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The Effect of Fair Trade on the Coffee Sector: A Comparative Study
of Ethiopia and Kenya

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This is to certify that the thesis prepared by Eskedar Tadesse, entitled: The Effect of Fair Trade on the Coffee Sector: A Comparative Study of Ethiopia and Kenya

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List of Acronyms

ATO	Alternative Trade Organizations
CBK	Coffee Board of Kenya
COFTA	Cooperation for Fair Trade in Africa
COSP	Cost of Sustainable Production
CTA	Coffee and Tea Authority of Ethiopia
FSC	Forest Stewardship Council
FT	Fair Trade
FTA-ECAN	Fairtrade Africa-Eastern and Central Africa Network
FTA-SAN	Fairtrade Africa-Southern Africa Network
FTA-WAN	Fairtrade Africa-West Africa Network
FTO	Fair Trade Organization
FTP	Fair-Trade Premium
FTS	Fair-Trade Standards
MA	Marketing Agents
MSC	Marine Stewardship Council
SFTMS	Sustainable Fair Trade Management System
SP	Small-scale Producers
SPO	Small Producer Organization/Small-scale Producer Organization
VSS	Voluntary Sustainability Standard
WFTO	World Fair-Trade Organization
TLU	Tropical Livestock Unit

Definition of Terms

Alternative Trade Organizations (ATO) is a non-governmental organization (NGO) aligned with the fair trade movement which, according to the European Fair Trade Association (EFTA), aims “to contribute to the alleviation of poverty in developing regions of the world by establishing a system of trade that allows marginalized producers in developing regions to gain access to developed markets”.

Cooperation for Fair Trade in Africa (COFTA) is an organized social movement established in 2004 by regional African producers, with the aim of eliminating poverty through the fair distribution of profits during international trade.

Cost of sustainable production (COSP) is the cost of producing a product sustainably and in a socially, economically and environmentally responsible way that conforms to Fairtrade Standards.

Fair Trade (FT): The term defines a trading partnership, based on dialogue, transparency and respect that seek 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 developing countries.

Fair Trade label means any recognized Fair Trade product or organizational certification label referring to the relevant Fair Trade standard.

Fair Trade organization (FTO) also called an alternative trade organization (ATO), has Fair Trade as part of its mission and at the core of its objectives and activities. Fair Trade organizations follow the Fair Trade principles. They are actively engaged in supporting producers, trading, raising awareness of Fair Trade issues and advocating the integration of Fair Trade principles into all international trade practices.

Fair Trade producer is a producer organization complying with WFTO Fair Trade standards, or a producer/producer organization that is a member of WFTO.

Fair trader describes an operator that buys sells and/or manufactures/processes and that has obtained product certification as per the relevant Fairtrade Standards.

Fair Trade principles were developed by FLO and WFTO (2008) as a common understanding of the basic principles of fair trading. They are defined within the ‘Charter of Fair Trade Principles’ and are approved by the Board of FLO and the General Assembly of WFTO.

Fair Trade movement is the combined efforts of Fair Trade organizations, campaigners and businesses to promote and activate the Fair Trade principles of empowering producers, making trade more fair and sustainable livelihoods.

Fairtrade Premium (FP) is an amount paid to producers in addition to the payment for their products. The use of the Fairtrade Premium is restricted to investment in the producers’ business, livelihood and community (for a small producer organization or contract production set-up) or to the socio-economic development of the workers and their community (for a hired labour situation). Its specific use is democratically decided by the producers.

Fairtrade Trade Standards (FTS) are the requirements that traders must meet, irrespective of the product traded, in order to obtain a Fairtrade certificate.

Forest Stewardship Council (FSC) is now well-known brand in many countries, and consumers rely on associated ‘eco-labels’ to inform buying decisions

Tropical Livestock Unit (TLU) Tropical Livestock Units are livestock numbers converted to a common unit.

Monitoring and Evaluation (M&E): Together, monitoring and evaluation provide the knowledge for effective programme management and reporting, including accountability and responsibility. M&E uses sets of tools to assess projects, taking into account the project’s relevance, effectiveness, efficiency, impact and sustainability.

Sustainable Fair Trade Management System (SFTMS) is a certification system for Fair Trade organizations, currently under development by WFTO. It is based on 10 Fair Trade principles, and will result in the creation of a label for food and non-food products.

Small-scale producers (SP) are producers who are not structurally dependent on permanent hired labour and who manages their production activity mainly with a family workforce. Most working time is spent on agricultural/artisanal activities on their own farms or in their own homes with this revenue representing the major part of their total income.

Small producer organization/small-scale producer organization (SPO) the term describes legally registered groups and, in WFTO, other less formally organized structures whose members are primarily small producers/small-scale producers able to engage in commercial activities.

Traceability: The ability to identify and trace the history, location, use and processing of products and materials is known as traceability.

Voluntary Sustainability Standard (VSS) are innovative market-based approaches to promoting sustainable production and business practices.

World Fair Trade Organization (WFTO) is a global network of Fair Trade organizations and WFTO associates representing the supply chain from producer to retailer.

Abstract

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Concerns for producers' income combined with those for social injustice and environmental destruction have led to a global movement for sustainability standards. One of these sustainability standards is Fair Trade. This study addresses the effect of Fair Trade both at the macro and micro levels and attempts to find a link between them. At the macro-level, it compares the effect of Fair Trade on the volume of export for Ethiopian and Kenyan coffee based on data on coffee export and international price for the past twenty five years (1991-2015). At the micro level, it assesses the effect of participating in Fair Trade on the income of coffee farmers in Eastern Hararghe based on primary data collected from 374 farm households by means of a questionnaire. Regression analyses have been conducted to identify the effect of Fair Trade on coffee export volume and farmers' income at the macro and Micro levels. The results show that the volume of Fair Trade coffee exported has been steadily increasing for Ethiopian coffee while it has been steadily decreasing for Kenyan coffee. In terms of prices, however, Kenyan coffee has consistently commanded a higher price than Ethiopian coffee over the years, which may have to do with the differences in the quality of coffee exported by the two countries. As far as the effect of Fair Trade on the volume of coffee export is concerned, the present study has not found evidence of significant effect at the macro level. Similarly, no evidence of significant effect of Fair Trade participation on farmers' income from coffee has been recorded. The policy implication of the findings is that there should be more effort on the part of governments to seek niche markets for their coffee produce instead of relying only on Fair Trade to secure a better life for their farmers.

Key words: Coffee, Fair trade, Coffee Export, Fair Trade coffee, Farmers' income from coffee.

1. Introduction

1.1 Background

Voluntary sustainability standard systems (VSS) are innovative market-based approaches to promoting sustainable production and business practices. Adoption of these sustainability standards is intended to be voluntary in the sense that the standards are not created, run, or required by governments or government regulation. Instead, voluntary sustainability standard systems are non-government initiatives that seek to drive sustainable production and consumption by creating market demand for sustainable products, and a supply to meet that demand International Trade Centre, (2011). And according to Daniele, et al. (2014) the VSS helps buyers (both consumers and businesses) identify sustainably-produced products and to guide producers, forest managers, mine and tourism operators, and factory owners and others in the choice of sustainable practices.

Voluntary sustainability standard systems have become important tools for moving production in some sectors toward sustainability. Some of the sustainability standards e.g. Fair-trade International, the Forest Stewardship Council (FSC), and the Marine Stewardship Council (MSC) are now well-known brands in many countries, and consumers rely on associated 'eco-labels' to inform buying decisions Potts, et al. (2014). Business attention to sustainable procurement has grown, increasing both supply and demand for products produced in accordance with sustainability standards.

According to Anderson, et al. (2010) Fair trade can trace its roots back to the 1940s, when church groups wanted to help refugees sell their goods in western markets and alternative trade organizations (ATOs) began to arise during the following decades, which provided producers with higher profits. These profits were made viable because the middle man marketers or other handlers have been removed from the marketing equation, and the consumer is allowed to directly work with producers and offer the producers a fair price. Such Fair trade has thus been touted as a way for Western consumers to aid developing countries and the poor producers within those countries (ibid).

Fair Trade Africa (FTA), established in 2005, is the independent non-profit umbrella organisation representing all Fair-trade certified producers, i.e., over 932,000 producers

across 32 countries, in Africa (Fairtrade Africa, 2011)¹. Fair-trade Africa is owned by its members, who are African producer organisations certified against international Fair-trade standards producing traditional export commodities such as coffee, cocoa, tea, cotton, bananas, mangoes and non-traditional commodities including Shea butter and tea.

Fair-Trade Africa works through primary structures such as product groups, country partnerships and regional networks, which enable members to have a strong voice in the governance and management. (Fairtrade Africa, 2011)². It operates four regional networks: Eastern and Central Africa Network (FTA-ECAN) based in Nairobi, Kenya; West Africa Network (FTA-WAN) based in Accra, Ghana and Southern Africa Network (FTA-SAN) based in Cape Town, South Africa. The organization also has a new network in North Africa and the Middle East region whose regional office is soon to be established. The Fair-trade Africa secretariat is located in Nairobi, Kenya and has 50% ownership of the Fair-trade system (Fairtrade africa, 2013)³.

Similarly, according to Fairtrade africa, (2013), the Cooperation for Fair Trade in Africa (COFTA) is an organized social movement, established in 2004 by regional African producers, with the aim of eliminating poverty through the fair distribution of profits during international trade. COFTA's head office is located in Nairobi, Kenya and its main goal was to give a voice to African producers with a business plan based on network & member development, market access, advocacy & lobbying, and organizational growth and development. Owing to the ratification of more Fair Trade recognized producers in the region COFTA has become a continental Fair Trade Network (ibid).

In 2009 COFTA begun work with Fair Trade producers to nurture the growth of 10 countries networks and initiatives in Kenya, Tanzania, Uganda, Rwanda, Ethiopia, South Africa, Swaziland, Zimbabwe, Senegal and Egypt. The aim of those country networks is to provide a forum for cooperative support, conducting needs assessments among members, and developing a database of producers and their product within an area World fair trade Organization, (2011). COFTA claims that the success of the wider fair trade community's goals relies upon the creation of support networks for all members, and the continued

¹ www.fairtradeafrica.net retrieved on June 4, 2016

² www.fairtradeafrica.net retrieved on May 7, 2013

³ www.fairtradeafrica.net retrieved on Jan 20, 2016

maintenance of such relationships. COFTA has expanded to its current size of 70 member organizations and businesses in 22 countries, with importers buying in Europe, North America and the Pacific Rim (Ibid).

COFTA traded goods begun as predominantly handicraft produce, but have now broadened to include coffee, tea, vanilla, honey, dried fruit, juices, textiles producers.

1.2 Statement of the problem

Internationally, much has been written about the impacts of Fair Trade upon its intended main beneficiaries, the participating producers (Hoebink, et al. 2014), Claar,et al.(2015). Despite the increasing global demand for VSS and the large share of coffee producers that supply their products under these schemes, there are relatively a few studies that examine the impacts of these arrangements on coffee producers in Africa. Most of the evidence regarding the effect of Fair Trade is derived from cases in Latin America; in sub-Saharan Africa the system is relatively young and undocumented. Approaches to studying the impact of fair trade are quite heterogeneous (participant observation, econometric studies, etc.). For example, Evaluation, International Initiative for impact, (2010) in their study of the impact of fair trade on the coffee sector in Peru, used a quantitative impact assessment method based on statistics. This is possibly because of the lower uptake of VSS in Africa than in the rest of the world Minten, et al. (2015).

As such, there is an urgent need to study the impact of fair trade on the coffee sector at the country level and at the smallholder level so that these early findings will guide the evolution of Fair trade and other VSS schemes in the right direction. Unlike previous studies, the present study has attempted to get a fuller picture of the effect of Fair Trade on the coffee sector by conducting both macro and micro-level analyses. The macro-level analysis is focused on the effect of Fair Trade on export volume in Ethiopia and Kenya whereas the micro-level analysis evaluates the effect of fair trade on the income of coffee farmers in Harar, Eastern Ethiopia.

1.3 Objectives of the study

The general objective of the study is to analyse the role of fair trade on the coffee sector in Ethiopia and Kenya from a macro- and micro-level perspective. This is based on performing a country level comparison of volume of coffee export and a case study on the effects of fair trade on smallholder coffee farmers in Harar.

The specific objectives of the study are:

- To analyse trends in coffee production, export and export price for Ethiopia and Kenya.
- To compare the effects of fair trade on coffee export Volume in Ethiopia and Kenya.
- To assess the effect of fair trade on the income of participating coffee farmers in Harar.

1.4 Significance of the Study

Fair trade is considered to be among the most important tools to ensure equitable and sustainable compensation of producers in the global south for their produce. Since its inception in 1988, different authors have made efforts to study fair trade's effect on producers in different parts of the world. Unfortunately, most of these studies have focused on South America while Africa has not been afforded due attention. Therefore this study will contribute to the discussion on the effects of fair trade on the coffee sector in Africa based on macro and micro-level evidence from the two major producing and exporting countries, Ethiopia and Kenya.

1.5 Scope and Limitations of the Study

The proposed study assesses the volume of coffee export as a result of participation in fair trade in the coffee sector in Ethiopia and Kenya. As a case study, coffee farmers that are participating and not participating in fair trade in Harar are assessed for income from coffee for the year of 2014/15.

Other social indicators of the effect of Fair Trade will not be considered in this study explicitly because the study aims at finding the effect of Fair trade on the volume of coffee export and income from coffee. Moreover, due to the lack of time series data at household level, the household-level analysis is conducted based on a cross-sectional data.

1.6 Organization of the Paper

The remainder of the thesis is organized into five chapters. Chapter two reviews the theoretical and empirical literature on coffee production and fair trade in coffee in the African context particularly in Ethiopia and Kenya. Chapter three presents the research method employed for the study as well as the profile of the study countries. Chapter four discusses the findings of the Macro and Micro-level analysis and Finally, Chapter five contains the conclusions and recommendations drawn from the results.

