570000	4662368	3848804	4271585	3933866	4330059	4049626	4979028	3766843	4149488	4581744	4525217

Source: (FAOSTAT, 2013)

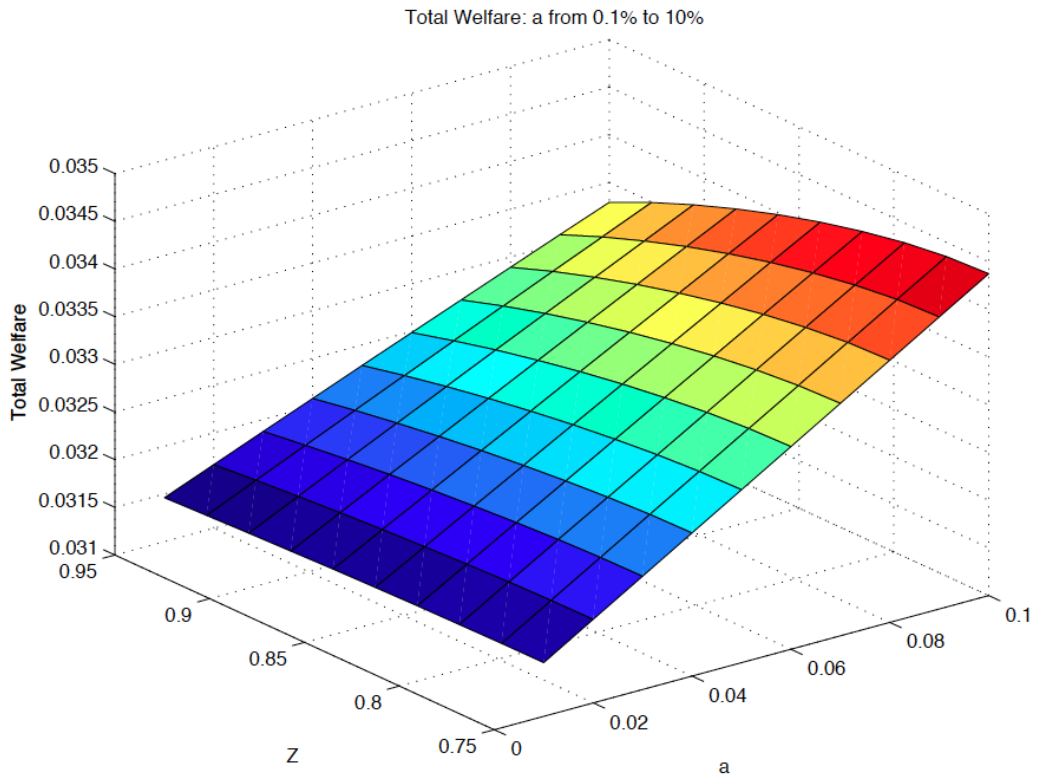
APPENDIX 3

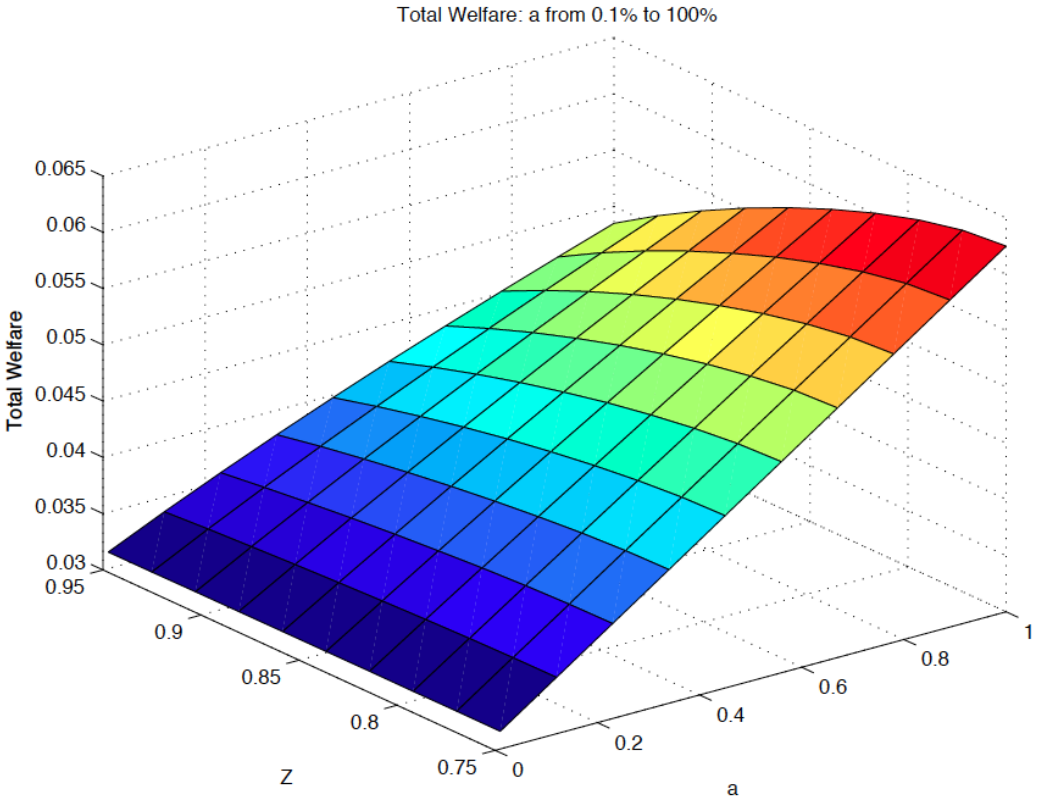
GDP rating of Fairtrade and regular coffee producing countries



Source: (Central Intelligence Agency, 2012) and (Fairtrade International, 2011)

APPENDIX 4 – Total welfare distribution





APPENDIX 4 – Total Fairtrade producer income distribution