2. Literature Review

2.1 Theoretical Literature

2.1.1 Coffee as a global commodity

Global coffee production averaged around 6 million tonnes a year during the 1990s. Increased output from Brazil and Vietnam saw production grow to an average of 7.6 million tonnes a year between 2007 and 2011, peaking at a record 8.05 million tonnes in 2010 (Fairtrade Foundation, (2012)). Coffee is grown in more than 70 countries but over 60 percent of the world's coffee is produced by just four of them – Brazil, Vietnam, Colombia and Indonesia. Brazil has long been by far the world's largest coffee producer, growing an average of 2.5 million tonnes a year during 2007-2011. Vietnam is next (1.1 million tonnes) followed by Colombia (560,000), Indonesia (560,000), Ethiopia (400,000), India (280,000), Mexico (270,000), Guatemala (230,000), Honduras (230,000), Peru (219,000), and Uganda (190,000) (ibid).

According to Fairtrade Foundation Commodity Briefing (2012), Latin America is the largest regional producer with a 60 percent share, followed by Asia and Oceania (27%), and Africa (13%). Global coffee consumption almost doubled over the last 40 years from 4.2m tonnes in 1970 to 8.1m tonnes in 2010, an increase of 91 per cent. The last decade has seen steady growth of around 2.5 percent a year, from 6.3m tonnes in 2000 to 8.1m tonnes in 2010 – an increase of 28 percent. Consumption grew by 12 per cent in traditional markets such as Western Europe, Japan and the US, by 57 per cent in exporting countries and by 46 percent in emerging markets such as Eastern Europe and Asia. However, the economic turmoil of recent years has slowed growth, leading the International Coffee Organization (ICO) to revise its forecast of global consumption by 2019 from 10.08m tonnes to 9.09m tonnes (ibid).

According to Fair trade foundation commodity briefing, Fairtrade Foundation, (2012), coffee producing countries consume 30 percent of the world's coffee, led by Brazil whose consumption reached 1.1 million tonnes in 2010. The remaining 70 percent of coffee produced is traded internationally the US is the biggest importer, averaging 1.27 million tonnes a year in the period 2006-10, followed by Germany (546,000 tonnes) and Japan (431,000 tonnes), while the UK imports 184,000 tonnes. The value of the global coffee

market, including fresh and instant, grew 17.5 per cent to reach \$70.86bn in 2011, while the UK retail coffee market was worth £831m in 2010 (ibid).

The coffee supply chain has long been dominated by a small number of multinational trading and roasting companies: Four companies – ECOM, Louis Dreyfus, Neumann and VOLCAFE – control around 40 per cent of global coffee trade. They have recently been joined by Olam International, which describes itself as one of the largest suppliers of Robusta coffee in the world Fairtrade Foundation, (2012).

According to Fairtrade Foundation, (2012), for roasters and marketers, five corporations – Kraft, Nestlé, Sara Lee, Proctor & Gamble and Tchibo – control around half the global market. Nestlé dominates instant coffee with a market share of over 50% globally. During 2006-08 Nestlé sold over£17bn worth of instant coffee worldwide, led by its ‘billionaire brand’, Nescafé. In the UK Nestlé accounts (42%), Kraft (19%) and Douwe Egberts (7%) account for 68% of the retail coffee market, with supermarket own-label products taking a further 17% share (ibid).

2.1.2 The Coffee Value Chain

According to International coffee Council, (2015), the first phase in the coffee value chain encompasses the process from germination to production of coffee beans including the construction of nurseries, planting, maintenance and harvesting of mature beans (primary phase in the value chain). The second phase comprises primary post-harvest processing of mature beans. This phase can generate significant added value depending on whether the red cherries undergo wet or dry processing. The third phase consists of marketing and packaging. The fourth comprises all activities involved in roasting and distribution for final consumption. This final phase in the value chain takes place only in a limited number of exporting countries and rarely occurs in Africa (ibid).

2.1.3 Coffee Production and Export in East Africa

The coffee plant is indigenous to Africa, and it was in Ethiopia that the habit of drinking coffee first developed. The two botanical varieties, Arabica and Robusta, originate from Africa. Robusta coffee is cultivated at lower altitudes while Arabica coffee is cultivated at higher altitudes and often on volcanic soils. Arabica coffee is more difficult and costly to grow than Robusta. Coffee is also the primary source of income for more than 10 million

households in 25 African coffee-growing countries. Some of these countries depend on coffee as an important source of export revenues. It is a vital contributor to foreign exchange earnings in addition to accounting for a significant proportion of tax income and Gross Domestic Product Moleketi, (2016).

As of International Coffee Organization, (2015), of Africa is the region with the largest number of coffee producing countries: 25 as opposed to 11 in Asia & Oceania, 12 in Mexico & Central America and 8 in South America. Production in Africa has exhibited negative growth over the last 49 years. Average production was 19.4 million bags per crop year in the period between 1965/66 and 1988/89 when the coffee market was regulated under the export quota system. During the period between 1989/90 and 2014/15 under the free market, average production per crop year was 16 million bags. During those two periods, Africa's share of world production has hence decreased from 24.9% to an average of 14%. Production in crop year 2014/15 was around 16.9 million bags, or 12% of the estimated world production of 141.7 million bags. Of this, an estimated 10.4 million bags were produced by just two countries (Ethiopia and Uganda) (ibid).

During the period from 1965/66 to 1988/89, 8 African countries were among the top 20 coffee producing countries that accounted for 91% of world production. Additionally, the average volume produced by those 8 countries accounted for 21.5% of world production. The countries are Côte d'Ivoire (5.1% of world production), Ethiopia (3.7%), Uganda (3.6%), Angola (2.2%), Cameroon (2%), Democratic Republic of Congo (1.8%), Kenya (1.8%) and Madagascar (1.4%). By contrast, in the period between 1989/90 and 2014/15, only 4 African countries ranked among the top 20 producing countries that account on average for 93.7% of world production. The four African countries in question, which account for only 9.9% of world production, are Ethiopia (3.9%), Uganda (2.6%), Côte d'Ivoire (2.5%) and Kenya (0.9%) International Coffee Organization, (2015).

According to International Coffee Organization, (2015) it is clear that all African countries except Ethiopia and Uganda experienced declining coffee production after the period from 1965/66 to 1988/89. The reason would be *the introduction of the free market, particularly as a result of reduced government involvement*. The main countries affected include Angola, which accounted for on average 5% of annual world production until the mid 1970s, and has lost its place among the region's leading producers, with an estimated production of just 35,000 bags in the crop year 2014/15 compared to 3.5 million bags in 1970/71. The

Democratic Republic of Congo and Madagascar have also lost significant market share, with 335,000 and 621,000 bags respectively. However, coffee rehabilitation programmes being carried out in these countries, particularly in Angola, may help to reverse the downward trend (ibid).

According to ICO, (2013), the most dynamic growth in African production was observed in Ethiopia, which has recorded an average annual growth rate of 2.2% over the past 50 years, increasing to 2.7% since crop year 1989/90. The country's production trend is generally upward despite some downward interruptions, reaching around 6.6 million bags in 2014/15. Ethiopia is also unique in Africa in so far as it has a strong domestic coffee consumption culture, which frequently accounts for over half of production. The other African producing countries recorded low production levels that were exacerbated by the introduction of the free market, particularly as a result of reduced government involvement. Nonetheless, coffee is still a vital contributor to foreign exchange earnings and also accounts for a significant proportion of tax revenue and gross domestic product for many countries in Africa (ibid).

2.1.3.1 Ethiopia

Ethiopia is the homeland and centre of genetic diversity of Arabica coffee (*Coffea Arabica*) Belokurov, (2006). The original habitat of coffee is the shaded understory of montane rainforests in south-western and south-eastern Ethiopia between 1,000 and 2,000 m. Indigenous communities have been utilizing wild coffee for centuries, and the art of preparing coffee is a central part of the Ethiopian culture. Until today, Ethiopian coffee is mainly produced in traditional coffee production systems. This means wild coffee is simply picked inside the forest, or managed inside the forest by removing competing undergrowth vegetation and some canopy trees Belokurov, (2006).

According to Ege,et al. (2009), Ethiopia is the second-largest exporter of organic coffee by volume, after Peru. In 2005, Ethiopia shipped about 9,000 tons, which represented 19% of world organic coffee exports and 6% of Ethiopia's total coffee export volume. The low cost of producing organic coffee in Ethiopia may explain its large export percentage. Most Ethiopian coffee is grown with few or no chemical inputs. Thus, often only the fee for organic certification is required for the coffee to be officially recognized as organic. Some say that no chemical inputs are needed because coffee is indigenous to Ethiopia and thus adapted to local conditions. The government has also introduced improved coffee varieties.

Unfortunately, poverty may also play a role, as many farmers cannot afford to apply chemical fertilizers or pesticides (ibid).

According to Independent Fine Coffees Consultants, (2005), Ethiopia derives up to 55% of its foreign currency earnings from coffee trade. The bulk of the coffee (95%) is produced by smallholders. Arabica Coffee is reputed to have originated in Ethiopia and has therefore, been grown, exported and consumed in the country since time immemorial.

Ethiopia is one of the East African sub-region countries that have demonstrated significant increase in coffee quality and volumes during the past ten or so years (Agwanda, et al. (2009). Currently most of Ethiopian coffee is sold and bought in parchment form at two auctions located at Addis-Ababa and Dire dawa. These auctions are run by the government in conjunction with the traders association. Growers are free to sit in the auction and may announce/shout an agreement to sell if a lot does not reach a reserve price. The auctions are on “open outcry” basis. Traders buy parchment coffee at wet mill or dry mills. These are free to sell the coffee to either internal market (Ethiopian has the largest domestic consumption in all of Africa) or export the same, after appropriate processing, grading and classification. Thus Ethiopia has a special “window” for direct exports and forward contracting between growers, exporters and importers. Ethiopian growers receive market price radio message, in local language, from Monday to Friday IFCC, (2005).

Ethiopia is blessed with many eco-zones, covering over many latitudes and longitudes that produce rare and unique coffees. Well known examples are Harar, Yirgacheffe, Jimma, Lekemte, Limmu and Sidamo. For this and other reasons Ethiopians start drinking coffee in early childhood and continue to do for the balance of their lives, in various ceremonies. Until recently, the regulator was the Ethiopian Coffee and Tea Authority (CTA). This body has now been moved to the Ministry of Coffee and Tea development. Thus Ethiopian Government now supports coffee research collates records on production and exports statistic and domestic consumption. The Government also issues exports licenses and fixes minimum coffee export registration prices paid to growers within four days of delivery to a miller or country buyer (Agwanda, et al. (2009).

The Ethiopian government also coordinates a radio programme within coffee producing areas informing growers and country buyers about the market situation in New York and how that translates to payment to growers. Generally, Ethiopian coffee production and quality has

responded positively to Ethiopia's coffee industry gradual reforms programmes, although not fully liberalised Belokurov, (2006).

Farmers' organizations have existed in Ethiopia throughout different historical periods. Most of the first level cooperatives were established during the military government, which ruled from 1974 to 1991. The cooperative system provides their small-scale farmer members with services that include coffee processing, credit, human and financial resources for rural development. As of 2004, Ethiopia had 4,052 coffee cooperatives⁴.

Arabica coffee started its triumphal procession around the world from Ethiopia in the 10th century, when coffee plants were taken to Yemen by Persian invaders. Later, coffee beans were shipped to Europe from the famous port of Mocca. Linnaeus, ignorant of the true origin of the coffee plant, hence named it Coffee Arabica Belokurov, (2006). In the 17th and 18th century, European merchants introduced coffee to India, Java, and finally to Latin America Today, Arabica coffee is cultivated in over 70 countries and is one of the most important raw goods on the world market. For many developing countries, coffee is the main source of foreign currency. Most coffee in Ethiopia, is produced by smallholder farmers with 1-2 hectares of land, earning less than a dollar per day. With prices of approximately \$1.20 to \$1.50 per pound for washed coffee, the specialty market is an avenue for Ethiopian farmers to significantly increase their incomes and improve the quality of their lives (ibid).

2.1.3.2 Kenya

According to International Coffee Organization, (2015), Kenya remains an important source of high quality mild Arabica coffee. In addition, Kenya is the main coffee logistics hub for the Eastern Africa and all the main international coffee traders are represented. Exports shipments continue throughout the year, in January to July for the main late crop and in August to December for the early crop. The government of Kenya does not impose any export tax on coffee from Kenya. A steady decline in production has also been observed in Kenya as average production since 2000/01 has fallen below 800,000 bags compared to 1.5 million bags from 1970/71 to 1999/2000. In crop year 2014/15 Kenya's total production was estimated at 850,000 bags. Until the 1980s coffee was the leading foreign exchange earner before being overtaken by tea, horticulture and tourism (ibid).

⁴ www.nic.coop retrieved on June 4, 2015

According to Gitonga, (2015), Kenya produces less than one percent of the world's coffee. It has production on both large and small-scale farms. The proportion of production by smallholder farmers has continually increased in the recent years as the large plantations, especially in the areas that border the city of Nairobi give way to real estate developments. Both the national and county governments have initiated coffee programs which are geared towards opening up new production areas and the rehabilitation of abandoned farms. The focus has been in the Northern Rift Valley, Coast and Western Kenya regions. Nevertheless, coffee production continues to face numerous challenges including: high cost of labour and inputs; erratic rains; high incidences of pests and diseases; competition from other farm enterprises; and poor governance of farmer organizations (ibid).

Kenya's economy is no longer as heavily dependent on coffee earnings as was the case thirty years ago; presently deriving only 11% of her export earnings from coffee IFCC, (2005) P, 46. Thus since ICO coffee export quotas collapsed in July 1989 coffee year, trends of Kenya exports, and indeed quality has declined rather steadily, the main markets namely Germany and Scandinavia have now remained the only important destinations. From around 1933 the Law in force within the Kenyan coffee market has been Cap 333 of the Laws of Kenya. Since the beginning of 2001 a new coffee law was enacted. Essentially Coffee Board of Kenya (CBK) is now performing the function of an Industry regulator and has handed over its marketing function to Marketing Agents (MAs) The old coffee Law gave Coffee Board of Kenya the monopoly of not only auctioning all Kenya coffee at the Nairobi coffee Exchange but also handle all payment to growers. The new law gives Coffee Board only regulator role. Kenya Coffee is auctioned at the Nairobi Coffee Exchange on Tuesday morning when the crop is in season, thereby making the auction a rare and unique marketing system that delivers unbeatable "premiums" by concentrating supply so as growers compete on quality, and by concentrating demand so as exporters compete on prices (ibid).

2.1.3.4 The Emergence of Voluntary Sustainability Standards (VSS)

Concerns for producers' income combined with those for social injustice and environmental destruction have led to a global movement for sustainability standards Minten, (2015). Voluntary Sustainability Standards (VSS) are rapidly increasing in global value chains. The main sustainability standards include Fair-trade, Organic, Rainforest Alliance, Utz Certified, and 4C Code of Conduct Potts, (2014). These refer to standards which are related to the issue

of sustainability, human rights, social conditions, health safety and animal distinct from technical product or process standards (ibid).

According to ICO, (2015), Ethiopia and Kenya are among the major coffee producing and exporting countries in Africa producing 390,000 and 51,000 metric tons, respectively. However, Voluntary Sustainability Standards (VSS) certification of coffee is a relatively new phenomenon in both countries. For example, only one certifier in Ethiopia was accredited to issue these certificates in 2000. Since 2006, however, the country has attracted several international certifiers, including Fair-trade, Organic, Utz, and Rainforest Alliance Stellmacher & Grote, (2011).

Among these certification systems, it is estimated that only 18 cooperatives were Fair-trade certified in 2003, but by 2013, 111 cooperatives were Fair-trade certified. Consequently, the VSS certified coffee exported from the country rose from 2 percent in 2005 to 5 percent by 2015 Minten, (2015).

According to Potts, (2014), the coffee sector - one of the most important traded agricultural commodities in the world - has led the field in applying different VSS. The demand for VSS certification for coffee arguably took off globally in the early part of the 2000s when the international price of coffee declined dramatically, creating hardships for many poor smallholder coffee producing households. In 2005, it was estimated that 4 percent of all green coffee was VSS certified. This has grown quickly since then and it is estimated that this share has now reached almost 20 percent of the global trade in coffee Daniele, (2014). This share is expected to reach significantly higher levels in the near future International Trade Centre, (2011).

2.1.3.5 Fair Trade Coffee

According to World fair trade Organization, (2011), the first phase of organized fair trade was initiated in the mid-1950s when European Alternative Trade Organizations started to trade directly with “disadvantaged” producers in developing countries. To market these products, an ideological business model was created, “World Shops”, located primarily in Europe and North America with several thousand volunteer-staff retail. The emergence of a Fair Trade label can be traced back to 1988, when a church-based NGO from the Netherlands began an initiative that aimed to ensure growers were provided “sufficient wages”. The NGO

created a fair trade label for their products, Max Havelaar, named after a fictional Dutch character who opposed the exploitation of coffee pickers in Dutch colonies. Over the next half decade, Max Havelaar was replicated in other countries across Europe and North America, with a number of similar organizations, such as Trans Fair and Global Exchange. In 1997, the various national labelling initiatives formed an umbrella association called the Fair Trade Labelling Organizations International (FLO). Fair Trade (FT) was defined as trading partnership, based on dialogue, transparency and respect that seek 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 developing countries. It is an alternative approach to conventional trade based on a partnership between producers and traders, businesses and consumers. A common Fair Trade Certification mark was launched in 2002. Since this time, Fair Trade has gained legitimacy, growing exponentially and evolving into the most widely recognized ethical label globally. As of 2013, Fair Trade certified organizations operate in 70 countries and encompass over 1.3 million farmers and workers (ibid).

World coffee prices have plummeted in recent years. As a result small coffee farmers receive prices for their coffee that are less than the costs of production, forcing them into a cycle of poverty and debt. With little or no income between harvest months, farmers are usually forced to sell their next crop in advance to exploitative middlemen, who pay far below the harvest's value. As such, coffee has become one of the staple topics within fair trade, because beginning in the early 1980's there was a sharp decrease in the price of coffee beans. Coffee with the Fair Trade Certified label guarantees consumers that the farmers who grew the coffee: 1) are paid a fair price for their harvest and 2) are organized into democratically-organized cooperatives that sell direct to buyers in consuming countries. Perhaps because Fair Trade began in the coffee industry, today coffee is quantitatively the most commonly certified product Exchange, (2012).

2.1.3.6 The Introduction of Fair Trade Coffee in Ethiopia and Kenya

COFTA is an organized social movement, established in 2004 by regional African producers, with the aim of eliminating poverty through the fair distribution of profits during international trade.

According to Backman, (2009), Fair Trade was first introduced to Ethiopia in 1999. Oromia Union was the first established fair trade certified union in Ethiopia, with a registration dated June 1999. It is the largest union today. Until 2008, 11 cooperatives were fair trade certified and by 2013 111 cooperatives were Fair trade certified Evidence from Fairtrade and Organic certified coffee in Ethiopia, 2015 (ibid).

After South Africa, Kenya is the next country to introduce the Fairtrade mark to consumers. Dormans Coffee has taken a lead, introducing its Fairtrade Certified SAFARI Kenya COFFEE Brand in the third quarter of 2010. The Kenya Tea Development Authority (KTDA), a major player in the tea sector in Kenya, has also expressed support towards the initiative Fairtrade africa, (2013).

2.2 Empirical Literature

2.2.1 Impact of Fair trade on Coffee Production, Export and Price

According to Hoebink, et al. (2014), although in recent years many papers and journal articles have been published not based on concrete evidence. This is based on what people claim or tell from memory regarding the perceived benefits of coffee labelling for smallholders, empirical evidence based on representative field level surveys remains surprisingly scarce. The study used quantitative methodology with surveys the effects of Fairtrade (FT) certification on coffee producers and organizations have been analyzed in several earlier studies (ibid).

According to Murray & Taylor, (2006), other research stressed that FT initiatives improved the well-being of small-scale coffee farmers and their families, particularly due to better access to credit facilities and external funds, as well as through training and improved capabilities to enhance the quality of the product. The European Fair Trade Association (EFTA) provides an overview of FT impact studies since 2000 , but none of these studies includes significant field work or a rigorous counterfactual comparison. Most attention is given to positive effects on producers' organizations – focusing on the process of capitalization from the FT premium payments – while little attention is given to the individual and household-level implications (Murray & Taylor, 2006). Other studies refer to the effects on prices and productivity and the role of FT in improving competitiveness. Major

constraints that are identified relate to the difficulties of involving farmers in marketing decisions (ibid).

Hoebink, et al.(2014), suggest that current potential Fair Trade market starts to face a more competitive market because producers have been seeking alternatives to deal with low international prices. The primary necessities of a cooperative with high capacity may no longer be sufficient to gain entry into the Fair Trade market. This is repeated by Claar & Haight, (2015), who argues that the limited supply of Fair Trade contracts has benefited those already in the market while making it more difficult for those new to the market to enter.

A central aspect of the Fair Trade market is the removal of intermediaries in the coffee value chain: coffee importers and roasters in destination countries are required to deal directly with Fair Trade cooperatives rather than with coffee exporters, brokers or other “middlemen” Transfair-USA, (2004). This is motivated by the widespread perception that the poverty of small-scale coffee producers is, to a large extent, the result of local coffee intermediaries to use as market power and suppressing farm gate prices J.Warning, (2010). Fair Trade seeks to remove these intermediaries.

2.2.2 Impact of Fair trade on coffee export and earnings in Ethiopia and Kenya

The basic idea behind certification is to encourage Supply chain partners to engage in direct sales transactions under long-term contractual arrangements based on trust regarding product quality and delivery reliability Hoebink, et al.(2014 p 20) The impact of FT is to shorten the supply chain through direct interactions between processors and exporters would reduce transaction cost and create awareness of good agricultural practices, which providing useful incentives for quality upgrading which leads to better prices on premium market segments Hoebink, et al. (2014).

The findings of few studies in Africa are mostly mixed, with some exposing positive impacts on coffee producers or on the distribution of costs and benefits along the coffee supply chain. Most available studies have focused on identifying the impacts on the producer level. The study used two methods to assess impact of certification, i.e. simple OLS or probit estimates (where it compares certified and non-certified cooperatives with an F-test) as well as a matching methodology, using the probit model. (e.g. Ruben and Fort 2012 in Peru; Chiputwa

et al. 2015 in Uganda), while others are more critical and find little effect (e.g. Jena et al. 2012 in Ethiopia; Cramer et al. 2014 in Ethiopia and Uganda; Dragusanu and Nunn 2014 in Costa Rica). They examine how the benefits of VSS – in particular Fairtrade and Organic certification – are distributed between export and production levels.

According to Fairtrade Foundation, (2012), while coffee is clearly profitable for food companies, it's very different for the coffee farmers themselves. The share of the retail value of coffee retained by the producer has fallen over the decades – in the 1970s, producers retained an average of 20 percent of the retail price of coffee sold in a shop. Research during the coffee crisis found coffee growers received just 1-3 per cent of the price of a cup of coffee sold in a café in Europe or North America and 2-6 per cent of the value of coffee sold in a supermarket. Following the recovery of coffee prices, farmers might now expect to receive between 7% and 10% of the retail price of coffee. A recent study of the value chain for Kenya specialty coffee to the US showed that some 87 per cent of the retail cost of roasted coffee is incurred at the roaster and retailer level whereas the price paid to the grower represents around 7 percent of the retail value (ibid).

The welfare impact of certification can be measured with a wide range of indicators. Most studies focus on coffee yields, prices and (net) revenues, but - given the diversity of On/off-farm activities - net household income provides an indicator that better enables us to consider possible substitution effects and appreciate tendencies in the dependency of household income on coffee revenues. Other important welfare aspects refer to changes in Wealth (assets; access to credit, savings) and adjustments in household expenditures patterns Fairtrade Foundation, (2012).

3. Research Design and Method

3.1 Research Design

The study largely employs quantitative methods to conduct a macro and micro-level analyses of the potential effects of Fair Trade on the coffee sector in Ethiopia and Kenya. The macro-level analysis is focused on identifying the potential effect of Fair Trade on the volume of coffee export by comparing Ethiopia and Kenya. On the other hand, the micro-level analysis is an attempt to indicate potential effect of Fair Trade participation on coffee income of coffee farmers in Melka Ballo Woreda, East Hararghe situated in Ethiopia.

3.2 Description of the study countries

3.2.1 Ethiopia

A major portion of Ethiopia lies on the Horn of Africa, which is the eastern most part of the African landmass (see Figure 1). It is bordered by Eritrea to the north, Djibouti and Somalia to the east, Sudan and South Sudan to the west and Kenya to the south.

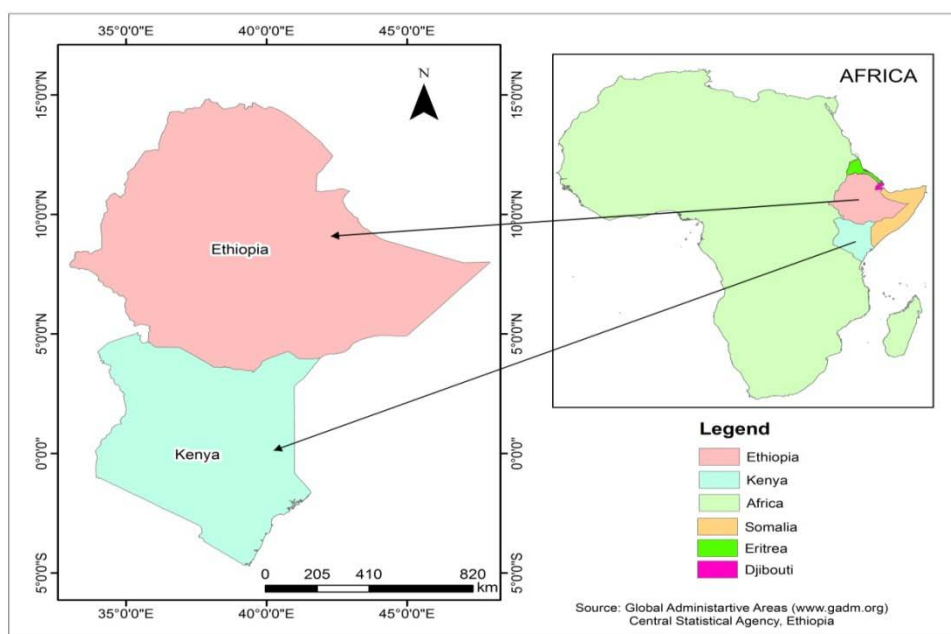


Figure 3-1 Geographical Location of the study countries: Ethiopia and Kenya

Source: Central Statistical Agency, CSA (2016)

With a 2015 population of approximately 98.9 million, up from 2013's estimate of 95 million, Ethiopia is the most populous landlocked country in the continent of Africa and the second-most populous country of Africa after Nigeria. This estimate of how many people live in Ethiopia is based on the most recent United Nations projections, and makes Ethiopia the 13th most populous country in the world. Over the last decade, Ethiopia has made remarkable progress in its economic growth, with real gross domestic product (GDP) growth averaging 10.9% in 2004-2014. Ethiopia has moved from the second poorest in the world in 2000 and, if it can maintain the current pace, it is on its way towards becoming a middle income country by 2025⁵.

Ethiopia's growth strategy stands out for its uniqueness in focusing on promoting agriculture and industrial development with a strong public infrastructure drive. According to a new World Bank report, Ethiopia's Great Run⁶: The Growth Acceleration and How to Pace It, the agriculture and services sectors were the main contributors to this accelerated growth, which was driven by high government investment in the energy, transport, communications, agriculture and social sectors (ibid).

High public infrastructure investment was facilitated by a decline in military spending as a part of a restraint on government consumption. A strong rise in exports, greater trade openness, and an expansion of secondary education were some of the additional enabling factors that supported the economic boom and facilitated a substantial decrease in poverty from 44% in 2000 to 30% in 2011.

According to Patapaa, (2014), Ethiopia is the largest producer of coffee in Sub-Saharan Africa, and the fifth largest coffee producer in the world. Ethiopia produces large volumes of coffee beans every year, with 3,840,000 Quintals in 2015 alone. Ethiopia is also the geographic home of Arabica coffee, the most popular beans worldwide. Ethiopia contributes about 7 to 10 percent of total world coffee production. Ninety five percent of Ethiopia's coffee is produced by small holder farmers on less than two hectares of land while the remaining five percent is grown on modern commercial farms. Coffee is a major Ethiopian export commodity generating about 25 percent of Ethiopia's total export earnings and it is estimated that 15 million citizens are employed in coffee production (ibid).

⁵ www.onlineibrary.wiley.com retrieved on May 29, 2016

⁶ www.onlineibrary.wiley.com retrieved on May 29, 2016

Fair Trade was first introduced to Ethiopia in 2004. Oromia Union was the first established fair trade certified union in Ethiopia, with a registration dated June 2004. It is the largest union today. Until 2008 11 cooperatives were fair trade certified but the applications for 17 more cooperatives to get access to the fair trade market were recently granted. All of them have an organic certification as well as Fairtrade Backman, (2009).

Based on availability of data, 25 years' data series (1990-2015) was used for the independent trend analysis of coffee production, coffee export, and coffee price paid to the growers in this study.

3.2.2 Description of the Case Study Area, East Hararghe

3.2.2.1 Geographical Location

The State of Oromia sprawls over the largest part of the country and at present consists of 12 administrative zones and 180 woredas. Of the 12 zones, Bale and Borena account for 45.7% of the State's total area but only about 14% of the state's population. The Council of the State of Oromia is the highest body of its administration. The capital city of the State of Oromiya is Finfine (Addis Ababa).

The State of Oromia borders Afar, Amhara and the State of Benshangul Gumuz in the north, Kenya in the south, The State of Somali in the east, the Republic of the Sudan and the state of Benishangul gumuz in the west, the State of Southern Nations, Nationalities and Peoples' and the state of Gambella in the South.

Based on the political map (1994 Population and Housing Census Commission, CSA), the estimated area of the State of Oromia is about 353,690 Km², and accounts for almost 32% of the country. Over 90% of the people of Oromia live in the rural area, and agriculture has remained the source of livelihood for the overwhelming majority of the people. The main agricultural crops include maize, teff, wheat, barley, peas, bean and various types of oil seeds. Coffee is the main cash crop in the region. Oromia accounts for 51.2% of the crop production, 45.1% of the area under temporary crops and 44% of the total livestock population of Ethiopia.⁷

⁷ www.ethiopia.gov.et/stateoromia retrieved on May 23, 2016

Melka Ballo, in particular, is one of the woredas (districts) in the Oromia Region, East Hararghe Zone (see Figure 2) which is selected as the study area. The main factor considered in choosing the study area was the availability of sample cooperatives and households which were FT participants and Non-FT participants so that the comparison between households would be statistically robust.

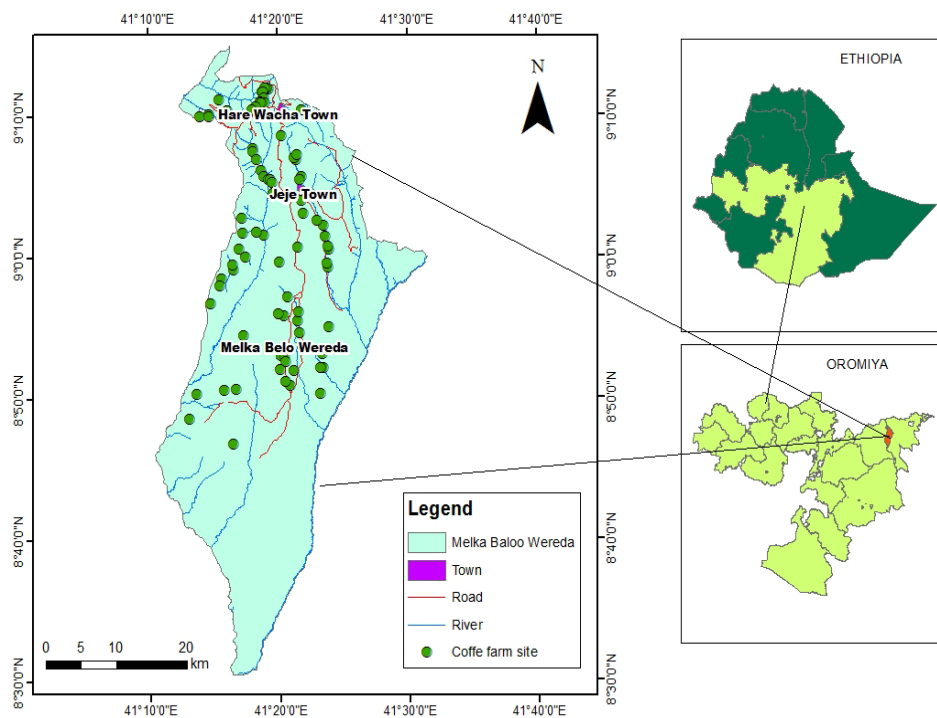


Figure 3-2 Geographical Location of the study area: Melka Belo Woreda

Source: Central Statistical Agency, CSA (2016)

3.2.2.2 Population and Socio-economic activities

The 2007 national census reported a total population for Melka Belo Woreda of 177,416, of whom 90,609 were men and 86,807 were women; 9,342 or 5.27% of its population were urban dwellers.⁸ According to World Atlas, Industry in the Woreda includes 12 grain mills employing 45 people, as well as 210 registered businesses including wholesalers, retailers and service providers. Copper and marble deposits are known, but have not been extracted (World Atlas)⁹. There were 23 Farmers Associations with 25,579 members and 4

⁸ www.worldatlas.com retrieved on May 23, 2016

⁹ www.worldatlas.com retrieved on May 23, 2016

Farmers Service Cooperatives with 3210 members. Melka Ballo has 6 kilometres of travel and 85 kilometres of dry-weather road, for an average road density of 61.9 kilometres per 1000 square kilometres. About 19.4% of the urban, 9.2% of the rural and 9.7% of the total population has access to drinking water (ibid).

3.2.2.3 Coffee Producer Cooperatives in Melka Ballo Woreda

In Melka Ballo Woreda there are 12 coffee cooperative unions with members numbering 12,334 in total. Of the 12 coffee producing cooperatives, four are FT certified cooperatives and the rest eight are not FT certified. All four FT certified cooperatives have been active members of African Fair trade organization since 2004. In order to be member of FT certification system, the households have to be a member of cooperative unions and then cooperative unions will apply for FT certification system. The main criteria for fair-trade participation are: for workers: decent wages, good housing, health and safety standards and the right to join trade unions no child or forced labour and programmes for environmental sustainability. And for small farmers' co-operatives: a democratic structure that allows members to participate in the co-operatives decision making processes. Moreover, the trading terms must include: a price that covers the cost of production; a social premium to improve living and working conditions; partial advance-payment to prevent small producer organizations falling into debt; contracts that allow long term production planning Develtere, (2005).

OCFCU is a democratic member's owned business operating under the principles of International Cooperatives Alliance and fair trade.¹⁰ Membership in a cooperative under Oromia Cooperative union is, due to logistical reasons, largely determined by geographical proximity of member farmers to the cooperative's head quarters and facilitated by a regional government entity, the Woreda Cooperatives Promotion Agency. Households register with the Woreda and apply to join the closest cooperative which will then be approved by the cooperative executive board. The requirements for cooperatives to join fair trade are: commitment to the fair trade principles and code of practice; commitment to help disadvantaged groups; legal existence and being fully operating for at least two years; sound

¹⁰ www.oromiacoffeeunion.org accessed on June 4, 2016

economic performance; sustainability in production and processing; and paying handling and membership fees¹¹.

3.2.3 Kenya

The Republic of Kenya is situated on the equator on Africa's east coast. Kenya's eastern and northern neighbours are Somalia and Ethiopia. To the northwest lies the Sudan. Many inhabitants of the Sudan's border region are in fact ethnically related to Kenya's peoples. Its northern most and southern most points are approximately equidistant. The population of Kenya is 42.7 million with the area of 582,646 sq km (224,961 sq miles)¹².

According to African Economic Outlook African Development Bank, (2015), Kenya's GDP growth remained robust in 2013 at 5.7% based on rebased statistics, and stood at 4.4%, 5.8% and 5.5% in the first three quarters of 2014 compared with 6.4%, 7.2% and 6.2% in comparable quarters of 2013. According to the central bank's economic monthly review of November 2014,¹³ growth was mainly supported by expansion in construction, manufacturing, finance and insurance, information, communications and technology, and wholesale and retail trade. The economy slowed in the third quarter of 2014, partly due to a sharp drop in tourism following terrorist attacks in the country. Overall GDP growth is expected to amount to 6.5% and 6.3% in 2015 and 2016, respectively (ibid).

Kenya produces less than one percent of the world's coffee. It has production on both large and small scale farms. The proportion of production by smallholder farmers has continually increased in the recent years as the large plantations, especially in the areas that border the city of Nairobi give way to real estate developments. According to the Kenyan Coffee Directorate¹⁴, smallholder production was fifty-five percent of the total production in the May, 2013/2014, and is expected to increase to above sixty percent in May, 2015/2016. Most coffee in Kenya is cultivated on very small farms, and the growers are rewarded with high prices for high quality beans. Coffee from Kenya is generally wet-processed and classified by bean size, with Grade A signifying the largest beans, followed by grades A and B Gitonga, (2015).

¹¹ www.wfto.com/membership-and-products/how-join-wfto accessed on June 4, 2016

¹² www.CIA.gov.com, accessed on March 12, 2016

¹³ www.centralbank.go.ke accessed on April 3, 2014

¹⁴ www.gain.fas.usda.gov retrieved on May 14, 2016

According to Fairtrade africa, (2013), after South Africa, Kenya is the next country to introduce the Fairtrade mark to consumers. Dorman’s Coffee has taken a lead, introducing its Fairtrade Certified SAFARI Kenya COFFEE Brand in the third quarter of 2010. The Kenya Tea Development Authority (KTDA), a major player in the tea sector in Kenya, has also expressed support towards the initiative (ibid).

For the Kenya coffee production and coffee export 25 years data series (1990-2015) is used, and for coffee price paid to Kenyan growers the study used 14 years of data series (1990-2004) obtained from the same dataset and a forecast for the remaining 11 years until 2015.

3.3 Sampling

3.3.1 Sample size determination

The overall sample size was determined based on a single proportion sample size determination formula for an infinite population as described here under.

Stage 1: $Sample\ Size\ (Ss) = \frac{Z^2(p)(1-p)}{c^2}$ EQ. 3.1

Where:

$Z = Z\ value\ (1.96\ for\ 95\% \ confidence\ level)$

$p = percentage\ picking\ a\ choice\ i.e.\ FT-participant\ or\ Non-Ft\ participant\ household\ for\ survey.$ Since the percentage of participants is not known ahead of the survey 0.5 is the most conservative estimate and is used for sample size needed.

$c = confidence\ interval,$ commonly taken as 0.05.

$$Sample\ Size\ (Ss) = \frac{1.96^2(0.5)(1-0.5)}{0.05^2} \approx 384.....EQ. 3.2$$

Stage 2: Correction for Finite Population

$$Corrected\ Sample\ Size\ (Sc) = \frac{SS}{1+(SS-\frac{1}{Pop})} \quad EQ. 3.3$$

Where:

$Sc = Corrected\ Sample\ Size$

SS= Sample Size

Pop = population size, in this case 12,334 households in the twelve cooperatives to be studied

$$\text{Corrected Sample Size (Sc)} = \frac{384}{1+(384-1/12,334)} \approx 372 \quad \text{EQ. 3.4}$$

Once the sample size is determined, a multi-stage sampling technique has been implemented to identify the case study subjects. Given that farmers' can participate in Fair Trade only if they are members of Fair Trade participating cooperatives, the first stage involves selection of cooperatives. First the cooperatives in the study Woreda were identified as participating and non-participating. The Woreda consists of 8 cooperatives, which are non-participants in Fair Trade and 4, which are participants (see Table 3-1). Then, proportional sampling technique was applied to determine the size of sub-sample from each cooperative based on total size of membership per cooperative.

Table 3-1 Members of Fair Trade participating and non-participating cooperatives in Melka Ballo Woreda

Name of Coops	Members of Non-FT Cooperative	Proportional Non FT Sample Size	Name of Coops	Members of FT Coops	Proportional FT Sample Size
Rakko Bassee	345	8	Regga Damuu	906	45
Malka Jalalla	469	10	Tutu Kannisa	1355	68
Urji Waraissa	646	14	Wajin Qabegna	505	25
Guddii Missoma	2927	64	Hundden Lalisa	984	49
Biftu Genema Unionii	342	07			
Melkaballo	199	4			
Hundden Lalissaa	90	2			
Dugomsaa Haqua	3566	78			
Total	8584	187		3750	187

3.3.2 Selection of Sample households

Once the size of sub-samples per cooperative is determined, the next step was to identify the households to participate in the survey. To this end, the sampling frame of all coffee producer households of the selected 12 coffee cooperatives were obtained from the Melka Ballo Woreda. Then coffee producer households were selected based on simple random sampling technique. Hence, of the selected 12 coffee cooperatives, a total of 374 (50 percent of the sampling frame) coffee producing farm households were selected of which 12 % were female-headed (see Table 4-15)¹⁵. Accordingly, the total sample size of 374 coffee producer farm households was divided equally between households from FT participants and non-participant (187 each).

3.4 Data collection

Secondary data were used for the country level comparison of coffee export due to participation in Fair Trade in Ethiopia and Kenya. Data for Production, export and price of coffee before and after fair trade were obtained from ICO database (2014/15) and compared for the two countries during the same fiscal years (1990 to 2014/15). Data for coffee price received by Kenyan growers were unavailable after 2004 and hence forecast estimates were used.

Primary data was collected from 374 Fair Trade participant and non-participant coffee producer farm households by using survey questionnaire (see Appendix 8).

3.5 Data Analysis

The study has two major components. At the country level, it compares export Volume from coffee in Ethiopia and Kenya as a result of participating in the global fair trade market by estimating a regression function and controlling for other key variables. It also analyses the trends and variability of export and price in the international market for both Ethiopia and Kenya and detects for any potential structural break due to the introduction of Fair Trade. At the level of coffee producing farm households, it analyses the effect of fair trade on the income of participating coffee farmers in Harar.

¹⁵ In this context female-headed households are those households in which a household is not present due to divorce or death.

3.5.1 Econometric analysis

3.5.1.1 Test for stationary

In economic research involving time series data, before any kind of statistical estimation takes place the data of all variables in the model have to be tested for their stationarity Gujarati, (2004). A stochastic process is said to be stationary if its mean and variance are constant over time and the value of the covariance between the two periods depends only on gap or lag between the two time periods and not the actual at which the covariance is computed.

There are various statistical tests for the detection of non-stationarity or unit root problem. Philips-Parron (PP) test is used in this study to test for stationarity for the country level time series data. The PP test can be estimate using the following formula;

$$\Delta Y_t = \beta_1 + \beta t + \delta Y_{t-1} + \sum_{i=0}^n a_i \Delta Y_{t-i} + \mu_t \dots\dots\dots \text{EQ. 3.5}$$

Where: μ_t is a pure white noise error term and where $\Delta Y_{t-1} = (Y_{t-1} - Y_{t-2})$, $\Delta Y_{t-2} = (Y_{t-2} - Y_{t-3})$, $\Delta Y_{t-n} = Y_{t-n} - Y_{t-(n+1)}$. The PP test uses non-parametric statistical methods to take care of the serial correlation in the error terms without adding lagged difference terms. The null hypothesis is that the variable has a unit root (non-stationary) i.e. $\Delta Y_t = 1$ against the alternative hypothesis of having no unit root (stationary). Thus, if null hypothesis is accepted, then Y_t series is non-stationary time series Gujarati, (2004).

3.5.1.2 Test for Structural Break

The study further applies a test for structural break to detect whether and when a significant change has occurred in the time series data. The present study has applied the test in order to check for a potential change in the data after the introduction of Fair Trade certification system, in which case the specific time for the possible change is determined.¹⁶ Chow test, which is the most commonly used test for structural stability is employed. The test is conducted based on the following formula:

¹⁶ www.statas.stackexchange accessed on April 25 , 2016

$$\begin{aligned}
 y_t &= \beta_1 + \beta_2 x_t + u_{1t} \\
 y_t &= \delta_1 + \delta_2 x_t + u_{2t} \dots\dots\dots\text{EQ. 3.6}
 \end{aligned}$$

Where y_t represents the production, export volume, price for each analysis before and after introduction of FT. X_t represents the number of years for each analysis before and after the introduction of FT. β and δ are constants and u is the error term. The test for structural stability is conducted for total coffee production, export and price for the period 1990 – 2015/16 by estimating (equation 3.2) on each variable in order to see the change before and after the introduction of FT for total coffee export earnings of Ethiopia and Kenya.

3.5.1.3 Multicollinearity

A multicollinearity test determines whether there is an approximate linear relationship between the explanatory variables, which could lead to unreliable regression estimates, on a cross-sectional data. Variance inflation factor test was used for testing for multicollinearity problem with a null hypothesis of no multicollinearity. Based on the test, a larger value of VIF leads to the standard errors of the parameters being too large, therefore the t-statistics tend to be insignificant Gujarati, (2004). Thus, if the VIF value does not exceed 10 or the closer 1/VIF value to 1, the smaller the degree of collinearity of the variable with other independent variable.

3.5.1.4 Regression Equation

Regression equations are estimated to analyse the potential effect of Fair Trade on coffee export and household income from coffee. In the macro-level analysis, a regression line is estimated for coffee export volume as a function of Fair Trade participation (and all relevant variables, price, GDP). For the household level analysis, a regression line is estimated for farm household income from coffee as a function of household's participation in fair trade (through their cooperatives) and all relevant household's demographic and socioeconomic variables.

The formula for a regression line is:

$$Y_i = \beta_0 + \beta_1(X1)_i + \beta_2(X2)_i + \beta_3(X3)_i + \dots + \beta_k(Xk)_i + \varepsilon_i \dots\dots\text{EQ. 3.7}$$

Where X and Y are the variables, β are non-random unknown quantities and ε is the noise.

3.5.1.5 Causality Test based on Granger

Error-correlation model within bi-variate causality system (Granger causality) is used to examine the direction of causality between Coffee price and Coffee Export both for Ethiopia and Kenya. In a time series data such as the one in this study, to establish Granger causality we:

1. Regress Y (Export) on lags of X (Price) and Y (Export)
2. Regress Y (Export) on lags of Y (Export)
3. Test if the restricted model is significantly outperformed by the non restricted model by either χ^2 (Chi Square) or F-test.

• X (Price) Does not Granger Cause Y (Export) if:

$$E(y_t | y_{t-1}, y_{t-2}, \dots, x_{t-1}, x_{t-2} \dots) = E(y_t | y_{t-1}, y_{t-2}, \dots)$$

Where,

X is price of Coffee in Ethiopia and Kenya

Y is Export volume of Coffee in Kenya and Ethiopia

3.5.2 Macro-level Analysis

Dependent Variable

Coffee export

This is dependent variable measured in tons of coffee exported by the respective countries. In order to control for the scale effect, the variable has been transformed into its logarithmic form. As the objective is to compare between Ethiopia and Kenya in terms of the effect of Fair Trade on the volume of coffee export, separate regression equations have been estimated for the two countries.

Independent Variables

Price of coffee

The variable represents the international coffee price paid to the growers measured in USD. All coffee beans exported from Ethiopia are washed and of the Arabica variety. Most of the coffee exported from Kenya is also of the Arabica variety and washed. The variable is basically determined by the international market situations. The sign of the variable may depend on the international demand and local production situations. For instance, if the rise in the price of the specific brand of coffee is driven by the international demand situations (shortage or excess demand) and the country is able to respond to the demand, then a rise in price may lead to higher coffee export and hence a positive sign of the variable may be expected. If otherwise, the rise in price is due to forces other than the market such as cartel decision, speculations, then a rise in price may cause a decline in demand. Based on theory, the variable is expected to have a negative sign. It should however be noted that a rise in price of the specific brand of coffee, even due to forces of demand, may not necessarily lead to a rise in its export if the production situations are not promising.

Gross Domestic Product (GDP)

Gross domestic product (GDP) is the monetary value of all the finished goods and services produced within a country's borders in a specific time period. The variable (in logarithmic form) is included in the model to capture the impact of GDP on coffee export in Ethiopia and Kenya. The data was extracted from World macroeconomic research, (1970-2014). The expected sign of coefficient is positive because bigger economies are capable of producing more for export or engage in re-exports to fill gaps.

Participation in Fair Trade

This variable is included in the model to capture the effect of fair trade on the volume of coffee export. It is a dummy variable (taking a value of 1 for the period after the introduction of Fair Trade in 1999 and 0 otherwise). Since FT coffee is introduced to improve export performance of the participating nations, the variable is expected to have a positive sign in the equation.

3.5.3 Micro-level Analysis

Here the dependent variable is income and the explanatory variables are fair trade participation, input use (irrigation, pesticide, fertilizer), land size, TLU, household characteristics (household size, sex, age and education of the household head).

Dependent Variable

Income from coffee: This dependent variable is measured in Birr. In order to control for the scale effect, the variable has been transformed in to logarithmic form.

Independent Variables

Fair trade participation: This variable is a dummy variable (taking a value of 1 for fair trade participation and 0 otherwise). The purpose of including this variable in the model is to compare the FT participants and Non-participants coffee farmers in the Woreda. Given the purpose of the Fair Trade setup to enhance coffee production, export and income, the expected sign of the coefficient is positive.

Input use: Input use is the explanatory variable that includes fertilizer, irrigation and pesticide use, each taken as a binary dummy variable (taking values of 1 for use and 0 otherwise). Since the use of inputs is important in agriculture, these variables have implications for coffee income. If the FT certification is favouring organic coffee, the use of these inputs may be having an adverse effect on the income from coffee. The expected sign of the coefficient is negative.

Cultivated Land size under coffee: The variable is measured in hectare of land under coffee. Since land size is a very important resource in coffee production, its effect on coffee production and income is obvious. The expected sign of coefficient is positive.

TLU: Tropical Livestock Units are livestock numbers converted to a common unit (in 2005)¹⁷ the variable is measured by Birr. The expected coefficient is positive.

Household demographic characteristics: Consists of the explanatory variables sex of the household head, household size (measured in no. of household members in 2014), age of the household (measured in years) and level of Education (measured in no. of years of completed

¹⁷ www.harvestchoice.org retrieved on April, 2016

form schooling). Since coffee is seasonally labour intensive, female headed households may be at a disadvantage. Thus, the coefficient for sex of the household head may depend on the ease of access to wage labour in the area. The coefficient for household size may have a positive or negative sign based on the magnitudes of the opposing forces of the role of large family size in labour contribution and reducing input purchasing capacity of the household. Age can have a positive effect up to a certain threshold level and, depending on availability of wage labour; it can have a negative effect beyond that. Education is expected to have a positive effect because of the expected increase in the ability to comprehend and practice improved coffee farm management.

Table 3-2 Links between Methods and Specific Objectives

Specific objectives of the study	Indicator (variable)	Sources of data	Data collection	Data analysis	Model
1. Compare the trends of coffee export, Production and export earnings in Ethiopia and Kenya.	Tons of Exported coffee through FT	International Coffee Organization Database	Secondary data through Accessing Fairtrade Organization Database	Analysis of variance, Coefficient of Variation, Regression, structural break	$CV = \frac{\delta_{ij}}{\mu_{ij}}$ μ_{ij} Where, μ_{ij} = Mean Export through FT in the years i to j δ_{ij} = Standard Deviation of exports through FT for the years i to j CV = Coefficient of Variation.
2. To compare the effects of fair trade on coffee export Volume in Ethiopia and Kenya.	Coffee export volume in thousand of 60 kg bags	International Coffee Organization Database and International Fairtrade Organization Database	Secondary data through Accessing ICO FTO and Database	Analysis of variance, Coefficient of Variation, Regression, structural break Granger causality test	$y_t = \beta_1 + \beta_2 x_t + u_{1t}$ $y_t = \delta_1 + \delta_2 x_t + u_{2t}$ refer eq 3. $Y_i = \beta_0 + \beta_1(X1)_i + \beta_2(X2)_i + \beta_3(X3)_i + \dots + \beta_k(Xk)_i + \varepsilon_i$ refer eq. 7 $E(y_t : y_{t-1}, y_{t-2}, \dots, x_{t-1}, x_{t-2} \dots) = E(y_t : y_{t-1}, y_{t-2}, \dots)$
3. Assess the income effect of FT on participating farmers in Harar	Dependent Variable -Household coffee Income Explanatory Variables -FT participation -Input Use (Fertilizer, Irrigation, Pesticide) -Land Size -Household Size -Household age -Household level of education	From Household	Primary Data from Questionnaire	Analysis of Variance and Regression, Multicollinearity	$I = f(FT, I_U, L_S, H, E_1, HH)$ Where, I = Income from coffee FT = FT Participation L _S = Land Size of coffee, number of coffee trees in home garden E ₁ = Level of Education I _U = Input Use i.e. Fertilizer amount, chemical used, irrigation use, hired labour HH = Household Size Access to credit Access to extension services, Livestock size in TLU, Sex of the head, Age of the head, number of migrant,

4. Results and Discussion

The coefficient of variation measures variability in relation to the mean (or average) and is used to compare the relative dispersion in one type of data with the relative dispersion in another type of data.

The coefficient of variation shows that with a smooth annual increase, the variation in production remained at 35.87% for Ethiopia whereas it is 34.84% for Kenya (see Table 4-1). This shows that the degree of variability in coffee production is modest and almost similar for Ethiopia and Kenya.

Table 4-1 Variability in coffee production in Ethiopia and Kenya

Variable	Country	St.dev	Mean	CV (%)
Production of coffee In thousand 60kg bags	Ethiopia	1639.8	4571.23	35.87
	Kenya	349.96	1004.50	34.84

Source: Constructed based on ICO (2015) data

4.1 Trends in coffee Production, Export and Price in Ethiopia and Kenya

Trend analysis involves the collection of information from multiple time periods and plotting the information on a horizontal line for further review. The intent of trend analysis is to spot actionable patterns in the presented information.

4.1.1 Trends in coffee production in Ethiopia and Kenya

As can be seen in the figure below Ethiopian coffee production has been higher than that of Kenyan production for all the years since 1990 (see Figure 4-1). With the declining trend (the general direction) of Kenyan coffee production, the production gap between the countries has also been widening since then. Ethiopian production has skyrocketed from the low production year 1992 of 1,825,000 60kg bags that is the equivalent of 109,500 tonnes to the highest production in 2010/11 of 7,500,000 60kg bags (i.e. 450,000 tonnes). In the mean

time, Kenyan production has declined from the initial same amount like Ethiopia (1,825,000 60kg bags) to less than 1,000,000 60kg bags in 2014.

The likely reason for the decline in Kenyan coffee production is the shifting of land from coffee growing to other crops, climate change, i.e., Kenyan farmers around Mount Kenya are experiencing unseasonably cool temperatures and less sunshine, contributing to falling coffee yields and increasing diseases and pests, population pressure, i.e., there are too many people trying to make a living on too small areas of land as well as real estate development. Real estate developments, including Migaa, Thika Greens, Tatu City, sit on land that once held coffee. Although water can be another problem in Kenya, in the Nyeri hills there are many small streams and the soils have greater water retention, mostly due to the better vegetation cover Ngethe, (2015).

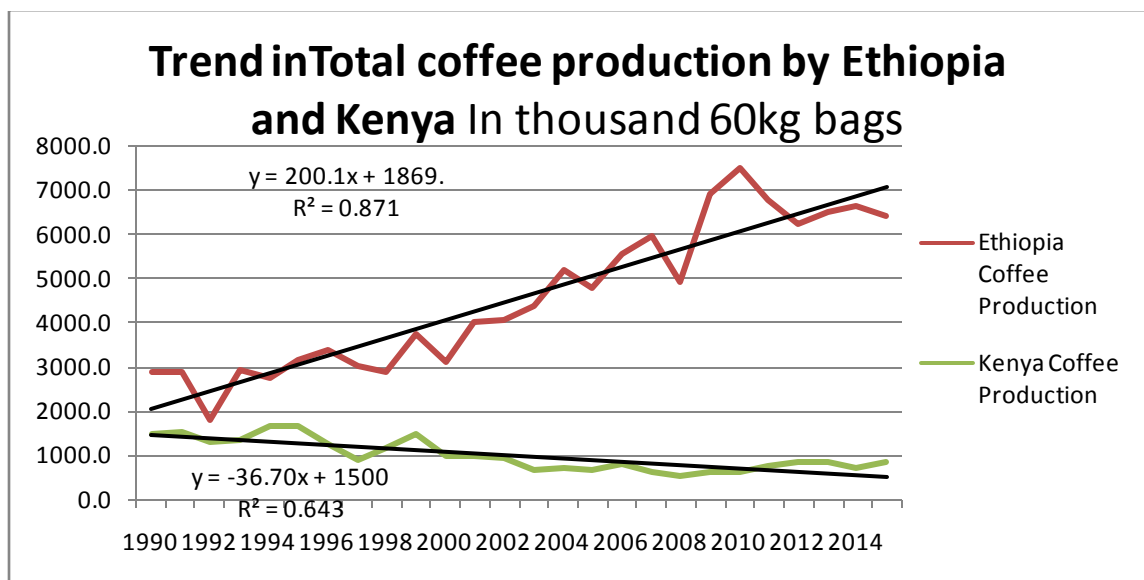


Figure 4-1 Coffee production trends by Ethiopia and Kenya (1990-2015)

Source: Authors calculation, based on ICO (2015) data

4.1.2 Trends and variability in Coffee Export in Ethiopia and Kenya

It can also be seen throughout the years from 1990-2014, Kenyan coffee exports showed a larger degree of variability (44.53%) as compared to Ethiopian Exports which is 37.17% (see Table 4-2).

Table 4-2 Variability in Exported Coffee from Ethiopia and Kenya from 1990-2015

Variable	Country	St. Dev	Mean	CV (%)
Export of Coffee In thousands 60kg bags	Ethiopia	813.04	2187.4	37.17
	Kenya	441.51	991.4	44.53

Source: Author’s calculation, based on ICO (2015) data

Table 4- 2 show that except for the two break years in 2002 and 2010 where coffee prices plunged worldwide, Ethiopian coffee export has been growing steadily over the past 25 years. In contrast, Kenyan coffee export has steadily declined over the years and is now less than half of what it was in the beginning of the 1990’s. At around the year 1995 the two countries exported equal amount of coffee. The decline in Kenya’s coffee export is consistent with the decline in its coffee production. The reason for the decline of Kenya’s coffee export maybe related with the low amount of coffee which the country produces compared to Ethiopian coffee production and the quality of Kenyan coffee declined.

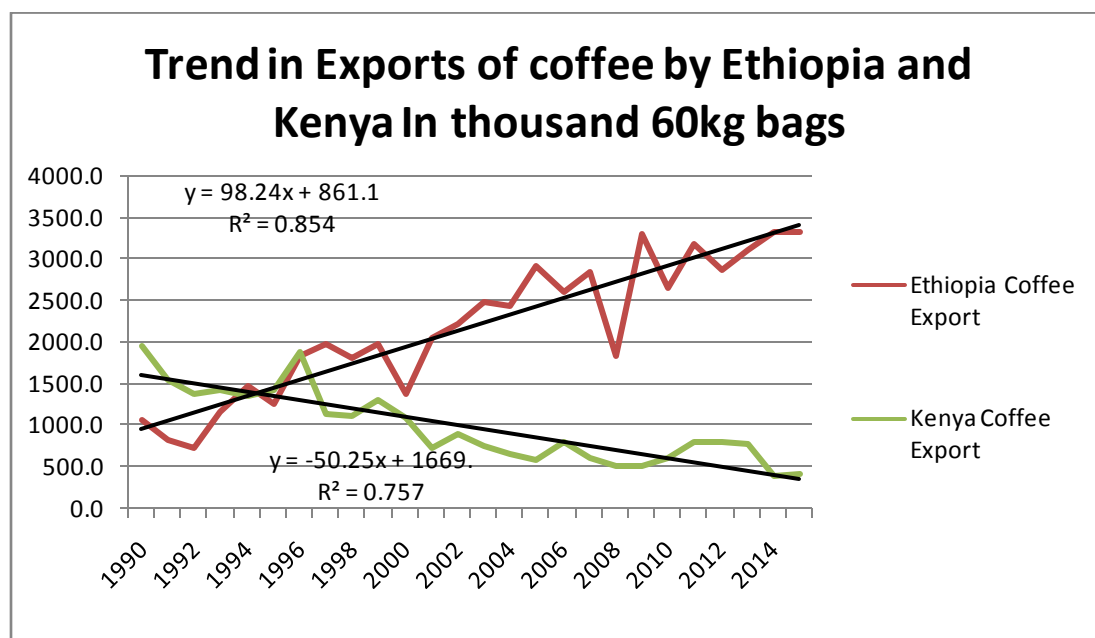


Figure 4-2 Coffee export trends by Ethiopia and Kenya (1990-2015)

Source: constructed based on ICO (2015) data

4.1.3 Trends and variability in prices paid to coffee growers for Ethiopia and Kenya

The coefficient of variation of coffee price for both countries Ethiopia and Kenya is reported in Table 4-3. The coefficients show a great variation between the countries. From the year 1990 to 2015, it can also be seen that Kenyan coffee farmers suffered much higher price fluctuations (with 59.98% price variability) as compared to their Ethiopian counterparts (with 34.70% price variability). This implies that price uncertainty is increased for Kenya than Ethiopia.

Table 4-3 Variability in prices paid to Ethiopian and Kenyan Coffee growers for their produce

Variable	Country	St. Dev	Mean	CV (%)
Price of Coffee In thousands 60kg bags	Ethiopia	25.56	73.7	34.70
	Kenya	45.43	75.7	59.98

Source constructed based on ICO 2014/15 database

When it comes to prices paid to growers in Ethiopia and Kenya, we can see from Figure 4-5 that Kenyan coffee commanded higher prices for the years 1990-2002. Forecast data was used for prices paid to Kenyan coffee growers from 2005 to 2013 as reliable and consistent data was lacking. At the highest, Kenyan coffee growers earned 184 dollars per pound while Ethiopian coffee growers earned only 145 dollars per pound. The reason might be related with the differences in the quality of coffee and bargaining power of Ethiopia.

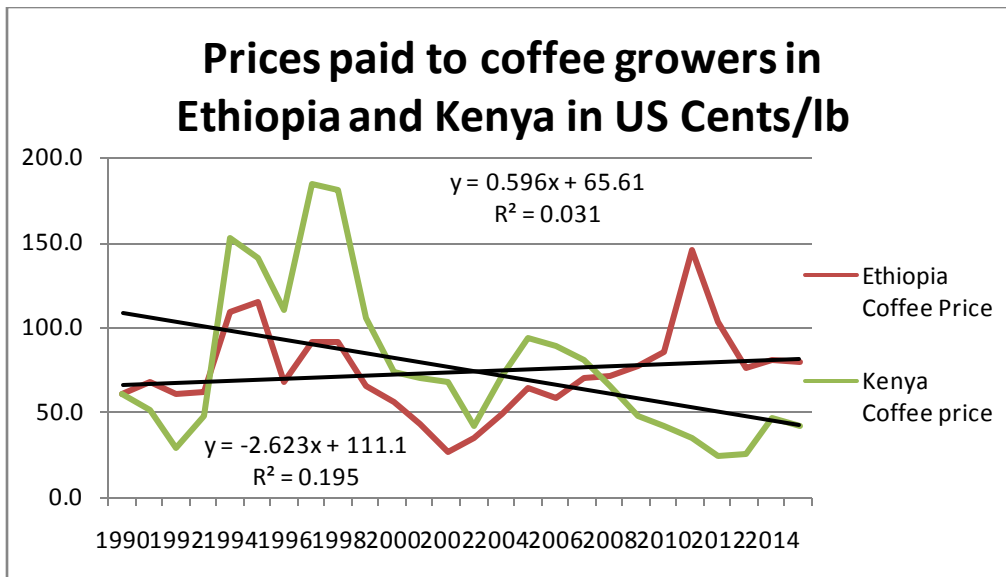


Figure 4-3 Prices paid to Growers in Ethiopia and Kenya along with trend lines from 1990-2015

Source: constructed based on ICO (2015) data

4.1.4 Trends in Production and Export of coffee by Ethiopia and Kenya

The trends of Ethiopian coffee production and export shows that production has skyrocketed from the low production year 1992 of 1,825,000 60kg bags (that is the equivalent of) to the highest production in 2010/11 of 7,500,000 60kg bags (i.e. 450,000 tonnes). And except for the two break years in 2002 and 2010 where coffee prices plunged worldwide, Ethiopian coffee export has been growing steadily over the past 25 years (see Figure 4-3). It can be noticed that there is a considerable difference between Ethiopian coffee production and export indicating a considerable domestic consumption of coffee, it might be because of poor infrastructure development.

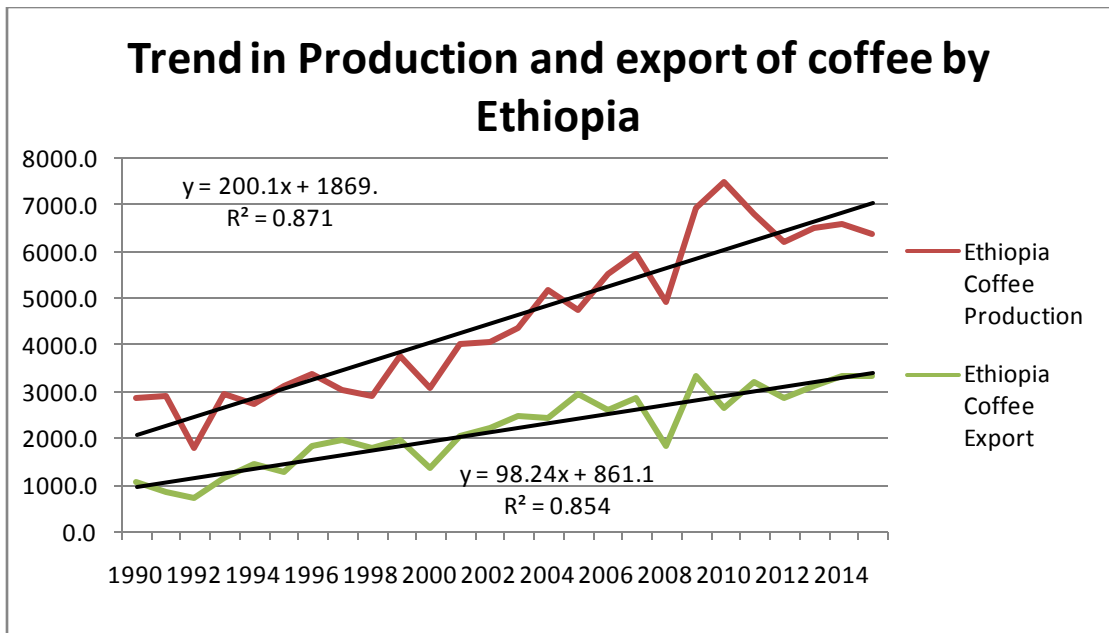


Figure 4-4 Trend in production and export of coffee by Ethiopia

Source: constructed based on ICO (2015) data

As can be seen from the Figure 4-4, Kenya exports almost all of its coffee production. But Kenyan coffee production has declined from the initial (1,825,000 60kg bags) to less than 1,000,000 60kg bags in 2014 and its export has steadily declined over the years. This might be because of focusing in producing and exporting other commodities like tea and the low amount of coffee production due to climate change, population pressure etc.

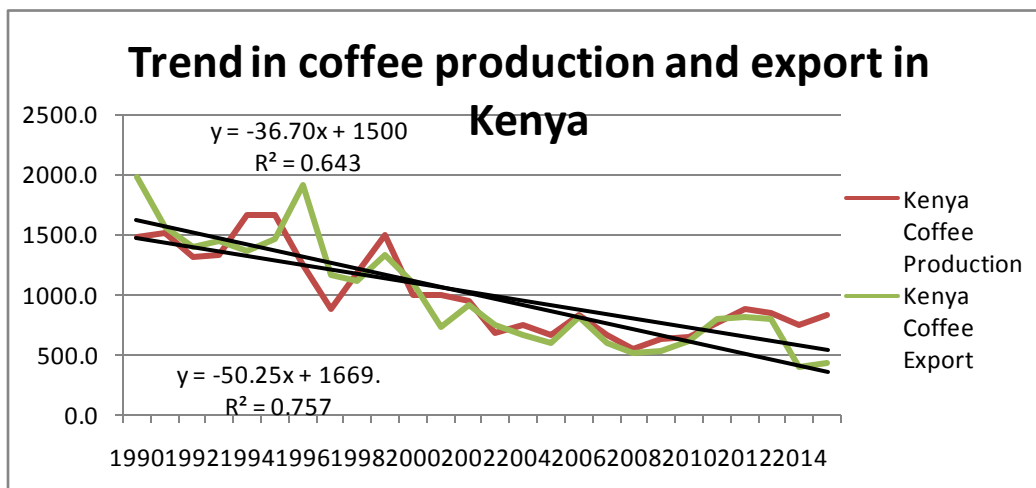


Figure 4-5 Trend in coffee production and export in Kenya

Source: constructed based on ICO database 2015

4.2 The Effect of Fair Trade on Coffee Export in Ethiopia and Kenya

4.2.1 Statistical Tests

4.2.1.1 Test for Stationary

One of the most important attributes of a data series variable is its stationary. The result of the Phillips-Peron (PP) unit root test shows that the variables coffee exports, price and GDP of Ethiopia and Kenya are stationary each at 1% level of significance (see Table 4-8). That is, all three series have no unit root for both Ethiopia and Kenya. Since the variables have been log transformed, this may have helped in the de-trending of the series.

Table 4-4 Phillip-Peron test for unit root

Variables	Ethiopia			Kenya		
	PP-test	p>t	Stationarity Status	PP-test	p>t	Stationarity Status
coffee						
Export	156.63	0.000	Stationary	144.76	0.000	Stationary
Coffee						
Price	67.89	0.000	Stationary	49.98	0.000	Stationary
GDP	82.7	0.000	Stationary	113.18	0.000	Stationary
1% Critical= -11.9 5% Critical= -7.3 10% Critical= -5.3 N = 23						

4.2.1.2 Chow test for structural stability

Based on Chow test results given in Table 4-9, there has been structural break (at 1% level) in Ethiopian coffee production after participation in Fair Trade (FT). However, there has been no structural break after the introduction of FT in the case of Ethiopian coffee export and price. This shows that coffee production level has undergone changes following the introduction of FT whereas coffee export and price have been relatively stable.

For Kenya, there has been structural break in coffee production (at 10% level), coffee export (at 1% level) and coffee price (at 1% level) after the introduction of FT. This change could involve a change in mean or a change in the other parameters of the process that produce the series. This implies that there is effect of FT on Kenyan Coffee production, export and price.

Whether the detected sign of structural change in the volume of export after the introduction of Fair Trade certification in Kenya remains valid after controlling for other variables (also affecting coffee export) will be examined in section 4.2.1.3.

Table 4-5 Chow Test for structural break in production, export and price of coffee after FT for Ethiopia and Kenya

Ethiopia						
	Coffee production		Coffee export		Coffee price	
	<i>Before FT</i>	<i>After FT</i>	<i>Before FT</i>	<i>After FT</i>	<i>Before FT</i>	<i>After FT</i>
Mean	3074.1	5673.6	1572.9	2737.18	70.8	75.8
Variance	300521.2	1226807	241254.1	130491	624.0	859.4
Observations	12	11	13	11	13	11
Df	11	10	12	10	12	10
F	0.2		1.8		0.7	
P(F<=f) one-tail	0.000		0.2		0.3	
F Critical one-tail	0.4		2.9		0.4	
Kenya						
Mean	100.2	59.91723	1271.7	686.4	1313.8	721.5
Variance	2853.6	269.1342	104893.5	12067.5	69319.8	14461.6
Observations	12	13	13	11	12	11
Df	11	2	12	10	11	10
F	10.6		8.7		4.8	
P(F<=f) one-tail	0.1		0.0		0.0	
F Critical one-tail	19.4		2.9		2.9	

Source: Author's calculation, based on ICO (2015) database

4.2.1.3 Regression Results for Macro Effect of FT on Coffee Export in Kenya and Ethiopia

The two east African countries Ethiopia and Kenya started being members of FT certification system in 2004 and 2002 respectively. For Ethiopia 51% of the data series represents the situation after the introduction of FT certification and the rest 49 are before whereas for Kenya it is 50/50 (see Annex 4-11). The minimum and maximum coffee export for Ethiopia is 734.46 and 3324.10 tons of coffee respectively whereas for Kenya is it 524.75 and 1969.34 tons respectively.

The minimum price paid for Ethiopian coffee export is 26.88 USD and maximum is 145.46 USD cents/lb. For Kenya the minimum coffee export price is 28.95USD and the maximum is 184 USD cents/lb.

As Table 4-12 shows that participation in FT does not have a significant effect on Ethiopia's export of coffee. This finding is consistent with the results of Chow test for absence of structural change after FT certification for Ethiopia. The finding regarding the interaction of GDP with FT participation term shows that the size of GDP matters for benefit from participation in FT at 1% level. The results also show that, at 5% significance level, as Ethiopia's GDP increases its volume of coffee export increase. This implies that increasing GDP has incentive for more involvement in FT which in turn the trainings given as part of participating in FT increases productivity. As expected from the demand theory, the volume of coffee export declines with the increase in its price at 1% level. As the F-test shows, the model fits the observations very well.

For Kenya, FT participation does not have any significant effect on coffee export. This means that when other variables also affecting Kenyan export of coffee are controlled for, the effect of fair trade could not come out that significant. It is also found that price has a positively significant effect on coffee export at 1% significance level, implying that as Kenyan coffee price increases, the volume of export of coffee increases.

Table 4-6 Regression for Ethiopian and Kenya coffee Export

Ethiopia Coffee Exp	Coef	Std.Err	N	F	Prob > F	R ⁻²	AdjR ⁻²
Coffee Price	-1.79891	.0269964	26	(4, 18)= 2339.73	0.0000	0.9981	0.9977
FT Part.	-0.0049	.0080788					
GDP	-0.0336	.0141569					
Interaction	0.5454	.0079484					
_cons	3.33697	.0284987					
Kenya Coffee Price	.2380612	(.0049888)***	26	1034.16	0.0000	0.9954	0.9945
FT Part.	.0289181	.0255979					
GDP	-.0043391	.0176503					
Interaction	-.0182813	.0213311					
Intercept	-.1724165	.0185289					

***, ** stands for significance levels at 1 and 5%, respectively.

Source constructed based on ICO (2015) database

4.2.1.4 Causality Test

The Granger causality test investigates whether past values of Coffee Export in the prediction of Coffee price, if they do the coffee export is said to “Granger cause” coffee price and vice versa.

Table 4-7 Granger Causality wald test for Ethiopia

Equation	Excluded	Chi2	df	Prob > Chi2
Eth Coffee Export	Eth coffee price	1.2112	2	0.546
Eth Coffee Price	Eth coffee export	.23788	2	0.888

Source constructed based on ICO (2015) database

There is no evidence that lagged coffee price helps predict coffee export in Ethiopia. And also there is no evidence that lagged coffee export helps predict coffee price.

Table 4-8 Granger Causality Wald Test for Kenya

Equation	Excluded	Chi2	df	Prob > Chi2
Ken Coffee Export	Ken Coffee Price	2.6832	2	0.261
Ken Coffee Price	Ken Coffee Export	10.944	2	0.004

Source constructed based on ICO (2015) database

There is evidence that lagged Kenya coffee price helps predict coffee export (the p – value is 0.261) and there is a strong evidence that lagged coffee export helps predict coffee price (0.004).

4.3 Household level analysis

4.3.1 Statistical Tests

4.3.1.1 Test for multicollinearity

The study conducted test for multicollinearity by using Variance Inflation Factor (VIF) test. The result in Appendix 6 shows that there is no multicollinearity with all explanatory variables as the VIF value of all the variables lies between 1 and 2. As a rule of thumb Risks of multicollinearity arise when VIF values exceed 10.

4.3.1.2 Model Specification Test

In this study, Model Specification test is conducted to not omitting significant causal variables or including correlated but causally extraneous ones, and also to correctly indicating the direction of arrows connecting the variables in the model. The result in Appendix 7 shows that $R^2 = 0.686$ (68.6%) in the first table indicates that the 68.6% of total variance of Income from coffee is explained by the estimated regression equation. And in the second table $F = 65.294$ As F increases, we are more likely to reject the null hypothesis (H_0 : all $\beta_j = 0$) and P -value associated for this F -statistic is 0.000. Therefore, we conclude that the current regression equation meaningfully describes the relationship between the Income from coffee and all independent variables.

4.3.2 Descriptive Statistics for Household-level Analysis

In Melka Ballo Woreda 59% of the sample households are participating in FT certification system through their cooperatives and 49% of them are not (see Appendix 8). From all the household 88% of them are male headed and 12% of the household are female headed. The minimum age is 20 and the maximum is 70 years. In number of schooling in formal education is 0 and 13 minimum and maximum respectively. The maximum household size is 15. The coffee land size is 0.025 and 3 minimum and maximum respectively. The farmers who use irrigation is 43% and the rest 57% do not have access to irrigation. About 76% of the household have access to credit and 24% of them don't have access to credit. The farmers are 81% and 19% who have access to extension and who don't have respectively. The minimum number of livestock in TLU is 0.5 and the maximum is 93. The farmers paid 2100

maximum and 0 minimum to the hired labour. The minimum income the sample households earn is Birr 1684 and the maximum is Birr 8362.

4.3.3 Regression Results for household (micro)-level analysis

As the R-Squared suggests, 68.8% of variation in income is explained by the variables included in the model. Results show that fair trade participation does not have any significant effect on the income from coffee. There is a significant positive relationship between coffee income and household size at 5% level indicating that the increase in household size contributes in increasing household income obtained from coffee. This may be because coffee is a seasonally labor intensive activity and hence increase in the size of the household increases labor supply for coffee production and income. Similarly, education and livestock ownership have significant contribution to income from coffee at 10% and 1% level; respectively. As level of education increases income from coffee increases as well which may be because the more educated the farmer is the better advantage they may take from extension services provided. The findings further indicate that livestock ownership increases the income generated from coffee sales increases. This may be due to the use of manure from the livestock used as compost and there may be increased investment on coffee plantation from the income generated from livestock husbandry.

Table 4-9 Regression for Melka Ballo coffee farmers coffee income

Variable name	Estimated parameter	Std. Err.	N	F	Prob > F	R ⁻²	Adj R ⁻²
FT participation	-0.02949	.0265883	374	65.51	0.0000	0.6877	0.6772
Age	0.001207	.0011681					
Sex	-0.06426	.0393134					
HH size	0.010025	(.004778)**					
Edu.	0.007815	(.004276)*					
Coffee Land Size	1.96E-05	.0001078					
Livestock	0.032732	(.0012212)***					
Interaction FT participation & Coffee land size	1.42E-05	.0000765					
Access to credit	-0.0035	.029676					
Access to ext.	0.016335	.0336194					
Irrigation	-0.03511	.0264777					
Hired Labor	0.014346	.0210888					
Intercept	0.316199	.0867222					

***, **, * Stands for significance levels at 1, 5 and 10% respectively.

4.4 Linking Results from Macro and Micro-level Analysis

As far as the effect of FT participation on the coffee sector is concerned, there is consistency in the findings of the macro and micro level analysis of the present study. The macro level analysis suggests that the introduction of Fair Trade certification has not brought about any significant effect on the volume of coffee export. However, in the case of Ethiopia there is indication that Fair Trade participation is more effective with higher GDP than otherwise. Similarly, the household level analysis suggests that participation in Fair Trade has not brought about any significant effect on farmers income generated from coffee. This may mean that the income difference from FT coffee is being invested in long term returns and it is not immediately materializing for the farmers. Further research may have to be conducted on this.

5. Conclusion and Recommendations

5.1 Conclusion

Fair trade has been laud as an innovative market-based approach to promoting sustainable production, business practices and increasing the income of smallholder farmers. The purpose of the present study is to analyze the effects of fair trade on the coffee sector in Ethiopia and Kenya by using a macro and micro-level analysis. The study uses macro-level analysis to compare the effect of Fair Trade participation on coffee export volume in Ethiopia and Kenya and a micro-level analysis to examine the effect of Fair Trade participation on the income of coffee producers based on a case study of Melka Ballo Woreda, East Hararghe. The study used twenty five years (1990- 2014/15) data from International Coffee Organization (2015) database and primary data collected through survey questionnaire for the case study of the households in Melka Ballo Woreda. Trend analysis, ANOVA, coefficient of variation, Structural stability analysis, regression analysis and Granger causality test were conducted to address the objectives of the study.

The results of the study show that except for the two break years in 2002 and 2010 where coffee prices plunged worldwide, Ethiopian coffee export has been growing steadily over the past 25 years. In Kenya, despite implementing fair trade ahead of Ethiopia, the dive in coffee production volume has not abated. Even in Ethiopia, where a significant increase in production volume is observed, there is no significant increase in the price of Ethiopian coffee because of the introduction of FT. For example, for each of the years 1990-2002 Kenyan coffee commanded a higher price than Ethiopian coffee. This, according to prominent commentators in the Ethiopian coffee industry, might be related to the low quality of coffee, poor structural development and also the fact that coffee prices are determined elsewhere. Results of the present study further suggest that, at the macro-level, there is no significant effect of Fair Trade on the volume of coffee export for Both Ethiopia and Kenya. In the case of Ethiopia, there is an indication that Fair Trade participation works better for increasing coffee exports at higher level of GDP.

At the house hold level, FT participation does not seem to have a significant effect on coffee income. The main reason for this might be that the premium from selling coffee at fair trade prices does not go directly to households and instead goes to the coffee cooperatives and

unions which have the prerogative to spend the income on diverse projects. It may be that the smallholder farmer will have to wait a long time to get the benefits of participating in fair trade if they will see the benefits at all. However, the conventional variables household size, level of education, and livestock ownership are found to have a significantly positive relationship with income from coffee. This may indicate that coffee production is a labor and knowledge-intensive job.

5.2 Recommendations

FT participation and Coffee Export volume are less variable at the macro-level, indicating there is no significant effect of Fair Trade on the volume of coffee export for Both Ethiopia and Kenya. In the case of Ethiopia, there is an indication that Fair Trade participation works better for increasing coffee exports at higher level of GDP. Both countries need to check and balance the effect of FT certification system in detail. And since Fair trade has been touted as a way for Western consumers to aid developing countries and the poor producers within those countries, the participation of FT certification system need to be assessed effectively. Therefore, focus should be given on policies that will achieve positive effects in the countries and this demands further research in identifying factors affecting the effects in both countries.

The trend of Ethiopian coffee production has been higher than that of Kenyan production for all the years 1990 to 2015. Kenya exports almost all of its coffee production while Ethiopian coffee export has been growing steadily over the past twenty five years. Ethiopia needs to work on exporting more of its coffee to capitalize on its high production. When it comes to trends in price paid to coffee growers, Kenyan coffee commanded higher prices compared to Ethiopia's. There should be more effort on the part of the Ethiopian governments to seek niche markets for their coffee produce instead of relying solely on Fair Trade to secure a better life for their farmers.

At the micro-level, the finding that no significant effect of Fair trade participation on the income from coffee implies that households are not benefiting from the income difference from FT. This situation calls for a concentrated effort by Coffee cooperatives and agents of FT certification system in the adoption of more appropriate policy instrument like provision of training for farmers. And further research is needed on the effect of FT participation of Coffee farmers in Melka Ballo Woreda.

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Appendix: 1 Stationary test for Ethiopia and Kenya

Variables	Ethiopia			Kenya		
	Phillip-Parron test	p>t	Stationarity Status	Phillip-Parron test	p>t	Stationarity Status
coffee		0.00			0.00	
Export	156.63	0	Stationary	144.76	0	Stationary
Coffee		0.00			0.00	
Price	67.89	0	Stationary	49.98	0	Stationary
GDP	82.7	0	Stationary	113.18	0	Stationary

Appendix: 2 F-test results for Ethiopia and Kenya

Ethiopia						
	Coffee production		Coffee export		Coffee price	
	<i>Before FT</i>	<i>After FT</i>	<i>Before FT</i>	<i>After FT</i>	<i>Before FT</i>	<i>After FT</i>
Mean	3074.1	5673.6	1572.9	2737.18	70.8	75.8
Variance	300521.2	1226807	241254.1	130491	624.0	859.4
Observations	12	11	13	11	13	11
df	11	10	12	10	12	10
F	0.2		1.8		0.7	
P(F<=f) one-tail	0.000		0.2		0.3	
F Critical one-tail	0.4		2.9		0.4	
Kenya						
Mean	100.2	59.91723	1271.7	686.4	1313.8	721.5
Variance	2853.6	269.1342	104893.5	12067.5	69319.8	14461.6
Observations	12	13	13	11	12	11
df	11	2	12	10	11	10
F	10.6		8.7		4.8	
P(F<=f) one-tail	0.1		0.0		0.0	
F Critical one-tail	19.4		2.9		2.9	

Appendix: 3 Descriptive statistics for variables included in the macro-level regression equation

Variable Name	Unit of measurement	Mean	Std. Dev.	Min	Max	%
Eth participation	FT 1=if Ethiopia participates in FT, 0=otherwise	2084.8	755.662	734.4	3324.1	49
Eth coffee export	Tons	3	7	6	0	
Eth coffee price	USD cents/lb	73.10	26.57	26.88	145.46	
Eth GDP	USD	17.17	13.58	7.1	53.6	
Ken participation	FT 1=if Kenya participants in FT 0=otherwise	1031.4		524.7	1969.3	50
Ken coffee export	Tons	0	418.10	5	4	
Ken coffee Price	USD cents/lb	92.13	50.58	28.95	184	
Ken GDP	USD	24.34	15.29	8.2	60.9	

Appendix: 4 regression results for Ethiopia and Kenya

Ethiopia Regression result

Source	SS	df	MS	Number of obs =		
				26		
Model		4	.181170702	F(4, 18) = 2339.73		
Residual		18	.000077432	Prob > F = 0.0000		
Total		22	.033003481	R-squared = 0.9981		
				Adj R-squared = 0.9977		
				Root MSE = .0088		
Coffee Export	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
Coffee price	-1.79891	.0269964	-66.64	0	-3.597811	
Interaction of FT & GDP	0.545396	.0079484	68.62	0	.5286966	.5620945
GDP Log	-0.03364	.0141569	-2.38	0.029	-0.067284	
FT Dummy	-0.00495	.0080788	-0.61	0.548	-0.0219212 .0120245	
		.0284987				
_cons	3.336974	117.09		0	3.2771	3.396847

Regression results for Kenya coffee Export, Price and GDP

Variables name	Estimated parameter	Std. Err.	N	F	R-squared	Adj R-squared
FT Dummy	.0289181	.0255979	23	1034.16	0.9954	0.9945
Coffee price	.2380612	(.0049888)***	0.000			
Interaction of FT & GDP	-.0182813	.0213311	0.402			
GDP	-.0043391	.0176503	0.808			
Intercept	-.1724165	.0185289	0.000			

Appendix: 5 VAR results for Ethiopia and Kenya

VAR Result for Ethiopia

Vector auto regression

Sample: 1992 - 2015 No. of obs = 24

AIC = 24.22909

Log likelihood = -280.749

FPE = 1.16e+08 HQIC = 24.35931

Det(Sigma_ml) = 4.96e+07 SBIC = 24.71994

Equation	Parms	RMSE	R-sq	chi2	P>chi2
Eth Coffee Export	5	384.777	0.7873	88.81134	0.0000
Eth Coffee Price	5	23.3042	0.3607	13.5427	0.0089

Eth Coffee Export

	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]
L1.	.2844528	.1483549	1.92	0.055	-.0063175 .575223
_cons	446.3584	294.292	1.52	0.129	-130.4434 1023.16

VAR Result for Kenya

Vector auto regression

Sample: 1992 - 2015 No. of obs = 24

AIC = 23.54005

Log likelihood = -272.4806

FPE = 5.80e+07 HQIC = 23.67027

Det(Sigma_ml) = 2.49e+07 SBIC = 24.0309

Equation	Parms	RMSE	R-sq	chi2	P>chi2
Ken Coffee Export	5	233.825	0.7030	56.79976	0.0000
Ken Coffee Price	5	29.0132	0.6843	52.02404	0.0000

Ken Coffee Export

	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]
L1.	.6501257	.2078262	3.13	0.002	.2427938 1.057458
_cons	80.80831	124.8887	0.65	0.518	-163.9691 325.5858

Ken Coffee Price

	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]
L1.	.8824383	.1811404	4.87	0.000	.5274096 1.237467
_cons	-1.740777	15.49628	-0.11	0.911	-32.11292 28.63137

Appendix: 6 VIF test for multicollinearity for Melka Ballo Wore da

Variable	VIF	1/VIF
Interaction	2.04	0.491293
Coffee land Size	2.03	0.493689
Age	1.27	0.787235
Access to extension	1.17	0.851548
Irrigation	1.14	0.879397
FT participation	1.14	0.879846
Education	1.13	0.882223
Hired labor	1.11	0.904777
Sex	1.07	0.93151
Access to credit	1.07	0.937631
Livestock	1.06	0.943737
Household size	1.04	0.957407
Mean VIF	1.27	

Appendix : 7 Test for Model Specification result for Melka Ballo woreda

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.828 ^a	.686	.675	.2365704

ANOVA^b

Model		Sum Squares	df	Mean Square	F	Sig.
1	Regression	43.851	12	3.654	65.294	.000 ^a
	Residual	20.092	359	.056		
	Total	63.942	371			

Source	SS	DF	MS	F	Sig
Regression	<i>SSR</i>		<i>dfR</i>	<i>MSR</i>	<i>F</i>
Residual	<i>SSE</i>		<i>dfE</i>	<i>MSE</i>	<i>p-value</i>
Total	<i>SST</i>		<i>dfT</i>		

$$SST = SSR + SSE \rightarrow 63.942 = 43.851 + 20.092$$

$$dfT = \text{number of respondents} - 1 = 372 - 1 = 371$$

$$dfR = \text{number of independent variables} = 12$$

$$dfE = dfT - dfR = 371 - 12 = 359$$

$$R^2 = SSR/SST = 43.851 / 63.942 = 0.686$$

$$MSR = SSR/dfR = 43.851 / 12 = 3.654$$

$$MSE = SSE/dfE = 20.092 / 359 = 0.056$$

$$F = MSR/MSE \text{ (Test statistic)} \quad 65.294 = 3.654 / 0.056$$

Appendix: 8 Descriptive statistics for variables included in the micro-level regression equation

Variable Name	Unit of measurement	Mean	Std. Dev.	Min	Max	%
Income from coffee	Birr	4947.27	1879.23	1684	8362	
FT participation	1=if the HH participants in FT 0=otherwise					59 41
Sex of the household head	1=if the HH is Male headed 0=if the HH is female headed					88 12
Age	no of years	39.44	11.86	20	70	
Education	No of years of completed formal schooling	5.01	3.06	0	13	
Household size	No of family member	6.17	2.63	1	15	
Accesses to irrigation	1=if the HH has accesses to irrigation 0=otherwise					43 57
Coffee land size	Hectare	19.21	228.34	0.25	3	
Access to credit	1=if the HH has accesses to credit 0=otherwise					76 24
Access to extension	1=if the HH has Accesses to extension, 0=otherwise					81 19
Livestock	Tropical livestock unit	7.33	10.33	0.5	93	
Hired labor	Birr	40.68	207.19	0	2100	

Appendix: 9
Regression for Melka Ballo Woreda

Source	SS	df	MS	Number of obs = 374 F(12, 357) = 65.51		
Model	43.87822	12	3.65651798	Prob > F = 0.0000		
Residual	19.92531	369	.055813191	R-squared = 0.6877 Adj R-squared = 0.6772		
Total	63.80352		.172909281	Root MSE = .23625		
IM	Coef.		Std. Err.	t	P>t [95% Conf. Interval]	
FT participation	-0.02949		1.11	-	0.268	-.0817823 .0227964
Age	0.001207		1.03	-	0.302	-.0010908 .0035037
Sex	-0.06426		1.63		0.103	-.1415736 .0130562
House hold size	0.010025		.004778	2.10	0.037	.0006286 .0194219
Edu.	0.007815		.004276	1.83	0.068	-.0005945 .0162243
Coffee land Size	1.96E-05		0.18		0.856	-.0001924 .0002317
Livestock	0.032732		26.80		0.000	.0303302 .0351333
Interaction of FT & IM from coffee	1.42E-05		.0000765		0.853	-.0001362 .0001647
Access to credit	-0.0035		.029676	-0.12	0.906	-.0618621 .0548613
Access to extn.	0.016335		0.49		0.627	-.0497819 .0824522
Irrigation	-0.03511		1.33		0.186	-.0871818 .016962
Hired Labor	0.014346		0.68		0.497	-.0271276 .0558202
_cons	0.316199		3.65		0.000	.1456483 .4867496

Appendix: 10 TLU Model

Tropical livestock units are livestock numbers converted to a common unit (in 2005).

Calculating total number of insured livestock (Tropical Livestock Unit, TLU).

1 Cattle = 1 TLU.

1 Camel = 1.4 TLU.

.1 goat/sheep = 0.1 TLU

1 mules/donkey = 0.70 TLU

1 chicken (Poultry) = 0.01 TLU

1 camel = 1.00 TLU

Total number of insured livestock = # of cattle * 1 + # of camel * 1.4
+ # of goats/sheep * 0.1 + # mules/donkey * 0.70 + # chicken (poultry) * 0.01 + #
camel * 1.00 + # of goats/sheep × 0.1

For the total value of insured livestock, Total value of insured livestock is total number of livestock insured times the value of one unit of livestock (TLU), which is replacement value of 1 TLU. The value of 1 TLU is 3,226 ETB. Total value of insured livestock = total number of livestock insured × 3,226 ETB.

Appendix :11

Questionnaire

ADDIS ABABA UNIVERSITY

School of Graduate Studies

College of Social Sciences

Centre for African and Oriental Studies

Household Survey Questionnaire

This questionnaire is designed for the purpose of gathering primary household data on the **effect of Fair Trade Participation on smallholder coffee farmers in Harar, Eastern Ethiopia**. The questionnaire is intended for academic purpose only. The final paper will be written based on the data you provide. You are kindly requested to provide accurate information as much as possible. I confirm that all individual data will be treated confidentially and only aggregate and average information will be published.

I thank you very much in advance for your time and the valuable information you provide.

March 2016, Addis Ababa University

General Instructions to Enumerators

- Make a brief introduction on the purpose of the questionnaire to each farmer before starting the interview: get introduced to the respondent (greet them in the local way); get his/her full name; tell them yours; which institutions you are working for; and make clear the purpose and objective of the study. Please ask each question patiently until the respondent understands it clearly.
- Please fill in the respondent's reply/opinion precisely (don't put your own opinion).
- Please don't use technical terms while discussing with the respondents. Don't forget to record all units in the locally used unit of measurement.

Questions

Questionnaire # _____

Date: _____

District: _____ Name of Cooperative: _____

A. Household Characteristics

1. Name of Respondent: _____

1.1 Household headship status of the respondent
Spouse

1.1. Sex of the household head _____

1.2. Age of the household head: _____

1.3. Level of Education (in completed years of formal schooling): _____

1.4. Marital status of the household head: a. Single b. Married c. Divorced
d. Widowed

1.5. Are you a fair Trade Participant? Yes No

1.6. If "Yes", for how long? _____

1.7. Total Number of household members (family size) _____

Table 0-1 Household characteristics

Household characteristics					
S.N	Name of Family Member	Age	Relationship to the head	Sex	Level of Education (completed years of formal schooling)
7.1					
7.2					
7.3					
7.4					
7.5					
7.6					
7.7					
7.8					

1. Have any members of your family migrated a) abroad? _____
b) Elsewhere in Ethiopia? _____
2. Are you a migrant from elsewhere Yes_____ No_____ If yes, since when_____
3. Do persons aged 18 or under work on your plantation? _____
If “Yes”, for how many hours/week on average? _____
4. Do women work on the farm? _____
If “Yes”, for how many hours/week on average? _____

B. Assets

1. What is the size of your coffee plantation? (In “Qindii”) _____
2. Number of coffee bushes/trees outside of the plantation?

Table 0-2 Input use assessment for the year 2007 E.C.

	Quantity	Price
3. Fertilizer used		
4. Plant protection product (Chemical) used		
5. Seed procured		
6. Labour hired		
7.		
8.		
	YES	NO
9. Irrigation use		
10. Participation in Agricultural Extension Programs/access to agricultural extension services		
11. Access to Credit and Amount		
12.		

S.N	Kind of Livestock	Number
	Oxen	
	Cow	
	Young Bulls	
	Calves	
	Heifers	
	Sheep	
	Goats	
	Chicken	
	Horse	
	Mule	
	Donkey	

S.N.	Type of Motor Vehicle used in Production activities	Number
	Motor bicycle	
	Tractor	

C. Income

1. Off-farm income for the year 2007 E.C.

Source	Income (ETB)
1.1 Daily labouring	
1.2 Petty trading	
1.3 Charcoal/fuel wood sales	
1.4 Remittance	
1.5	
1.6	

2. Income from Coffee Bean Sales

Table 0-3 Coffee quality assessment for the year 2007 E.C.

	Washed coffee			Unwashed coffee		
	Qty (kg)	Price/ kg	Sale Income	Qty (kg)	Price/ kg	Sale Income
Grade 1						
Grade 2						
Grade 3						
Small coffee sales outside coop						

1. Income from other farm produce for the year 2007 E.C.

Type of Crop	Qty Sold (Kg)	Unit price (ETB)	Total Income
1.7 "Khat"			
1.8 Maize			
1.9 Banana			
1.10			
1.11			
1.12			
1.13			

DECLARATION

I, the undersigned, declare that this is my original work and has not been presented for a degree in any other university and that all sources of materials used for the thesis have been duly acknowledged.

The examiners' comments have been duly incorporated.

Declared by:-

Name: Eskedar Tadesse _____

Signature: _____

Date: _____

Confirmed by Advisor:

Name: Kidist G/Sillasie (Phd) _____

Signature: _____

Date: _____

Place and date of submission:
