



Food and Agriculture Organization
of the United Nations

Analysis of price incentives for coffee in Ethiopia for the time period 2005–2012

April 2014

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This technical note is a product of the Monitoring and Analysing Food and Agricultural Policies (MAFAP) programme. It may be updated as new data becomes available.

MAFAP is implemented by the Food and Agriculture Organization of the United Nations (FAO) in collaboration with the Organisation for Economic Co-operation and Development (OECD) and national partners in participating countries. It is financially supported by the Bill and Melinda Gates Foundation, the United States Agency for International Development (USAID) and FAO.

The analysis presented in this document is the result of partnerships established in the context of the MAFAP programme with the Ethiopian Development Research Institute.

This technical note was prepared by Tadesse Kuma Worako of the Ethiopian Development Research Institute, with support and contributions from Alban MasAparisi and Barthélemy Lanos of the FAO.

For more information: <http://www.fao.org/in-action/mafap>

Recommended citation:

FAO. 2014. *Analysis of price incentives for coffee in Ethiopia*. Technical notes series, MAFAP, by Kuma Worako, T., MasAparisi, A. and Lanos B., Rome.

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SUMMARY OF THE NOTE

Product: Coffee

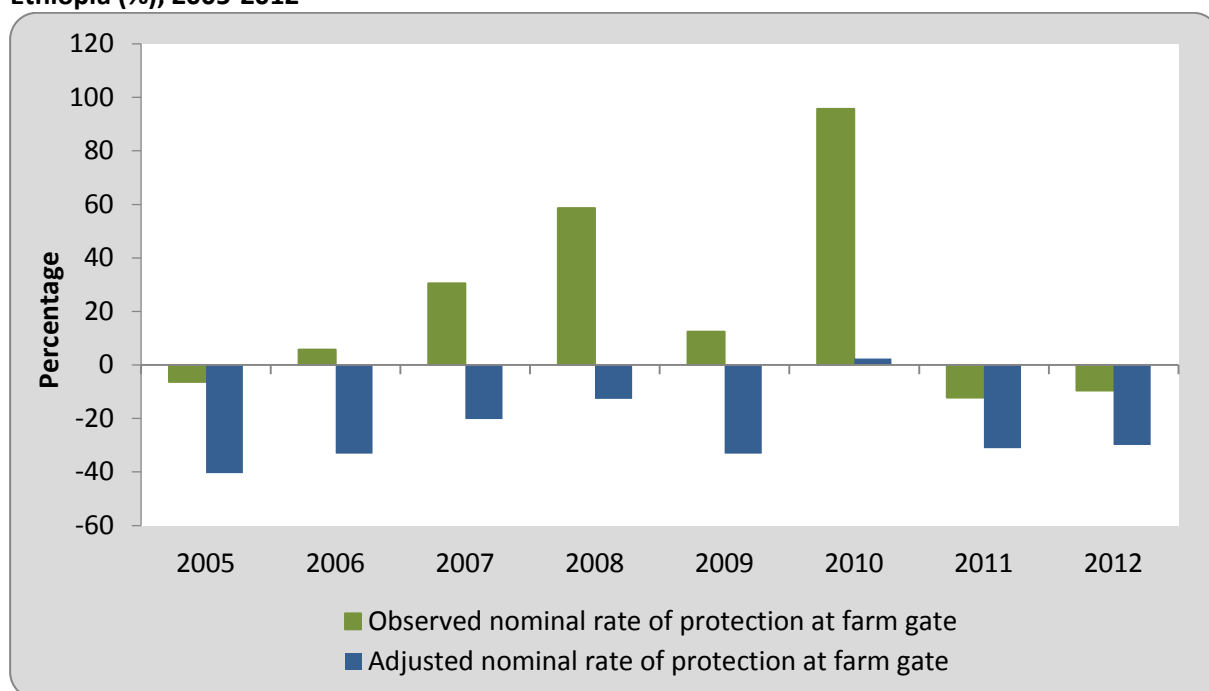
Period analyzed: 2005-2012

Trade status: Exported in all years

COMMODITY CONTEXT

- As the birthplace of *coffee Arabica*, Ethiopia is still a major producing country of high-value coffee. It has accounted, on average, for about 5 percent of gross domestic product (GDP), 10 percent of total agricultural production as in 2011, the country produced around 5 percent of world production and 39 percent of the total production of coffee in Sub-Saharan Africa (ICO, 2012).
- Coffee is considered the main export crop in the country, providing thirty-one percent of Ethiopia's foreign exchange earnings.
- Over four million small-scale farmers produce ninety-five percent of the total coffee output, and twenty-five percent of the Ethiopian population directly or indirectly depends on the coffee value chain for their income and employment.
- Forty-eight percent of coffee produced in Ethiopia is locally consumed, reflecting the commodity's cultural importance in the country.

Figure 1. Observed and adjusted Nominal Rate of Protection at farm gate level for coffee in Ethiopia (%), 2005-2012



Source: MAFAP, 2014

The observed Nominal Rate of Protection (NRP, green bar) in the graph above measures the effect of policy distortions and overall market performance on price incentives for producers. The adjusted NRP (blue bar) captures the same elements as the observed NRP, in addition to any market distortions resulting from inefficiencies in the commodity's value chain and exchange rate misalignment.

DRIVING FACTORS

- Our results show that there are mainly incentives for wholesalers and producers in the observed domain. This has been due to lucrative coffee prices in the international market, coupled with improved infrastructure and market information system in the country in recent years. Furthermore, strong local demand combined with an increase in per capita income may also contribute to incentives facing producers and wholesalers. Prices of Jimma coffee were sometimes over-valued at the point of competition due to artificial shortages created by suppliers speculating for better prices in the future. This over-valued price created an incentive at the wholesale level and was transmitted to producers.
- Market inefficiencies and policy distortions are considerable and arise from 1) overvalued exchange rate, 2) high level of impurities and weight losses 3) excessive margins from traders over producers, and 4) high transport and marketing costs. This suggests that the actors in the coffee value chain could benefit from high prices without having to resort to oligopolistic trade practices. Lower exchange rate, efficient value chain with a good grading system incurring less impurities and weight losses would bring more room to increase prices. A better connection between producers and exporters would also help raise income for producers of high-value coffee.
- Trade value has increased since 2008-2009 due to high world prices, and the government of Ethiopia needs to ensure this opportunity is seized in order to foster economic development down to the smallholder level, which is currently the main producing level for coffee by far. A sustainable and healthy marketing system is needed in order to encourage this.

RECOMMENDATIONS

In order to address the above-mentioned issues driving the price incentives/disincentives environment for coffee supply in Ethiopia, policy work could include:

- Support to market infrastructure development to limit weight loss and reduce transport fees along the value chain. This would allow producers to benefit from the promotion of bulk transport without losing the traceability of their coffee. This will appeal more to the producers who continue to trade their coffee through cooperative unions that have the power to export directly.
- Reinforcement of the grading certification for coffee under the ECX system to ensure its high value and prevent impurity losses and adulteration of coffee; Improving the transparency and objectivity of grading would strengthen the relationship between traders ECX.
- Connection improvement between producers and exporters to ensure higher market power for producers and to limit oligopolistic practices from coffee suppliers.
- Providing proper extension services on coffee production with regards to widespread coffee wilt, coffee berry disease (CBD) treatment and risk management of weather related shocks.
- Intensification of certification process and grading in order to improve the traceability and thus, the added value of the exported coffee.
- Refinement of the currency valuation could ensure better revenues for wholesalers.

1. PURPOSE OF THE NOTE

This technical note is an attempt to measure, analyze and interpret market incentives and disincentives for coffee in Ethiopia over the period 2005-2012. This note is a technical document and as an input for the MAFAP Ethiopia Country Report.

For this purpose, yearly averages of domestic farm gate and wholesale prices are compared with reference prices calculated on the basis of the price of the commodity in the international market. The price gaps between reference prices and domestic prices along the commodity's value chain indicate the extent to which incentives (positive gaps) or disincentives (negative gaps) were present at the farm gate and Point of Competition level. The price gaps are expressed in relative terms as a percentage of the reference price, referred to as the Nominal Rate of Protection (NRP). These key indicators are used by MAFAP to assess the effects of policy and market performance on prices.

This technical note begins with a review of the commodity's production, consumption/utilization, marketing and trade, value chain and policy context (Chapter 2). It also provides a detailed description of how key data elements were obtained and indicators were calculated (Chapter 3). The indicators were then interpreted in light of existing policies and market characteristics (Chapter 4), and key policy recommendations were formulated on the basis of this interpretation (Chapter 5). Finally, the note concludes with a few main messages, limitations of the analysis and areas identified for further research to improve the analysis (Chapter 6).

The results and recommendations presented in this analysis of price incentives can be used by stakeholders involved in policy-making for the food and agriculture sector. They can also serve as input for evidence-based policy dialogue at the national, regional or international level.

This technical note should not be interpreted as an in-depth value chain analysis or detailed description of the commodity's production, consumption/utilization, marketing and trade or policy context. All information related to these areas is presented merely to provide background on the commodity under review, help understand major trends and facilitate the interpretation of the indicators.

All information in this technical note is subject to review and validation.

2. COMMODITY CONTEXT

Ethiopia is the birthplace of coffee Arabica. More genetically diverse strains of C. Arabica exist in Ethiopia than anywhere else in the world, which has lead botanists and scientists to agree that Ethiopia is the center for origin, diversification and dissemination of the coffee plant (Mekuria T., et al., 2004). The high genetic diversity of Ethiopian coffee is considered to be of great value both nationally and internationally, as it represents a pool to develop improved breeds of coffee. There are currently hundreds of types of coffee under cultivation, each with varying aromas, tastes or colors, especially in the Southwestern part of the country. Ethiopian coffee ranks highly in intrinsic quality of the bean due to the diverse agro-ecological zones and immense genetic diversity aforementioned. It is also de facto wild and organic due to predominant subsistence and traditional production systems (Kufa, 2006). The main category of coffee produced in Ethiopia is Arabica coffee, with no production of Robusta¹.

Coffee cultivation plays a vital role both in the cultural and socio-economic life of the nation. Ninety-five percent of the total coffee output is produced by over four million small-scale producers (Arslan and Reicher, 2011, CSA, 2012), and almost 20 percent of the Ethiopian population depends either directly or indirectly on coffee production, processing, marketing and transporting (USDA, 2012). The recent innovation of catering traditional coffee in most towns and cities has created jobs for a large number of youth. It must be noted that Ethiopia is also a coffee consuming country, with forty-eight percent of production being consumed domestically, more than any other coffee producing country (USDA, 2012 and Worako, 2008).

PRODUCTION

In 2011, Ethiopia produced around 5 percent of the world's production and 39 percent of the total production of coffee in Sub-Saharan Africa (International Coffee Organization, 2012). It is the first coffee-producing African country and stands fifth in the world. Coffee is currently providing 31percent of Ethiopia's foreign exchange earnings (CSA, 2012). Despite its high value, it has to be noted that coffee production is not very important in terms of area cultivated. In 2011, it held only 3.8 percent of Ethiopia's cultivation area, corresponding to 515,882 hectares (CSA, 2012). Overall, it is estimated that there is a potential 6 million hectares of cultivable land suitable for coffee production (Mekuria et al., 2004).

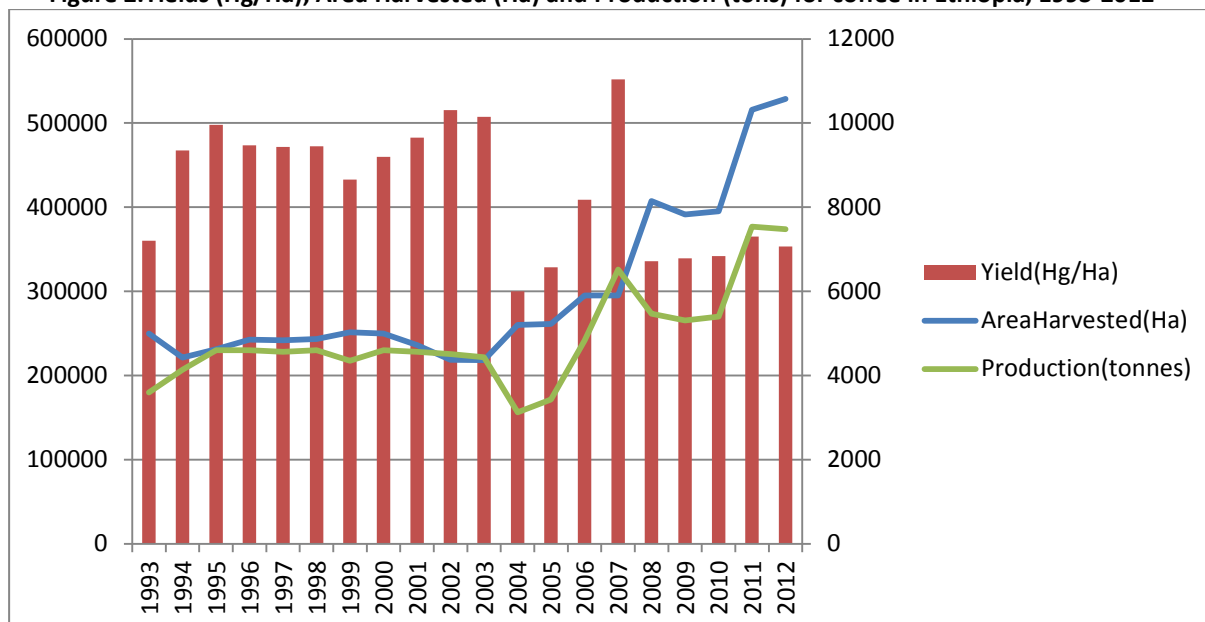
Ethiopia's coffee production is the fastest growing in the world, with an estimated annual average growth rate of 12 percent, compared to 7, 5 and 3 percent for Brazil, Vietnam and Colombia, respectively (Bekele, 2011)². Ethiopia's annual average coffee production was approximately 275,000 tons over the 2005-2010 period. Total coffee production has been improving steadily during the past twenty years, with a 110 percent increase between 1993 and 2011. After a peak production of 325,800 tons in 2007, however, the volume of coffee produced dropped sharply, although the level of area cultivated continued to increase. The yields have therefore strongly diminished. An explanation could be the adverse weather that damaged the crops (Promar Consulting, 2011) and a lack of proper extension services in this case. Additional explanation on why production stalled after 2007 is that a new marketing system was introduced by the government, the Ethiopian Commodity

¹ Arabica and Robusta are two different species of coffee, Arabica being considered a higher-quality coffee.

² For the 2000-2008 period, using yearly averages.

Exchange, prompting wholesalers to hold on to their supplies to see if the system would work, and wait for better prices. Also, exports were hit in 2008 for various reasons (see Marketing and Trade section), which possibly trickled down to the offer side, i.e. production. In 2011, coffee production rose sharply again, increasing from 270,000 tons to 376,823 tons.

Figure 2. Yields (Hg/Ha), Area Harvested (Ha) and Production (tons) for coffee in Ethiopia, 1993-2012



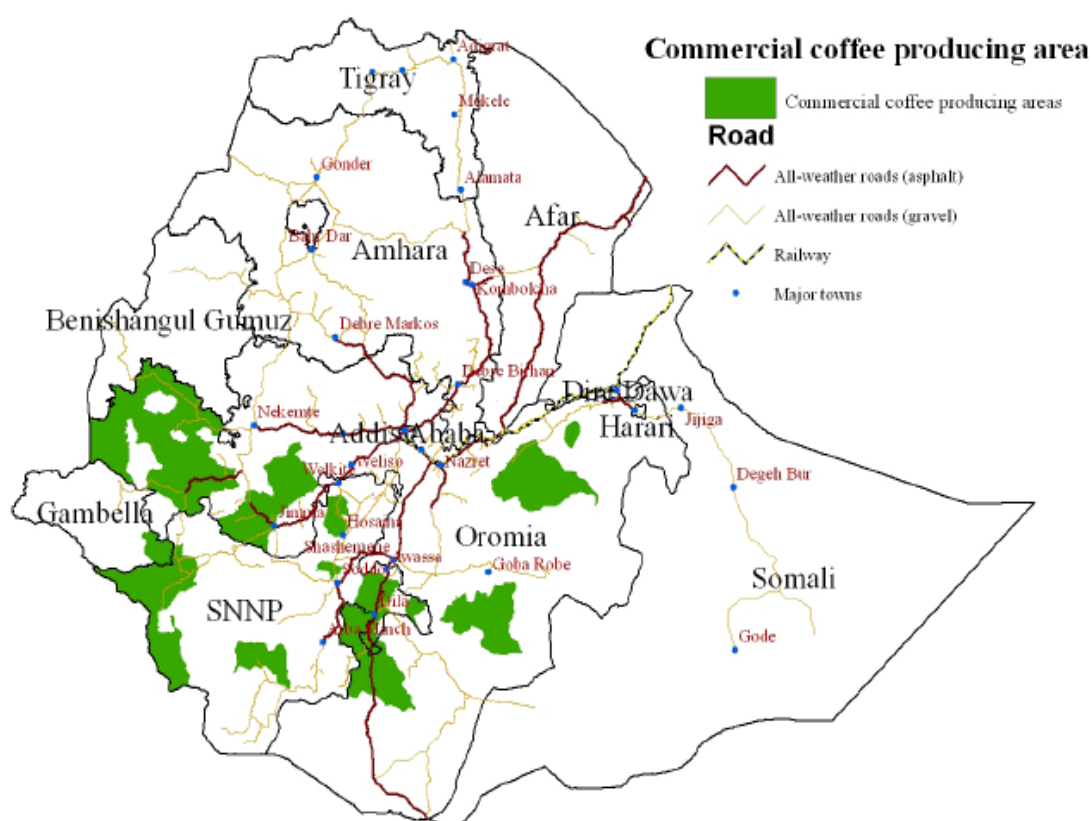
Source: FAOSTAT, 2012 and CSA, 2012 for the year 2011

Coffee is mainly grown by smallholder farmers on less than 1 hectare of land, and earning less than a dollar per day (McCarthy, 2007). Small-scale farmers produce coffee through a mixed farming system (McCarthy, 2007), which accounts for 90 percent of coffee production, whereby forest and semi-forest, and plantation systems contribute for 5 percent (Mekuria 2004). Coffee produced by small-scale farmers typically yields 500 to 600 kg per hectare, while commercial plantations and state farms can yield up to 1200 kg per hectare (Dejene, 2011, from CSA).

There are several coffee types in Ethiopia. Coffee cultivation takes place at various altitudes, ranging from 550-2,750 meters above sea level, albeit the bulk of coffee is produced in the eastern, southern and western parts of the country, which have altitudes ranging from 1,300 - 1,800 masl (ECEA, 2012). The optimal temperature for coffee Arabica is considered 15-25°C. All of the coffee-growing regions have fertile, friable, loamy soils, with a depth of at least 1.5 meters.

Almost 95 percent of Ethiopian coffee is produced in the administrative zones of Keffa, Sidamo, Ilubabor, Wellega, Gedeo and Harerghe (Hailu, 2011). These zones correspond to the Southern Nations and Nationalities Peoples Regional State (SNNPR) and Oromia Regional State. The four major types of commercial coffee are Jimma in the Oromia and SNNPR region, Sidama and Yirgacheffe in the SNNPR region, and Harar in the Oromia region. The names correspond to the cities around which they are produced. These four coffee trademarks represent around 70 percent of total coffee exports registered by the Ethiopian Revenue and Customs Authority from 2004 to 2009 (Arslan and Reicher, 2010).

Figure 3: Major commercial coffee producing areas



Source: Worako, 2008

In most coffee-growing areas of Ethiopia, the harvesting period for red coffee beans falls between August and January. Coffee harvesting is largely done through family labour and coffee is then processed with two different methods: dry and wet. Dry processing means that coffee cherries are sun-dried to extract the beans. This traditional method is used for 73 percent of coffee harvested (TayeKufa, 2006 in Hailu, 2011) and produces “unwashed” coffee, which is considered to be of a lesser quality. The wet processing method is more costly and complex and produces “washed coffee.” This method implies that the coffee is “pulped, fermented and washed to remove its sticky mucilage” (NegaritGazeta, 2008). Washed coffee also fetches about 20 percent higher prices compared to sun-dried coffee of the same type.

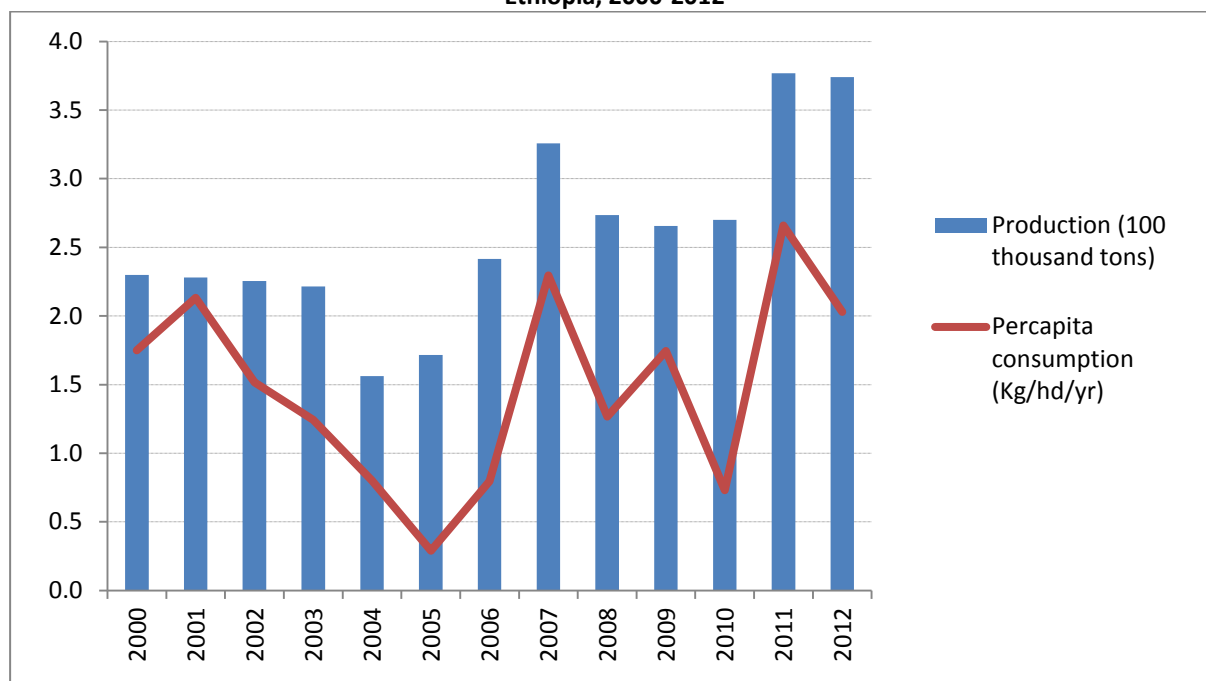
CONSUMPTION/UTILIZATION

It is estimated that nearly 50 percent of coffee produced in Ethiopia is self-consumed (USAID, 2012). Indeed, a special feature of Ethiopian coffee production is that domestic consumption is considerably high, as coffee is a traditional beverage throughout the country (Hailu, 2011). Most of the coffee that is locally consumed originates from the coffee growing areas of Shoa, GamuGofa, Arsi, Gojjam, Bale and Wello. These areas produce mainly for domestic consumption and are thus to be differentiated from export-oriented coffee production areas.

Coffee consumption has remained almost unchanged during the 1990s, being consumed at an annual average of 1.4 kg per person from 1993 to 2002 (Figure 4). Nonetheless, the level of consumption strongly decreased *from 2003, reaching its lowest level in 2004* at 0.5 kg per year, which then

represented 25 percent of the annual production. Notwithstanding, per capita consumption of coffee rose again to more than 2 kg per person in 2007, back to the level that prevailed in the 1980s. The drop in consumption can be associated with the production in the country that diminished during the same period due to causes aforementioned (see Production section). Other reasons include increasing local prices of coffee and the changing consumption habits of Ethiopian youth. It has also to be noted that sources differ on the amount of coffee consumed within the country, with a rate of 3 kg per person/year being reported for 2010 by Hailu (2011), whereas the consumption rate never exceeds 2.2 kg per person/year in the FAOSTAT database.

Figure 4. Total coffee consumption (kg/capita/yr, in blue) and production (hundred thousand tons, in red), in Ethiopia, 2000-2012

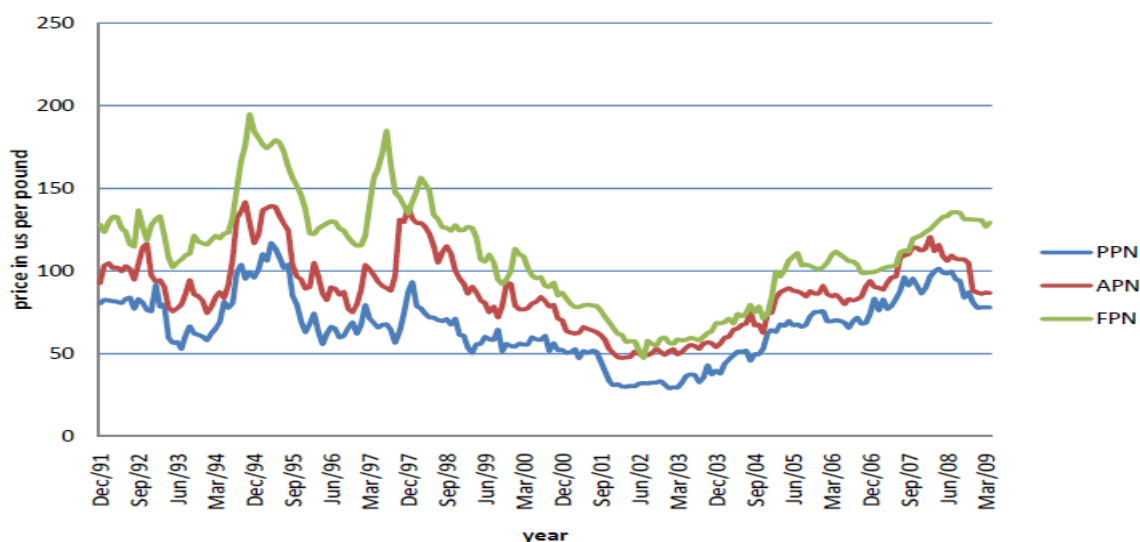


Source : FAOSTAT, 2012

MARKETING AND TRADE

Coffee is the main export crop in Ethiopia. In 2012, it was providing 31 percent of Ethiopia's foreign exchange earnings (CSA, 2012), down from 65 percent a decade ago, which is due to the slump in coffee prices since the mid-1990s (Mekuria et al., 2004).

Figure 5: Coffee price variations in Ethiopia, 1991-2009, for producer (PPN), auction (APN) and international price (FPN), in US per Pound



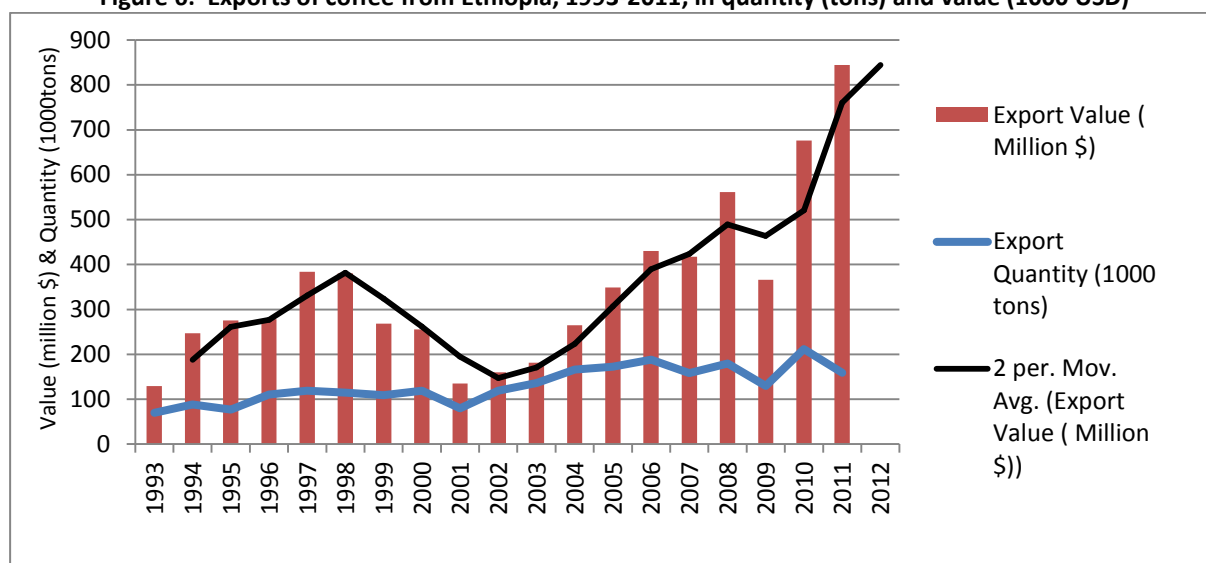
Source: Seyoum, 2010

However, prices have been slightly recovering since 2003. Hence, despite the price slump from the mid-1990s to 2002, exports tripled in volume from 1993 to 2009, while being multiplied by 5 in value during the same period, reaching almost 700 million US dollars in 2009 (FAOSTAT).

This can be partly attributed to policy measures such as the devaluation of local currency, removal of taxes on coffee exports, global coffee price situation and improved roads and marketing infrastructure (Worako et al., 2008). As can be seen when comparing

Figure 5 and Figure 6, growth in coffee export earnings in Ethiopia are highly linked to international prices or windfall gain, rather than improvement in production, quality or marketing efficiency.

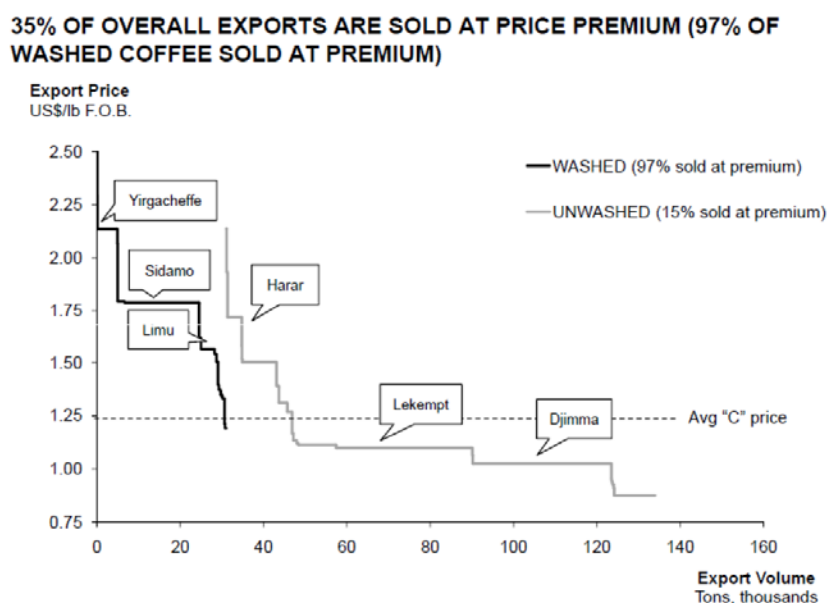
Figure 6: Exports of coffee from Ethiopia, 1993-2011, in quantity (tons) and value (1000 USD)



Source : FAOSTAT, 2012

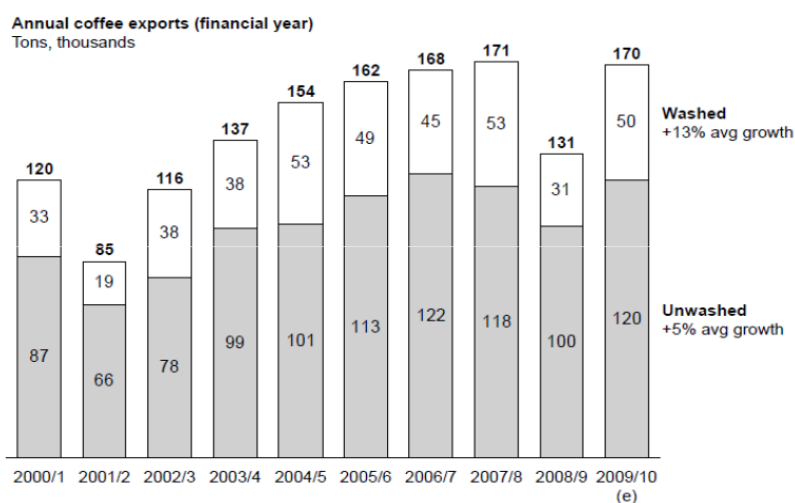
There is room to improve coffee export earnings. Ethiopia's coffee exports are indeed still largely based on lower quality coffee. The low quality comes from the predominantly traditional way of producing, harvesting, storing and processing most of the coffee in Ethiopia. Each of these stages incurs a loss of quality compared to high-standard coffee. This is especially true with the processing stage: 73 percent of coffee exported is "unwashed," even though washed coffee has a much higher value (see Figure 6). However, unwashed coffee exports increase at a faster pace than those of washed coffee (see Figure 7).

Figure 7: Volumes of exported washed and unwashed coffee in Ethiopia (thousands of tons) with FOB prices (USD/lb), 2011



Source: Bekele, 2011

Figure 8: Annual exports of washed and unwashed coffee in Ethiopia, thousands of tons.



Source: Bekele, 2011

Certified coffee is also high-value. There are two main certifications. The first one is organic coffee, which corresponds to coffee that was produced so that the “biological value of coffee harvested is equal to the value returned to the soil (Boot, 2011).” Ethiopia is the second largest exporter of organic coffee in the world, behind Peru. In 2005, Ethiopia shipped 19 percent of the world’s organic coffee exports, representing some 9,000 tons. Organic coffee accounts for 6percent of total Ethiopian coffee exports (Kodama, 2007). The certification for such coffee is low cost and easy to access for Ethiopian producers, all the more because 90percent of Ethiopian coffee is already organic (Mekuria, 2004). This explains the high share of organic coffee in Ethiopian exports, which is bound to increase.

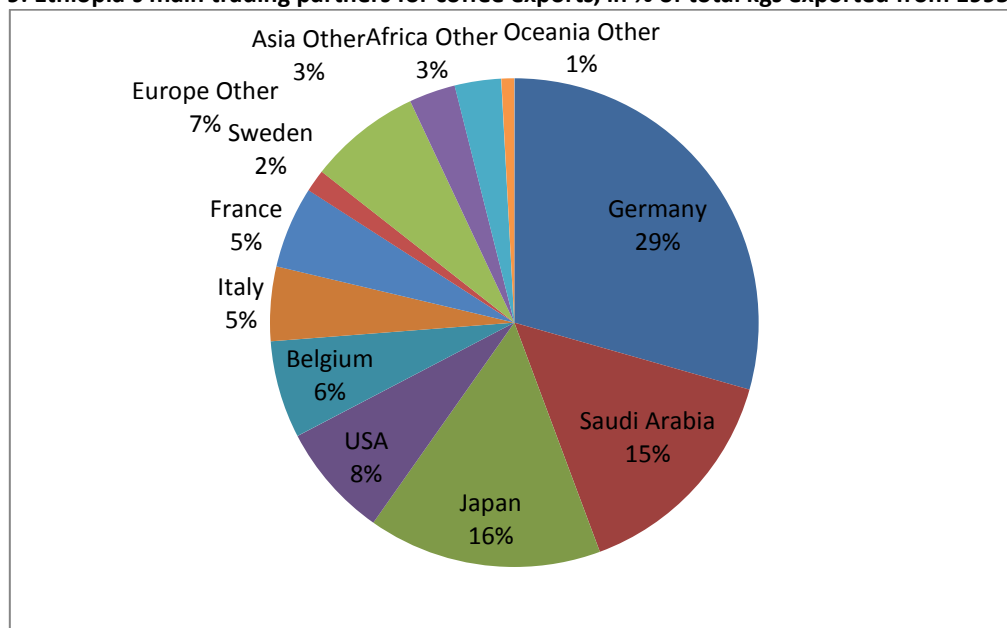
The second most used certification is Fair Trade. Fair Trade originally refers to the Fairtrade Labeling Organizations International, a program formalized in 1997 in Germany (Boot, 2011). The term is now used as a label by a large network of companies following a similar approach. Fair Trade implies granting producers a decent price for their product, allowing them to fulfill basic needs such as access to water or education.³ Fair trade exports represent 2 percent of total coffee exports in Ethiopia, as it is more difficult to obtain the label based on the floor price paid to the farmer, rather than on its mode of production.

It has to be noted that not all of trade is taken into account in the official statistics. A substantial volume of coffee is also smuggled through parallel markets, especially in the Western, Northern and Eastern borders. Although data is missing on informal trade, it is known that in 2006 about 15 percent of coffee produced in the Southwestern and Western zones were smuggled via Sudan. Overall, when self-consumption and smuggling are added up, less than 40 percent of the total national production of coffee is exported through official export markets (Worakoet al., 2008).

Ethiopia’s main trading partners from 1995 to 2011 were Germany (29 percent), Saudi Arabia (15 percent) and Japan (16 percent). However, Japan has strongly reduced imports since 2007, after traces of pesticides were discovered on packing bags. Exports to the United States are also on the rise, their share of total exports increasing from 4 percent to 8 percent between 2000 and 2011.

³ The definition provided by the four main Fair Trade networks is the following: “Fair trade is a trading partnership, based on dialogue, transparency, and respect, that seeks greater equity in international trade. It contributes to sustainable development by offering better trading conditions to, and securing the rights of, marginalized producers and workers – especially in the South”

Figure 9: Ethiopia's main trading partners for coffee exports, in % of total kgs exported from 1995 to 2011



Source: UNCOMTRADE, 2012

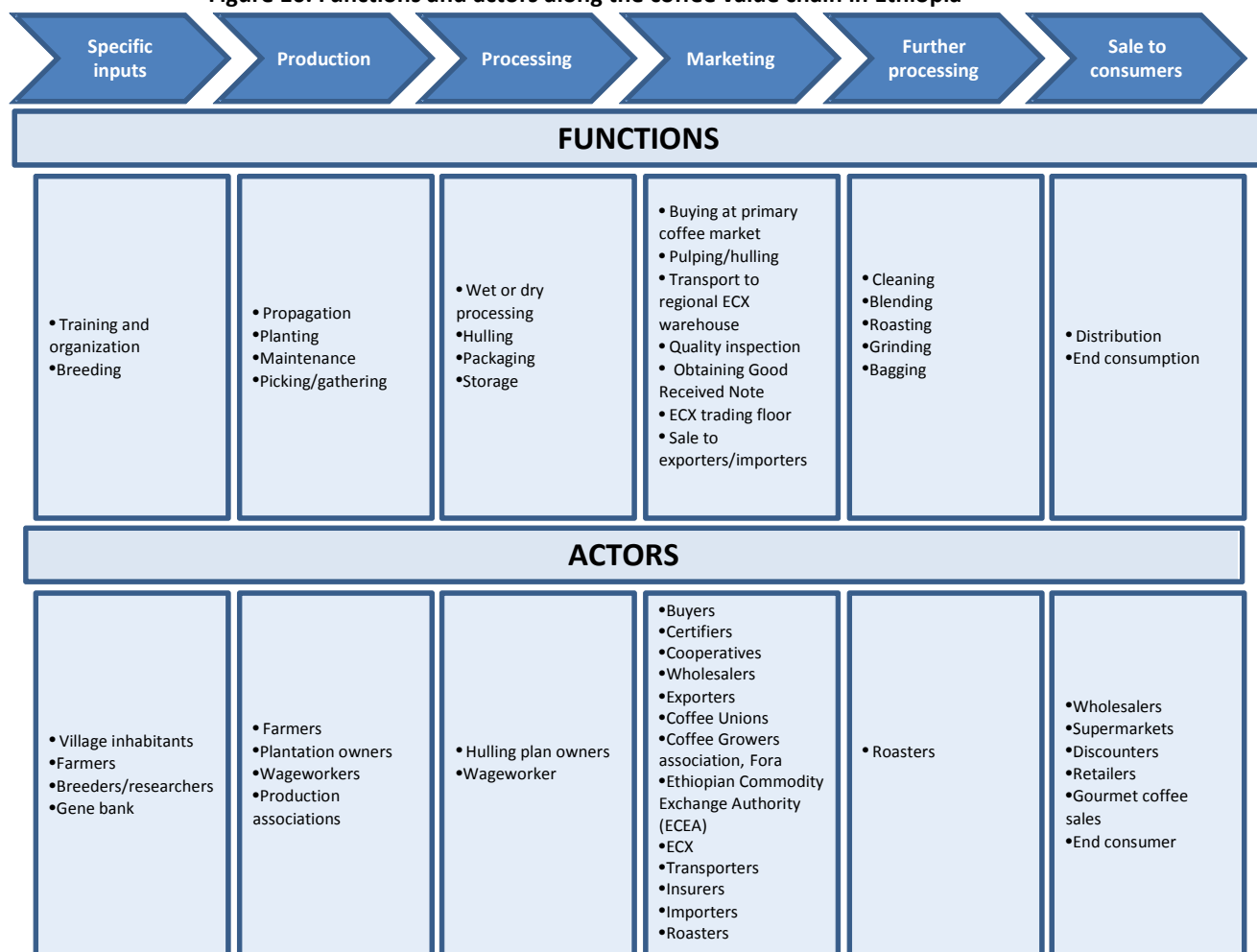
DESCRIPTION OF THE VALUE CHAIN

Coffee trees are being grown to produce coffee cherries (McCarthy, 2007), either by smallholders (90 percent) or on plantations (5 percent). Five percent of coffee cherries are also being picked from wild coffee trees in the forest. Coffee cherries are therefore picked and gathered by either producers or wagedworkers, and are then sold to cooperatives, wholesalers (*akrabies*), or collectors (*sebsabies*). Cherries can be pre-processed by producers, but cooperatives or private operators always intervene in the processing of coffee cherries.

Two methods are being used: wet and dry.

- i. Dry processing is the traditional method because it is cheap and generally made by the producers themselves and represents more than 73 percent of coffee processing in Ethiopia (TayeKufa, 2006 in Hailu, 2011). It results in “unwashed” coffee, largely traded through ECX (accounting for 60 percent of ECX transactions). The berries are left to dry under the sun, which can take several weeks. Producers undertake the drying themselves, unless they sell the cherries as “fresh cherries.” Once the cherries are dried, producers then sell them to collectors, wholesalers or cooperatives. These actors then hull the cherries, so as to remove the outer pulp, and obtain green beans that can be sold on the outer market. Jimma coffee, chosen for the MAFAP analysis (see Data Requirement section), is mainly processed through this method.
- ii. Wet processing uses a costly method that requires high quantities of water and appropriate machinery. It also needs fully ripe cherries. Wet-processing results in “washed” coffee, which is considered to be of a premium quality. In a few cases, wholesalers or cooperatives either own or rent pulperies, and process fresh cherries bought from the producers or the collectors. Exporters also own processing plants where they reprocess coffee so as to reach premium standards

Figure 10. Functions and actors along the coffee value chain in Ethiopia



Source: Authors, based on Böhnert, E. & N. Dieter, 2006

Coffee beans are then presented to the Coffee Liquoring Unit by wholesalers and unions. The CLU is a governmental agency that performs quality checks on arrival at the export market and also grants export clearance. It holds regional offices and warehouses all over Ethiopia to facilitate control and marketing.

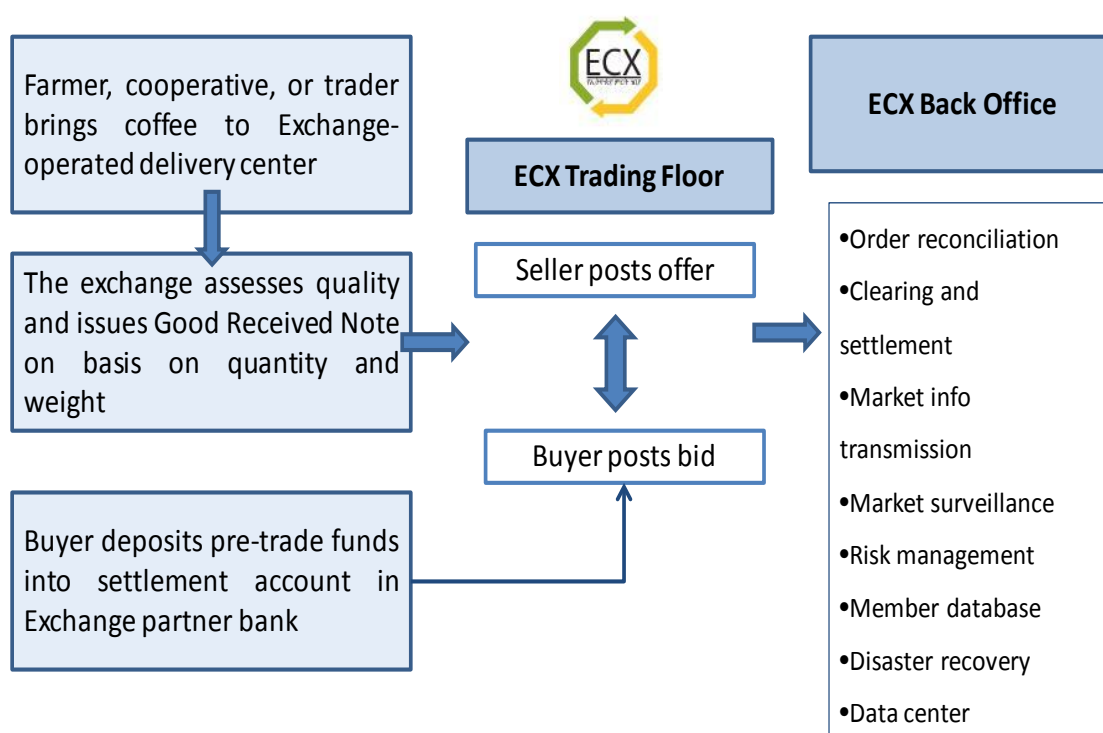
There are three pathways for processed beans to be sold to the export market:

- i. Since 2008, most coffee beans are sold through the Ethiopian Commodity Exchange market (ECX), which was handling 90 percent of the exports in 2012. This market was set up by the government in 2008 to organize coffee trading in the country. Members include producers, cooperatives, wholesalers and exporters. It is compulsory for traders and exporters to go through the ECX, unless they are cooperatives, producers, or export straight from their commercial plantations⁴. Law obliges farmers to sell their produce in primary markets selected by the Ministry of Trade, from where traders and cooperatives buy and transport it. They then have to take the coffee beans to a regional ECX warehouse, where they are standardized by region and graded by the CLU. Then the Exchange delivers a Good Received

⁴ According to Ethiomedia, the punishment for illegal trading could reach up to 20-year prison term and 50 000 birr fine.

Note to traders, which allows them to meet with exporters at the ECX trading floor in Addis-Ababa. Wholesalers and exporters must pay a fee to get a seat at the ECX trading floor, and exporters must be Ethiopian. Also, they cannot taste the coffee before buying, and the coffee is not traceable to a specific farm or sub-region. Indeed, coffee is stocked and sold by quality grading rather than by the identity of the depositor (USAID, 2010). Once exporters have bought the coffee, they need a clearance from the CLU, after which they can then sell to international companies. Before 2008, coffee beans were either traded directly by wholesalers to licensed exporters, or through an auction market run by the former state agency, the Coffee and Tea Authority. Coffee quality was brought to Addis-Ababa to be inspected for quality, and then traded. However, trade through the Addis-Ababa auction market was not compulsory.

Figure 11. Simplified representation of ECX system



Source : Authors from USAID, 2010

The ECX system has brought two-sided changes to coffee marketing in Ethiopia. On one hand, it has rationalized trade and marketing within the country, with more competitive prices, and hence, lower margins for traders and unions. On the other hand, ECX has faced criticism from various actors (traders, NGOs, researchers) due to two main reasons. The first one is that ECX imposes excessive restrictions by making trade through ECX regional warehouses compulsory. The multiple steps incurred at the marketing stage of the value chain create bottlenecks, due to poor service delivery. Moreover, exporters are not allowed to store more than 500 tons of coffee for more than two months, which restricts the possibility to wait for a better signal. The second reason is that trade through ECX hinders traceability of coffee beans, and destroys the privileged relations that some producers had established with high-quality coffee importers from abroad. It therefore acts as a deterrent

for the high-quality coffee niche industry, which represents one of Ethiopia's comparative advantages. As a consequence, cooperative unions often sell directly to export markets (as they are allowed to), rather than through ECX.

- ii. Direct exports are another pathway to trade coffee in Ethiopia. Unions have been allowed to bypass the auction market and sell directly to international companies since 2001, and indeed seldom go through the auction market. There are six unions, four of which are larger scale: Oromiya, Sidama, Yirgachefe and Kaffa. The two others are Tepi and Bench Maji. Unions⁵ buy coffee from primary cooperatives, and then sell it to international companies, giving back 30 percent of the dividends to the cooperatives and 70 percent to the farmers (Kodama, 2007).

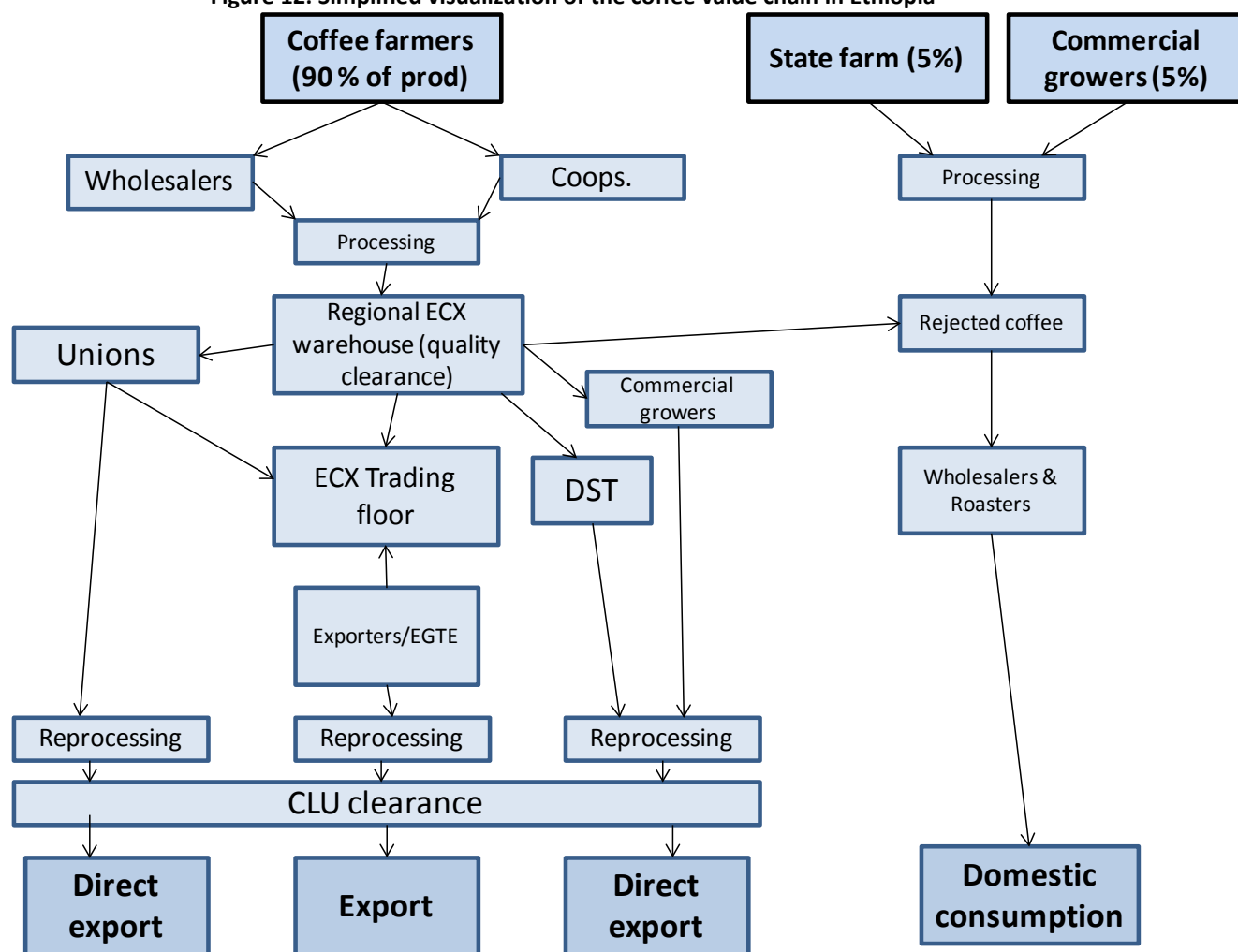
Unions generally sell specialty coffee; for instance, in the year 2005, 93 percent of coffee bought by the Yirgachefe Union was Fair Trade or Organic (Kodama, 2007). Unions are encouraged to sell specialty coffee because they can have a direct relation with the buyer, making their coffee more traceable than on the auction market. However, many primary cooperatives do not sell their coffee through unions. This is either because the coffee produced exceeds the amount the unions are able to sell, or because the quality level of the coffee is unsatisfactory. Thus, the price at the auction market is better than what the union can offer (Kodama, 2007). In 2005, cooperatives belonging to the Yirgachefe Union sold around 87 percent of their coffee through the exchange market, rather than through the union (Kodama, 2007).

Furthermore, cooperatives themselves do not capture the bulk of coffee production. It is estimated that only 40 percent of coffee producers are members of cooperatives (Kodama, 2007), meaning that most of the production goes through private traders and not cooperatives. Since 2008, producers have also had the possibility to sell directly to international companies, yet few producers have the financial means to bypass traders and cooperatives. Exporters are also allowed to export directly if the coffee comes from their plantations. This remains minor (around 5 percent), although it is gaining more importance.

- iii. Coffee that has been rejected by the CLU, whether coming from commercial plantations or smallholders, is usually resold to wholesalers and small roasters. They process and sell it to retailers, who then sell the coffee to national consumers in their turn.

⁵ Unions refers to "Coffee Farmers Cooperative Unions"

Figure 12: Simplified visualization of the coffee value chain in Ethiopia



Source: Authors, from Dejene, 2011

POLICY DECISIONS AND MEASURES

From 1993 to 2002, the government had issued a number of proclamations and regulations that eventually led to the elimination of all taxes on coffee exports. Some of the policies adopted during the period include: the removal of entry barriers (Pro. No. 70/1993), the consolidation of all taxes and duties levied on coffee exports into a single tax family (Pro.No. 99/1998), the abolishment of the quota system at auction, allowing private traders to trade-in washed coffees, permitting ‘akrabis’ (suppliers) and exporters to sell coffee domestically at market-determined prices, and so on.

The government did not adopt specific price measures, such as taxes or bans, from 2005 to 2012. However, it took an important policy step in order to restructure the value chain in 2008. Indeed, the government issued Proclamation No. 602/2008, with the objective to enable coffee producers to improve their incomes and have better regulation of the coffee market. This proclamation set up the new Ethiopian Commodity Exchange market, with the obligation for exporters and wholesalers to trade through the institution. It also made it compulsory to have the coffee checked for quality by the Coffee Liquoring Unit, which also grants all export clearances (see Description of the Value Chain); only delivered if all the services of the export supply chain are certified by the government. Globally, the government is pushing for a scaling-up of Ethiopian coffee quality, and for Ethiopian

producers to target the high quality niche market. It backed the Ethiopian Coffee Quality Improvement Project (an International Trade Centre project) from 2004 to 2010, which was designed to improve local coffee quality in the country, mainly by building decentralized laboratories and providing capacity building. There are also limited attempts to produce improved coffee seeds through the Jimma Research Center (Kufa et al., 2011). Detractors of the ECX system claim, however, that the efforts to target the high quality market are undermined by ECX's opaque system (see Figure 11).

Finally, in November 2011, a Directive from the Ministry of Trade imposed traders to transport their coffee in bulk, rather than using the traditional 60kg-jute bags, worsening the loss of traceability along the value chain but gaining from cheaper costs.

In 2010, so as to answer criticism over the loss of traceability for high quality coffee, ECX launched the Direct Specialty Trade (DST). The DST acts as a hybrid system between the regular ECX system and the non-ECX direct exports system. Through DST, buyers and small farmer cooperatives/commercial growers meet at a monthly bidding session at the ECX trading floor of Addis-Ababa. Unlike regular ECX trade, DST provides an opportunity for small cooperatives to showcase traceable, high-value coffee to interested buyers, who can taste the coffee before buying. Exporters are not involved, and a condition for participation in DST bidding is that farmers will receive an 85 percent share of the final export price.

3. METHODOLOGY

MAFAP methodology seeks to measure price incentives for producers and other marketing agents in key agricultural value chains. The analysis is based on the comparison between observed domestic prices and constructed reference prices. Reference prices are calculated from the international price of the product at the country's border, where the product enters the country (if imported) or exits the country (if exported). This price is considered the benchmark price free of influence from domestic policies and markets. MAFAP estimates two types of reference prices – observed and adjusted. *Observed reference prices* are those that producers and other marketing agents could receive if the effects of distortions from domestic market and trade policies, as well as overall market performance, were removed. *Adjusted reference prices* are the same as observed reference prices, but also exclude the effects of any additional distortions from domestic exchange rate policies, structural inefficiencies in the commodity's value chain, and imperfect functioning and non-competitive pricing in international markets.

MAFAP's price incentives analysis is based on the law of one price, which is the economic theory that there is only one prevailing price for each product in a perfectly competitive market. This law only applies in the case of homogeneous goods, if information is correct and free, and if transaction costs are zero. Thus, this analysis was conducted for goods that are either perfectly homogeneous or perfect substitutes in the local market in terms of quality, or, failing that, are simply comparable goods. Indicators calculated from reference and domestic prices will, therefore, reveal whether domestic prices represent support (incentives) or a tax (disincentives) to various agents in the value chain.

Domestic prices are compared to reference prices at two specific locations along commodity value chains – the farm gate (usually the main production area for the product) and the point of competition (usually the main wholesale market where the domestic product competes with the internationally traded product). The approach for comparing prices at each location is summarized below, using an imported commodity as an example. In this situation, the country is importing a commodity that arrives in the port at the benchmark price (usually the unit value CIF price at the port of entry). In the domestic market, we observe the price of the same commodity at the point of competition, which is in this case the wholesale market, and at the farm gate. We also have information on observed access costs, which are all the costs associated with bringing the commodity to market, such as costs for processing, storage, handling, transport and the different margins applied by marketing agents in the value chain. These include access costs between the border and wholesale, as well as between the farm gate and wholesale.

The benchmark price is made comparable to the domestic price at wholesale by adding the access costs between the border and wholesale, resulting in the observed reference price at wholesale. This takes into account all the costs incurred by importers and other agents to bring the commodity to market, which in effect, raises the price of the commodity. The reference price at wholesale is further made comparable to the domestic price at the farm gate by deducting the access costs between the farm gate and wholesale, resulting in the observed reference price at farm gate. This takes into account all the costs incurred by farmers and other agents to bring the commodity from the farm to the wholesale market. Mathematically, the equations for calculating the observed

reference prices at wholesale (RP_{owh}) and farm gate (RP_{ofg}) for an imported commodity are as follows:

$$RP_{owh} = P_b + AC_{owh}$$

$$RP_{ofg} = RP_{owh} - AC_{ofg}$$

where AC_{owh} are the observed access costs from the border to wholesale, including handling costs at the border, transport costs from the border to the wholesale market, profit margins and all observed taxes and levies, except tariffs, and P_b is the benchmark price. AC_{ofg} are the observed access costs from the farm gate to wholesale, including handling costs at the farm, transport costs from farm to wholesale market, processing, profit margins and all observed taxes and levies.

The same steps described above can be taken a second time using benchmark prices and access costs that have been adjusted to eliminate market distortions due to exchange rate misalignments, structural inefficiencies in the commodity's value chain⁶ and imperfect functioning and non-competitive pricing in international markets, where possible and relevant. The adjusted benchmark prices and access costs are then used to generate a second set of *adjusted* reference prices, in addition to the first set of *observed* reference prices calculated.

For exported commodities, a slightly different approach is used. In this case, the border is generally considered the point of competition (wholesale), and the unit value FOB price for the commodity is normally taken as the benchmark price. Furthermore, observed and adjusted reference prices at wholesale are obtained by subtracting, rather than adding, the access costs between the border and wholesale. Mathematically, the equations for calculating the observed reference prices at wholesale (RP_{owh}) and farm gate (RP_{ofg}) for an exported commodity are as follows:

$$RP_{owh} = P_b - AC_{owh}$$

$$RP_{ofg} = RP_{owh} - AC_{ofg}$$

After observed and adjusted reference prices are calculated for the commodity, they are subtracted from the domestic prices at each point in the value chain to obtain the observed and adjusted price gaps at wholesale and farm gate. *Observed price gaps* capture the effect of distortions from trade and market policies directly influencing the price of the commodity in domestic markets (e.g. price ceilings and tariffs), as well as overall market performance. *Adjusted price gaps* capture the same as the observed, in addition to the effect of any distortions from domestic exchange rate policies, structural inefficiencies in the commodity's value chain, and imperfect functioning and non-competitive pricing in international markets. Mathematically, the equations for calculating the observed price gaps at wholesale (PG_{owh}) and farm gate (PG_{ofg}) are as follows:

$$PG_{owh} = P_{wh} - RP_{owh}$$

$$PG_{ofg} = P_{fg} - RP_{ofg}$$

⁶ Structural inefficiencies in commodity value chains may include government taxes and fees (excluding fees for services), high transportation and processing costs, high profit margins captured by various marketing agents, bribes and other non-tariff barriers.

where P_{fg} is the domestic price at farm gate, RP_{ofg} is the observed reference price at farm gate, P_{wh} is the domestic price at wholesale, and RP_{owh} is the observed reference price at wholesale.

A positive price gap, resulting when the domestic price exceeds the reference price, means that the policy environment and market functioning as a whole generate incentives (support) to producers or wholesalers. For an imported commodity this could be due to distortions such as the existence of an import tariff. On the other hand, if the reference price exceeds the domestic price, resulting in a negative price gap, this means that the policy environment and market functioning as a whole generate disincentives (taxes) to producers or wholesalers. For an imported commodity this could be due to distortions such as a price ceiling established by the government to keep domestic prices low.

In general, price gaps provide an absolute measure of the market price incentives (or disincentives) that producers and wholesalers face. Therefore, price gaps at wholesale and farm gate are divided by their corresponding reference price and expressed as a ratio, referred to as the **Nominal Rate of Protection (NRP)**, which can be compared between years, commodities, and countries.

The *Observed Nominal Rates of Protection* at the farm gate (NRP_{ofg}) and wholesale (NRP_{owh}) are defined by the following equations:

$$NRP_{ofg} = \frac{PG_{ofg}}{RP_{ofg}} ; NRP_{owh} = \frac{PG_{owh}}{RP_{owh}}$$

Where PG_{ofg} is the observed price gap at farm gate, RP_{ofg} is the observed reference price at the farm gate, PG_{owh} is the observed price gap at wholesale and RP_{owh} is the observed reference price at wholesale.

Similarly, the *Adjusted Nominal Rates of Protection* at the farm gate (NRP_{afg}) and wholesale (NRP_{awh}) are defined by the following equations:

$$NRP_{afg} = \frac{PG_{afg}}{RP_{afg}} ; NRP_{awh} = \frac{PG_{awh}}{RP_{awh}}$$

where PG_{afg} is the adjusted price gap at farm gate, RP_{afg} is the adjusted reference price at the farm gate, PG_{awh} is the adjusted price gap at wholesale and RP_{awh} is the adjusted reference price at wholesale.

If public expenditure allocated to the commodity is added to the price gap at farm gate when calculating the ratios, the **Nominal Rate of Assistance (NRA)** is generated. This indicator summarizes the incentives (or disincentives) due to policies, market performance and public expenditure.⁷ Mathematically, the Nominal Rate of Assistance is defined by the following equation:

$$NRA = \frac{PG_{afg} + PE_{csp}}{RF_{afg}}$$

⁷ The NRA indicator was not calculated for any of the commodities analyzed because of insufficient data on public expenditure. However, it will be developed in the forthcoming reports, as the public expenditure analysis is improved and better data are made available.

where PE_{csp} is commodity-specific public expenditure that has been identified and measured as monetary units per tonne.

Finally, MAFAP methodology estimates the **Market Development Gap (MDG)**, which is the portion of the price gap that can be attributed to “excessive” or inefficient access costs within a given value chain, exchange rate misalignments, and imperfect functioning of international markets. “Excessive” access costs may result from factors such as poor infrastructure, high processing costs due to obsolete technology, government taxes and fees (excluding fees for services), high profit margins captured by various marketing agents, bribes and other non-tariff barriers. Therefore, the total MDG at farm gate is comprised of three components – gaps due to “excessive” access costs, the exchange rate policy gap and the international market gap. When added together, these components are equivalent to the difference between the observed and adjusted price gaps at farm gate.

Similar to the price gaps calculated, the MDG is an absolute measure, which is also expressed as a ratio to allow for comparison between years, commodities, and countries. This relative indicator of the total MDG affecting farmers is derived by calculating the ratio between the total MDG at farm gate and the adjusted reference price at farm gate as follows:

$$MDG_{fg} = \frac{(ACG_{wh} + ACG_{fg} + EXPG + IMG)}{RP_{afg}}$$

where ACG_{wh} is the access cost gap at wholesale defined as the difference between observed and adjusted access costs at wholesale, ACG_{fg} is the access cost gap at farm gate defined as the difference between observed and adjusted access costs at the farm gate, $ERPG$ is the exchange rate policy gap, and IMG is the international market gap.

A more detailed description of the methodology applied in this analysis is available on MAFAP’s website at www.fao.org/in-action/mafap/.

4. DATA REQUIREMENTS AND CALCULATION OF INDICATORS

To calculate MAFAP's price incentive indicators, several types of data are needed. This section presents the data that was obtained and the methodological decisions that were taken in this analysis.

TRADE STATUS OF THE PRODUCT

Coffee is an export product by excellence in Ethiopia, with almost no imports.

Table 1: Traded volumes and trade status for coffee in Ethiopia (Tons), 2005-2012

	sources	2005	2006	2007	2008	2009	2010	2011	2012
Export volumes (ton)	<i>Customs Authority</i>	150,465.55	181,799.23	156,150.07	177,294.45	129,749.09	211,655.50	159,096.22	203,391.67
	<i>Uncomtrade</i>	14,101.96	32,043.60	156,150.06	176,862.10	129,749.09	211,673.50	159,134.61	203,549.38
	<i>FAOSTAT</i>	172,193.00	188,237.00	158,467	179,283	129,833	211,840	159,135	NA
Import Volumes (ton)	<i>Customs Authority</i>	0.69	1,52	0,926	0	1,289	0	0	0
	<i>Uncomtrade</i>	0.69	40,921.84	46.29	27,053.96	1,289	53.04	50.54	11.47
	<i>FAOSTAT</i>	1.00	40,928.00	47	27,103	4	25	64	NA
Trade Status		Net Exporter	Net Exporter	Net Exporter	Net Exporter	Net Exporter	Net Exporter	Net Exporter	Net Exporter

Source: FAOSTAT, Customs Authority and UNcomtrade, 2013

MARKET PATHWAY ANALYSED

Almost 95 percent of Ethiopian coffee (Hailu, 2011) is produced in the administrative zones of Keffa, Sidamo, Ilubabor, Wellega, Gedeo and Harerghe, in the Southern Nations and Nationalities Peoples Regional State (SNNPR) and Oromia Regional State. As the major type of commercial coffee is Jimma in the Oromia and SNNPR regions, the farm gate was chosen in Jimma region (see Figure 13).

Before 2008, coffee beans were either traded directly by wholesalers to licensed exporters, or through an auction market run by the former state agency, the Coffee and Tea Authority. Coffee quality was brought to Addis-Ababa to be inspected for quality, and then traded (Figure 13). However, trade through the Addis-Ababa auction market was not compulsory.

Since 2008, most coffee beans are sold through the Ethiopian Commodity Exchange market (ECX). Wholesalers/suppliers have to take the coffee beans to a regional ECX warehouse, where they are standardized by region and graded by the CLU. As the farm-gate was chosen in the Jimma Region, we are considering the ECX regional warehouse in Jimma, as it is the most preferred option. Even though the physical product stays in the regional warehouse, trading is made in the ECX trading floor in Addis. Thus, it has been considered as the Point of Competition for the whole period (Figure 13). The remaining difference is made in the transport costs, which are raised for exporters after ECX, as they have to incur the costs of the transport from Jimma to Addis.

From there, the product is shipped to Djibouti to reach the international market (exit point of the commodity).

Figure 13. Market pathway for coffee in Ethiopia from Jimma (farm-gate), Addis Ababa (point of competition) and Djibouti (exit point), 2005 - 2012



Source: Authors from Google Maps, 2014

BENCHMARK PRICES

Observed

The basis for calculating a reference parity price to determine whether Ethiopia's coffee bean farmers receive price incentives is to establish a benchmark price. The FOB price at port of Djibouti is used as a benchmark, given that Ethiopia is a net exporter of coffee to the world and that most coffee internationally exported by Ethiopia goes through the port of Djibouti. The specific type of coffee chosen for the analysis is the Jimma Coffee. It is indeed the main type of coffee produced by smallholders in Ethiopia, which is the most relevant criteria since the study intends to determine incentives to production for a representative share of producers in the country. Jimma coffee however, fetches the lowest prices of all main types of coffee. For instance, between 1992 and 2006, Harar, Wellega, Yirgacheffe, Sidama and Jimma coffee fetched on average 143, 108, 106, 104 and 92 US cents per pound, respectively – “which clearly depicts the differences in the quality and price of these coffee types” (Worako et al., 2008).

The FOB price for Jimma coffee (unspecified washed and unwashed) has been collected from the Ethiopian Revenue and Customs Authority. The price in US dollars was converted in Ethiopian Birr for the analysis.

Table 2: FOB Price for Ethiopian Jimma coffee at Djibouti, in USD/ton and ETB/ton, 2005-2012

	2005	2006	2007	2008	2009	2010	2011	2012
FOB price in USD/ton	2,077	2,123	2,120	2,580	2,489	2,368	5,256	4,318
Exchange Rate	8,67	8,70	9,00	9,60	11,90	14,70	16,90	17,60
FOB price in ETB/ton	18,008	18,470	19,080	24,768	29,619	34,810	88,822	75,994

Source: Ethiopia Revenue and Customs Authority and Ethiopian National Bank, 2013

Adjusted

No adjustments to the benchmark prices were made.

DOMESTIC PRICES

Observed prices at point of competition

Wholesale prices, in the 2005-2010 coffee analysis, correspond to two sets of prices, both related to Jimma coffee.

- The first set of prices, from 2005 to 2007, corresponds to independent traders' prices in Addis-Ababa. These important traders bought coffee from semi-wholesalers based in producing areas or directly from producers through collectors. They would then sell the coffee to exporters.
- The second set of prices, from 2008 to 2012, corresponds to the auction market price, also in Addis-Ababa. Since 2008, the government has implemented the ECX system, which has absorbed the biggest share of coffee trade in Ethiopia (see Description of the Value Chain section).

Table 3: Traders price and ECX price for Ethiopian Jimma coffee at Addis-Ababa, in ETB/tonne, 2005-2012

	2005	2006	2007	2008	2009	2010	2011	2012
Traders' price	16,023	15,772	19,730	NA	NA	NA	NA	NA
ECX price	NA	NA	NA	21,906	23,072	32,230	76,974	65,241

Source: Worako (2008) for 2005-2007 and ECX: 2008-2012

Observed prices at farm gate

Producer prices for Jimma Coffee in the Jimma area have been chosen and were collected from the Central Statistical Agency's monthly producer price survey for Jimma.

Producer prices for Jimma are obtained from CSA. The Central Statistical Agency collects producer prices from private farmers and cooperatives for each Enumeration Area (EA). A maximum of three price quotations are collected from different producers and the average is reported. The CSA reports these prices in two forms: (1) 'coffee whole' and (2) 'coffee bean.' 'Coffee whole' refers to the sun-dried, not decorticated bean (locally called 'jenfal'), and 'coffee bean' refers to the ungraded green bean, which is often called 'morbush' or 'clean coffee.' The majority of the coffee farmers in Ethiopia

sell their coffee in the form of dry cherries (jenfal). These cherries are then hulled by wholesalers or sebsabys.

Since all the later stages of coffee trade are based on clean coffee beans (used as a benchmark), the local producer price for dry cherry is converted to clean coffee equivalent using standard conversion rates using literatures, information from processors (akrabys), and researcher knowledge about the sector. Accordingly, 2.0 kg of dry cherries yield, on average, 1 kg of clean coffee with fair and average quality (FAQ). One kilogram of dry cherry, on average, is equal to about 3 kg of red cherries. However, there could be slight variations depending on the coffee type, agro-ecology conditions, fertility and agricultural practices.

Moreover, coffee quality at the producer level is not as good as in the auction market – rather it is morbush with impurities. The weight loss due to cleaning of morbush is estimated to be 8 percent, which means that 1 kg of morbush coffee equals, on average, 0.92 kg of clean coffee (based on information from akrabys). Thus, we add 8 percent additional value on CSA's clean coffee (morbush) to get a standard clean coffee at auction level.

Table 4. Producer price for Ethiopian Jimma coffee in the Jimma area, in ETB/ton, 2005-2012

		2005	2006	2007	2008	2009	2010	2011	2012
(1)	Price for Jenfal coffee at Farm Gate (ETB/tonne)	4 502	5 199	6 375	8 299	7 962	11 528	27 140	22 540
(2)	Quantity factor from jenfal to morbush coffee	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
(3)	Quality adjustment factor from jenfal to morbush coffee	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
(1)*(2)*(3)	Producer price for morbush coffee (ETB/tonne)	9,787	11,304	13,859	18,042	17,309	25,061	58,508	48,881

Source: CSA, 2013

EXCHANGE RATES

Observed and Adjusted

The observed exchange rate change varied little between 2005 and 2008. It increased from an average of Birr 8.67 per USD in 2005 to 9.00 in 2008. The rate increased to Birr 11.9 in 2009 and Birr 14.7 in 2010. As of September 2010, it was at 16.3 birr per USD. This continued devaluation has a direct bearing on the government's intention to promote exports and hence reduce foreign exchange shortage, while encouraging direct foreign investment.

Despite this devaluation, it is believed that the domestic currency (Birr) was overvalued, especially in 2008, 2009 and 2010. The extent of overvaluation was estimated at 40 percent during this period. A study by Dorosh et al. (2009), suggests that the nominal exchange rate appreciated by 13.8 percent between July 2004 and January 2008. To curb the excessive drawdown of the foreign exchange reserve, access to foreign exchange for imports was restricted in March 2008. This was aggravated by high rates of domestic inflation in Ethiopia, relative to the country's major trading partners.

As stated by Demeke (2012), the local currency was, on average, 20 percent overvalued during the period 2005-2010, and an adjusted exchange rate has been calculated accordingly. The adjustment factor approximates the depreciation of the local currency, had a more liberal policy been pursued. For 2011 and 2012, the adjusted exchange rate was calculated on the basis of information obtained

from IMF (2013) Consultative Group report on the status of Ethiopia's exchange rate. According to this group, the Ethiopian Birr was estimated to be overvalued 10-14 percent in 2012. This 12 percent overvaluation (average rate) was considered to calculate the adjusted exchange rate for years 2012 and 2013. From the same source, the exchange rate for 2011 was estimated to be overvalued at about 13.26 percent. The adjusted exchange rate has thus increased from Birr 10.40 in 2005 per US\$1 to Birr 19.70 in 2012 (see Table 5).

Table 5: Observed and adjusted exchange rate Birr to US\$ (annual average)

	2005	2006	2007	2008	2009	2010	2011	2012
Observed (Birr per US\$1)	8.67	8.74	9.21	9.80	12.10	12.89	16.9	17.6
Adjustment Factor	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1
Adjusted (Birr per US\$1)	10.40	10.49	10.05	11.76	14.5	15.5	19.1	19.7

Source: National Bank of Ethiopia, IMF and Demeke, 2012

ACCESS COSTS

Observed

Addis Ababa to Djibouti

The first segment of the calculation of access costs is between the wholesale market (2005 to 2007) and ECX auction market (2008 to 2010) at Addis-Ababa and the port of Djibouti. For the major part, the structure of costs incurred to export coffee from Addis-Ababa to Djibouti has not varied with the introduction of ECX. Such costs include but are not limited to, processing and handling (including sample fees), port related costs, and traders' margins. The traders' margin has been estimated at 5 percent, given that coffee is a highly competitive sector. Some extra costs have also been added from 2008 onwards, due to the addition of ECX services: ECX warehouse fees, extra loading fees, and VAT on services.

Data for these costs have been collected from key actors in the value chain, including coffee suppliers, processors and exporters and also from institutions that work directly or indirectly for coffee such as ECX, MOT, MOA, etc. For some of the years where data was missing, costs have been calculated using the annual average inflation rate from CSA, used to estimate the missing value (Table 6).

Table 6: Annual average inflation rate in Ethiopia, 2005-2012

	2005	2006	2007	2008	2009	2010	2011	2012
Inflation rate	11.61	12.31	17.24	44.39	8.47	8.14	33.2	18.4

Source: World Bank, 2012

The impurity loss component and the interest on capital component were calculated. For impurity losses, it was estimated through discussion with the Ethiopian Coffee Processing and Warehouse Enterprise that 14 kilograms (kgs) out of 100 are not sold on the export market due to poor quality beans that were not detected during the inspection process. However, the 14 kgs are sold at around 50 percent of FOB price on the domestic market. The impurity loss cost was thus estimated as (FOB price * 0.14)/2.

Table 7: Impurity loss costs calculation, 2005-2012, in ETB/ton

		2005	2006	2007	2008	2009	2010	2011	2012
(1)	FOB Price	18,008	18,555	19,525	25,284	30,117	30,524	88,822	75,994
(2)	Loss ratio	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
(1)*(2)/2	Impurity loss costs	1261	1299	1367	1770	2108	2137	6218	5320

Source: Authors survey from the Ethiopian Coffee Processing and Warehouse Enterprise

Interest on capital, on the other hand, is paid by traders to the banks for the money borrowed to proceed to coffee transactions. Interest rates have been estimated at 9 percent of full access costs (access + wholesale price), and to cover three months of the year, which is the time required for a full round transaction (hence multiplied by 0.25).

Table 8: Interest on capital calculation, 2005-2012, in ETB/ton

		2005	2006	2007	2008	2009	2010	2011	2012
1	Wholesale price + access costs	20003	19994	24613	28960	3106	41964	86505	74939
2	Interest rate (9%)	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
3	Converter to three-month period	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
(1*2)*3	Interest on capital	414	409	509	596	636	868	1768	1392

Source: Authors

Table 9: Observed access costs from wholesale market and ECX (Addis-Ababa) to border (Djibouti), in ETB/ton

	2005	2006	2007	2008	2009	2010	2011	2012
Processing and handling costs								
Cleaning and reprocessing cost	263	263	263	300	300	360	440	287
Weight loss during cleaning (1.5% of wholesale price)	240	237	296	329	346	483	490	490
Impurity losses (14% of FOB)	1261	1299	1367	1769	2108	2137	6217	5320
Loading and unloading	35	34.8	45	50	50	55	55	50
Costs of jute bags	169	169	235	300	420	450	517	468
Marking bags/leveling bags	NA	NA	NA	NA	50	100	100	100
Storage costs and warehouse fees	80	80	135	189	191	199	209	209
Samplers (Wogiwoch) fee	9	9	9	9	9	9	9	4.17
Liquoring Fee/Quality Inspection	10	10	10	19	19	19	19	19
Cost of coffee drawn for sample	47	47	59	66	69	97	200	150
Transport costs from Jimma(regional ECX warehouse) to Addis	-	-	-	750	800	900	950	950
Transport cost from Addis Ababa to port (Djibouti) (and related port costs)	351	394	444	750	800	1050	1200	981
Bank charges								
Interest on capital	414	409	509	596	636	868	1768	1392
Service charge	40	45	53	76	83	89	77	77
ECX costs								
Trading fee on value of purchase (0.4%)	NA	NA	NA	88	92	129	191	382
Warehouse charge (2.10/kesha/bag)	NA	NA	NA	25	25	25	25	35
VAT on services charges	NA	NA	NA	17	18	23	32	32
Port costs								
Insurance	18	18	21	31	34	36	38	205
Postage, telephone, fax and interest	8	8	9	13	14	16	13	14
Port handling and transit charges	173	174	179	192	233	282	389	343
Other costs								
Contribution for coffee sport club	16	16	16	32	32	32	32	32
ECEA promotion fee	5.2	5	5.2	20	20	20	20	20
Other Miscellaneous expenses*	50	47	55	80	86	93	100	476
Estimated margins for traders (observed 5% total costs)	876	865	1077	1261	1342	1830	3734	2938
Total Observed Access Costs from Border to PoC	4065	4131	4788	6961	7927	9351	16875	14932

Source: Worako, 2008 and discussion with coffee exporters and traders

* calculated using the inflation rate⁸. N.A = did not exist before the ECX system

It is good to note that, although the structure of access costs itself has not varied much since the introduction of ECX, the costs themselves have gone up (Table 10). This can be attributed both to a rise in FOB prices, and to a system that proves to be more costly for agents along the value chain due to better services and guarantee.

⁸ See Table 6: Annual average inflation rate in Ethiopia 2005-2010

Table 10: Comparison of increase for access costs from Addis-Ababa to Djibouti and FOB price for Jimma coffee (in ETB/ton and %), before and after introduction of ECX.

	2005-2007	2008-2012	Increase
Average access costs Addis-Ababa to Djibouti	4422	9666	128%
FOB price	18519	51205	176.5%

Source: Authors from Worako, 2012

Jimma to Addis Ababa

The second segment used for the analysis of access costs is between the wholesale market/auction market of Addis-Ababa and the producing area of Jimma. The analysis takes into account the costs for the traditional unwashed coffee processing, which is used for 73 percent of coffee harvested (TayeKufa, 2006 in Hailu, 2011).

The access costs structure has remained the same since the introduction of ECX, except for the addition of ECX warehouse fees from 2008 to 2010. These costs include, but are not limited to: handling and processing, tax and administrative costs, bank and commission costs, transport costs and traders' margins. As is the case for the wholesale-port segment, traders' margins have been estimated at 5 percent. Starting in 2008, additional costs appeared related to the ECX establishment, such as the commissions for agents in primary markets and standing in ECX and storage fees in ECX regional warehouses; but at the same time, lower costs for private storage and contributions in sport clubs and operating expenses have relieved wholesalers. Some un-shown cost reductions also appeared in the reduction of contract defaults.

Table 11: Observed access costs from farm-gate (Jimma area) to wholesale market/ECX (Addis-Ababa), ETB/Ton

Handling and processing cost	2005	2006	2007	2008	2009	2010	2011	2012
Bags	190	190	190	412	412	412	412	412
Cost of quality inspection at Woreda	11	11	11	3	3	3	3	3
Samplers (Wogiwoch)	3	3	3	6	6	6	6	6
Commission for Agent at PM	120	120	120	294	294	294	340	340
Cost of sample coffee (6 kgs at woreda and ECX)	7	7	7	28	28	28	37	44
Impurity loss during cleaning (8% of the producer price)	783	904	1109	1443	1385	2005	2050	2000
Tax and Admin cost								
Municipality tax	40	40	40	81	81	81	108	108
Development tax/tax paid to finance	11	11	11	129	129	129	129	129
Warehouse fee (ECX warehouse after 2008)				314	314	314	314	314
Salary for accountant	200	200	200	300	300	300	400	450
Bank and Commission								
Interest on capital	295	334	399	553	535	732	778	921
Bank charge	16	16	16	71	71	71	95	95
Other costs								
Contribution for sport club	18	18	18	13	13	13	13	13
Operating Expenses (Hotel; others)	218	218	218	16	16	16	50	60
Licensee renewal fee	6	6	6	16	16	16	16	16
Agent commission at trading floor	118	118	118	587	587	587	587	587
Others	88	88	88	70	70	70	93	110
Transport cost from farm-gate to wholesale/ECX	324	324	324	275	275	275	300	354
Estimated margins for wholesalers, observed (5% total costs)	625	709	850	1187	1146	1575	2350	2130
Total Observed Access Cost from FG to PoC	3060	3304	3715	5744	5626	6873	8080	8092

Source: Worako, 2008 and discussion with experts from the value chain

Similarly to the wholesale-Djibouti segment, access costs have clearly risen from 2008 to 2010, which seems, yet again, due to both a general rise in price and to a more costly ECX system. The cost increase is very similar to that of the Addis Ababa-Djibouti segment (Table 12), which suggests that the introduction of the ECX system had a trickledown effect on costs in the whole value chain.

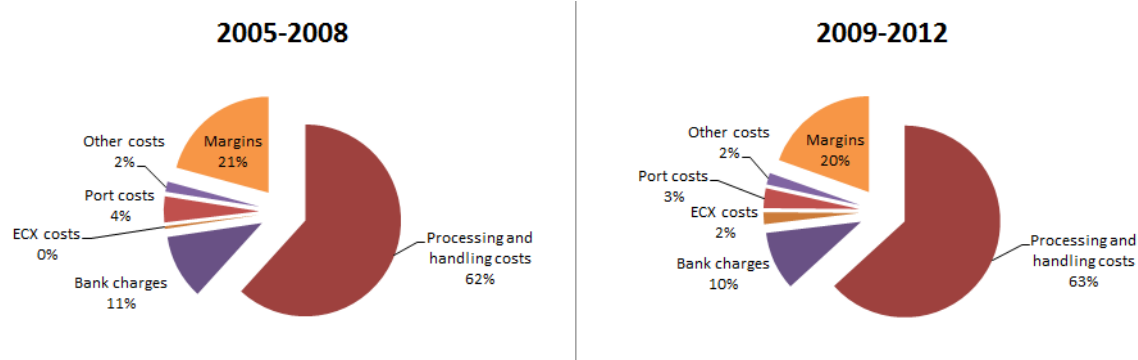
Table 12: Comparison of increase for access costs from Jimma to Addis-Ababa and FOB price for Jimma coffee (in ETB/ton and %), before and after introduction of ECX.

	2005-2007	2008-2012	Increase
Average access costs Addis-Ababa to Djibouti	3984	8294	114.4%
FOB price	18519	51205	176.5%

Source: Authors

The structure of access costs has also varied for both segments after the introduction of the ECX system. Indeed, for the Wholesale-Border segment, the share of transport costs increased threefold. Since 2008, exporters have paid transport costs from Jimma all the way to Djibouti. The processing and handling costs also increased, mainly due to the rise in oil price. Finally, the share of the margin has diminished slightly, which suggests that ECX has probably reduced room for traders' margins.

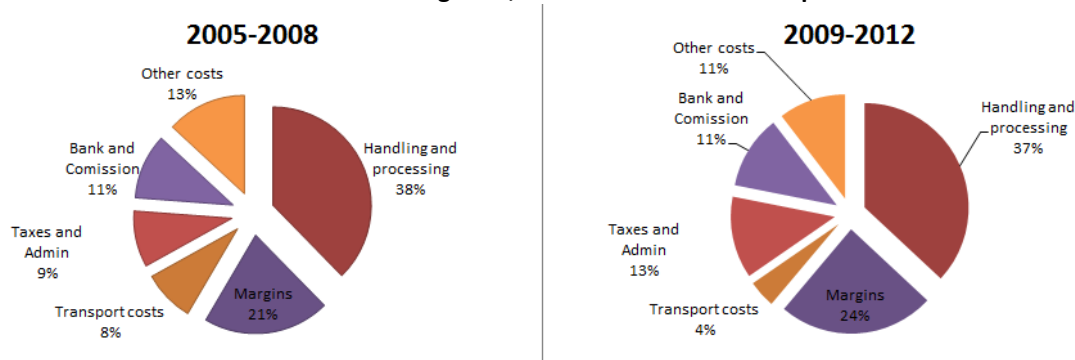
Figure 14: Comparison of access costs structure for 2005-2008 (left) and 2009-2012 (right) for the wholesale-border segment, for Jimma Coffee in Ethiopia



Source: Authors from Worako, 2008

On the contrary, on the segment Jimma-Addis Ababa, transport costs went down by 4 percent, while taxes and administration costs went up by 4 percent (Figure 15). With the introduction of ECX, wholesalers had to start paying the ECX membership fee and other related costs (warehouse fees and operating expenses).

Figure 15: Comparison of access costs structure for 2005-2008 (left) and 2009-2012 (right) for the farm-gate to wholesale segment, for Jimma Coffee in Ethiopia



Source: Authors from Worako, 2008

Adjusted

Addis Ababa to Djibouti

From the wholesale market to the border segment, observed costs are adjusted by subtracting additional costs incurred by weight losses, impurity losses, transport costs and considering lower margins at 2.5 percent instead of 5 percent. In addition, the contribution to the coffee sport club and to the Ethiopian Coffee Exporters Association (ECEA) promotion have been counted out, as they are not necessary for an efficient functioning of the value chain.

Table 13: Calculation of adjusted access costs for the wholesale to border segment for Jimma coffee in Ethiopia, 2005-2012

		2005	2006	2007	2008	2009	2010	2011	2012
1	Observed access costs	3995	4052	4686	6829	7773	9516	12066	12145
2	Difference between observed and adjusted margin	476	472	581	683	732	991	1359	1240
3	Weight loss (1% remaining)	79	78	98	108	114	160	162	162
4	Impurity loss (8% remaining)	619	635	657	852	1019	1198	1580	1643
5	Sport club + ECEA promotion fee	21	21	21	52	52	52	52	52
6	Transport costs from regional warehouse to border (50% cut)	0	0	0	375	400	450	475	475
7	Jute bags (50% lower)	85	84	118	150	210	225	258	234
1 – (2+3+4+5+6+7)	Adjusted access costs	2714	2761	3213	4608	5246	6441	8181	8340

Source: Authors from Worako, 2008

Jimma to Addis Ababa

The same calculation is applied to the farm-gate to wholesale segment, with reduced weight loss (counted as 4 percent of the farm-gate), adjusted transport costs (half reduced as the transport in regions in the WB segment) and the contribution to sport club costs being counted out. Traders' margins were estimated at 2.5 percent instead of 5 percent.

Table 14. Calculation of adjusted access costs for the farm-gate to wholesale segment for Jimma coffee in Ethiopia, 2005-2012

		2005	2006	2007	2008	2009	2010	2011	2012
1	Observed access costs	3569	3813	4223	7077	6959	8205	9531	9698
2	Difference between observed margin and adjusted margin	313	355	425	593	573	787	1175	1065
3	Weight loss during cleaning (4% remaining)	391	452	554	722	692	1002	1025	1000
4	Sport club	18	18	18	13	13	13	13	13
5	Commission to agents (50% lower)	119	119	119	441	441	441	464	464
6	Transport costs	162	162	162	138	138	138	150	177
1 – (2+3+4+5+6)	Adjusted access costs	2452	2593	2831	5074	5006	5728	6604	6861

Source: MAFAP from Worako, 2008

BUDGET AND OTHER TRANSFERS

No budgetary transfer has been taken into account in the analysis.

QUALITY AND QUANTITY ADJUSTMENTS

No quantity or quality adjustments were used since impurity losses are taken into account in the adjusted access costs calculation.

DATA OVERVIEW

Following the discussions above, the table below summarizes the main data sources used, and methodological decisions taken for the analysis.

Table 15: Data sources and methodological decisions

		<i>Description</i>	
<i>Concept</i>		<i>Observed</i>	<i>Adjusted</i>
Benchmark price		FOB Price at Djibouti for Jimma Coffee, obtained from the Ethiopian Revenue and Customs Authority	Non relevant
Domestic price at point of competition		1. Average independent traders' price for Jimma Coffee in Addis-Ababa, computed from monthly prices collected from Worako (2008), for 2005-2007 2. ECX price for Jimma Coffee in Addis-Ababa, computed from monthly prices collected through ECX, for 2008-2010	Non relevant
Domestic price at farm gate		Farm-gate price for Jimma Coffee, in the Jimma area, collected from the Central Statistical Agency (CSA)	Non relevant
Exchange rate		Birr-US dollar exchange rate collected from National Bank of Ethiopia	Adjustment factors from Demeke (2012) and the International Monetary Fund (2013)
Access cost from border to point of competition		Processing and handling, bank and commission, tax and administrative costs, port related costs, and miscellaneous costs between Addis-Ababa and Djibouti collected from local counterparts. Traders' margins estimated at 5 percent.	Traders' margins estimated at 2.5 percent, impurity and weight losses are also adjusted at 8 and 1 percent. Sport club and ECEA promotion fees discarded.
Access cost from farm-gate to border		Handling, bank and commission, tax and administrative costs, and miscellaneous costs between Addis-Ababa and Djibouti collected from local counterparts. Traders' margins estimated at 5 percent.	Traders' margins estimated at 2.5 percent, weight losses at 4 percent of farm-gate price. Sport club fee are discarded. Transport costs are estimated at 50% lower and the margins lowered by 50%.
QT adjustment	Bor-Wh	-	-
	Wh-FG	-	-
QL adjustment	Bor-Wh	-	-
	Wh-FG	-	-

The data used for this analysis is summarized below.

Table 16. Data used for the analysis

		Year	2005	2006	2007	2008	2009	2010	2011	2012
		trade status	X	X	X	X	X	X	X	X
DATA	<i>Unit</i>	<i>Symbol</i>								
Benchmark Price										
Observed		$P_{b(int\$)}$	2,077	2,123	2,120	2,580	2,489	2,368	5,256	4,318
Adjusted		P_{ba}	-	-	-	-	-	-		
Exchange Rate										
Observed		ER_o	8.67	8.70	9.00	9.60	11.90	14.70	16.90	17.60
Adjusted		ER_a	10.40	10.49	10.80	11.52	14.30	17.70	19.10	19.70
Access costs border - wholesale										
Observed		AC_{owh}	4,065	4,131	4,788	6,961	7,927	9,351	16,875	14,932
Adjusted		AC_{awh}	2,722	2,773	3,232	4,634	5,275	6,328	10,508	9,500
Domestic price at wholesale		P_{dwh}	16,023	15,772	19,730	21,906	23,072	32,230	69,683	53,633
Access costs wholesale - farm gate										
Observed		AC_{ofg}	3,060	3,304	3,715	5,744	5,626	6,873	8,080	8,092
Adjusted		AC_{afg}	2,064	2,205	2,443	3,865	3,797	4,519	5,254	5,374
Farm gate price		P_{dfg}	9,787	11,304	13,859	18,042	17,309	25,061	59,000	49,000
Externalities associated with production		E								
Budget and other product related transfers		BOT								
Quantity conversion factor (border - point of competition)	Fraction	QT_{wh}								
Quality conversion factor (border - point of competition)	Fraction	QL_{wh}								
Quantity conversion factor (point of competition – farm gate)	Fraction	QT_{fg}								
Quality conversion factor (point of competition – farm gate)	Fraction	QL_{fg}								

SUMMARY OF INDICATORS

Table 17. MAFAP Price Gaps for coffee in Ethiopia, (ETB/ton), 2005-2012

	2005	2006	2007	2008	2009	2010	2011	2012
Trade status for the year	x	x	x	X	x	X	X	X
Observed price gap at point of competition	2,080	1,348	4,992	3,583	882	11,057	-2,264	-7,430
Adjusted price gap at point of competition	-2,856	-3,725	-464	-3,801	-7,793	1,925	-20,194	-21,928
Observed price gap at farm gate	-1,095	185	2,837	5,463	745	10,761	-4,866	-3,970
Adjusted price gap at farm gate	-7,028	-5,988	-3,892	-3,800	-9,759	-725	-25,623	-21,188

Source: Author's own calculations using data as described above.

Table 18: MAFAP Nominal Rates of Protection and Assistance for Coffee in Ethiopia, (%), 2005-2012

	2005	2006	2007	2008	2009	2010	2011	2012
Trade status for the year	x	x	x	x	x	x	x	X
Observed NRP at point of competition	15%	9%	34%	20%	4%	52%	-3%	-12%
Adjusted NRP at point of competition	-15%	-19%	-2%	-15%	-25%	6%	-22%	-29%
Observed NRP at farm gate	-10%	2%	26%	43%	4%	75%	-8%	-7%
Adjusted NRP at farm gate	-42%	-35%	-22%	-17%	-36%	-2%	-32%	-31%
Observed NRA at farm gate	-10%	2%	26%	43%	4%	75%	-8%	-7%
Adjusted NRA at farm gate	-42%	-35%	-22%	-17%	-36%	-2%	-32%	-31%

Source: Author's own calculations using data as described above.

Table 19. MAFAP Market Development Gaps for coffee in Ethiopia, (ETB/ton), 2005-2012

	2005	2006	2007	2008	2009	2010	2011	2012
Trade status for the year	x	x	x	x	x	x	x	X
Access costs gap to competition point (ACGwh)	-1,343	-1,358	-1,556	-2,327	-2,652	-3,023	-6,367	-5,431
Access costs gap to farm gate (ACGfg)	-996	-1,099	-1,272	-1,879	-1,829	-2,354	-2,827	-2,719
Exchange rate policy gap (EXRP)	-3,593	-3,715	-3,901	-5,057	-6,023	-6,109	-11,563	-9,067
International markets gap (IMG)								

Source: Author's own calculations using data as described above.

5. RESULTS AND INTERPRETATION

There are no specific trade policies for coffee in Ethiopia such as specific export taxes or quotas. However, two important changes took place regarding coffee trade from 2005 to 2012. Firstly, the Ethiopian government introduced the Ethiopian Commodity Exchange market (ECX) in 2008, which modified the marketing and trade structure of coffee (see Description of the Value Chain section). Secondly, though the price of Jimma coffee has been volatile, the FOB price has increased sharply.

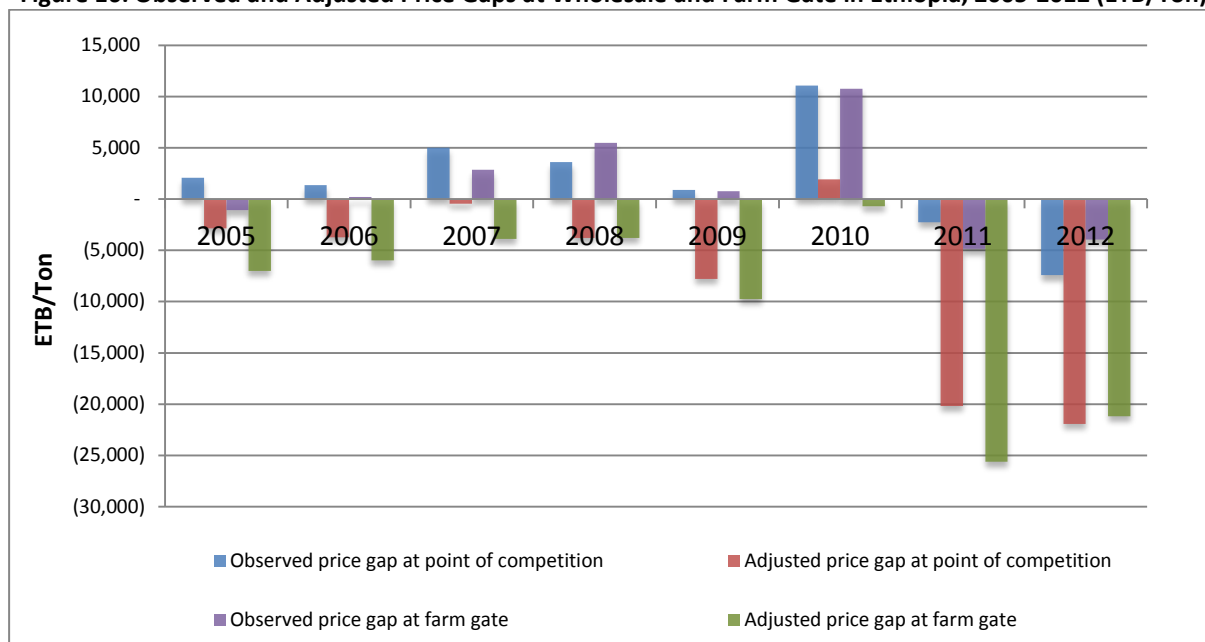
Implementation of the ECX and the trends of international prices have been the main factors of change in price incentives in Ethiopia over the 2005-2012 period. It was expected that thanks to the new ECX system, which was put in place to rationalize coffee trade, producers would have benefited from increasing world prices without being overly protected, i.e. there would be a Nominal Rate of Protection (NRP) close to zero.

MAFAP analysis reveals that this has not been the case. Indeed, the structure of incentives over the 2005-2012 period has been somewhat chaotic, but overall, to the apparent benefit of producers and wholesalers who have received, on average, positive incentives.

In fact, except for in 2005, 2011 and 2012, producers have received incentives ranging from 7 to 66 percent. This suggests that prices were not only fully transmitted to producers but that they were protected, earning higher prices than what they should have received in the absence of domestic policies.

Additionally, the positive price gaps that generated incentives for producers from 2007 to 2010 have mainly come from the significant increase in domestic prices by 80 percent. In 2010, farmers received more than 10,000 ETB/tonne above the reference price, as well as the wholesalers who received 11,000 ETB/tonne more than the reference price at wholesale (Figure 16). After the peak, both producers and wholesalers received a lower price than they should have. The highest loss of income incurred by farmers in 2011, and wholesalers in 2012, reached almost 10,000 ETB/tonne (Figure 16).

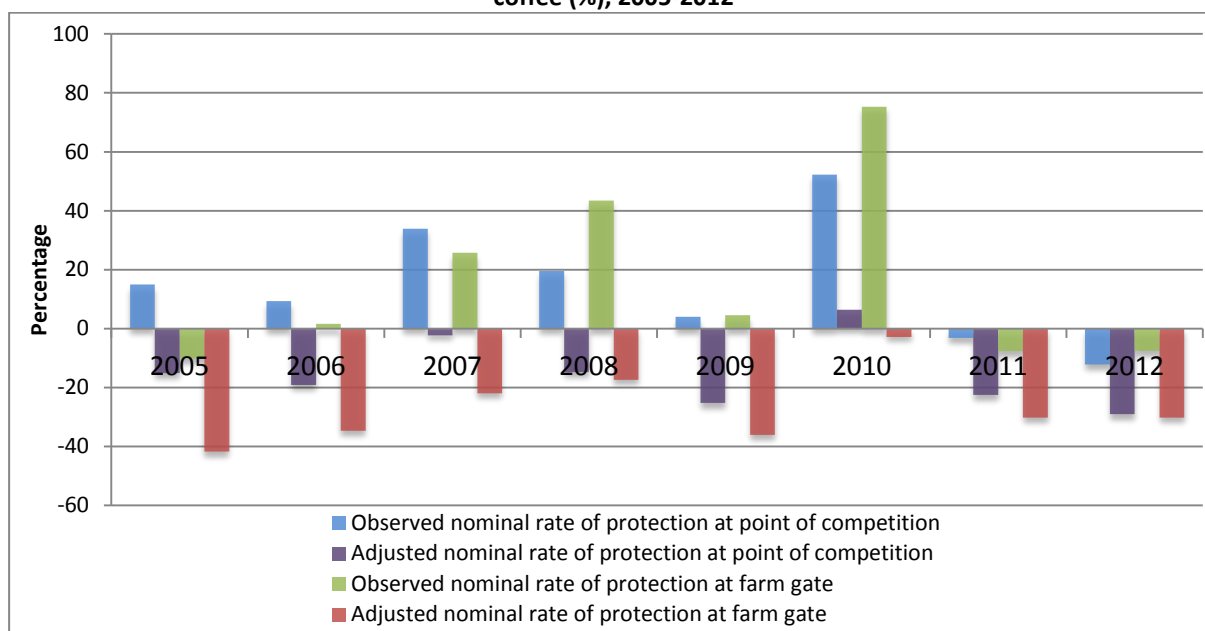
Figure 16: Observed and Adjusted Price Gaps at Wholesale and Farm Gate in Ethiopia, 2005-2012 (ETB/Ton)



Source: Authors

In order to make a more refined analysis, it is crucial to compare the absolute price gaps to the price levels during the period. This enables an accurate idea about the real incentives/disincentives that agents have faced during the period. To do so, we are using the ratio to get the Nominal Rate of Protection (see METHODOLOGY).

Figure 17: Observed and adjusted nominal rate of protection at wholesale and farm-gate in Ethiopia for coffee (%), 2005-2012



Source: MAFAP, 2014

From 2005 to 2007, wholesalers received close to 15 percent higher incentives than farmers. In fact, wholesalers had significant marketing power due to the non-integrative and non-transparent market in Ethiopia, in which farmers were not really aware of the export price.

Beginning in 2008, farmers started to receive higher incentives. In fact, in that year the domestic price at farm-gate rose by 30 percent, compared to the 11 percent rise that hit the wholesale price. This was most likely due to the announcement of the launch of the Ethiopian Commodity Exchange (ECX), meant to improve the export market. Indeed, it is likely that major processors and wholesalers bought large volumes of coffee because of the new trade rules through ECX. Furthermore, the relative shortage of coffee in the country during that year may have also contributed to this incentive environment for farmers.

The incentives environment for farmers may also be a result of three factors: (1) there is more competition at the producer level due to the engagement of a large number of private traders thanks to easier licensing requirements; (2) the introduction of mobile technology that has improved producers' access to market information; and (3) the expansion of road infrastructure in the rural areas opened up access for traders. These three major issues for producers and rural traders have improved coffee producers' competitiveness.

After the creation of ECX in late 2008, coffee farmers faced depressed prices while wholesale prices went up. However, in 2009, all agents faced neither incentives nor disincentives and the local market was slightly distorted. This might be due to two reasons:

- Although ECX aimed to create a more integrative and transparent market (with no contract failures, better links between agents, high export quality standards), wholesalers had to incur some additional costs such as grading, processing and ECX warehouse fees. This led to a surge in access costs, likely ending to some extent in a fall in prices for farmers.
- At the same time, as ECX allows a limited number of wholesalers in the auction market (about 150), unhealthy practices within the institution might have led to oligopolistic behavior when bargaining with the processors and/or farmers.⁹
- Lastly, the installment of ECX as the main trading institution had likely disturbed the market until wholesalers and exporters had the time to re-organize their business. This resulted in a dramatic shortfall of exported volumes in 2009. Indeed, the level of exports that year fell down to 1,851,000 bags (ICO, 2014), the worst year since 2001.

The impressive increase of incentives in 2010 both for wholesalers and farmers (50% and 70% increase respectively) is mainly due to the coffee shortage on the international market. Indeed, producer prices increased by 45 percent and wholesale prices by 40 percent. The drop of global supply followed by the increasing demand for Ethiopian coffee on the international market (International Coffee Organization, 2014) led to a price upsurge. Indeed, low global stocks and bad weather forecasts led to a dramatic increase of coffee exports from Ethiopia in that year (63 percent). The great increase of the producer price compared to the FOB might be also due to the inelastic demand for coffee in the country.

In this context of price escalation, farmers benefitted more from high incentives than the wholesalers. This was likely due to unhealthy competition between processors who were ready to inflate their prices, no matter the international price, in light of the bad weather forecasts and subsequent increasing prices. This is a rather common practice, especially in the processing season

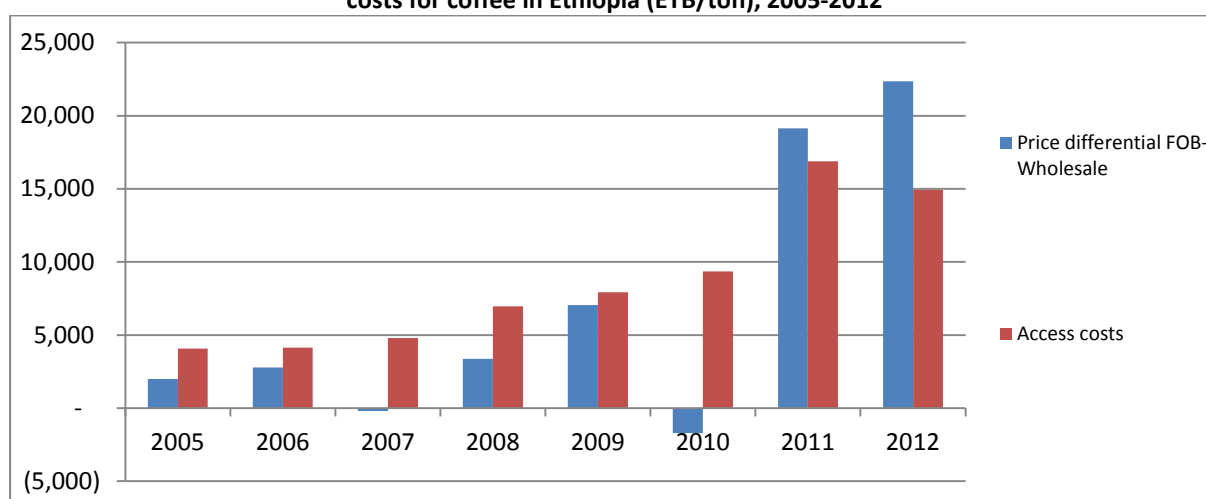
⁹ Since establishment of ECX, suppliers have an association called "Ethiopian Coffee Suppliers Association" – which provide market information and raised bargaining power.

(September-December), when processors are ready to buy coffee at higher prices and wait for the prices to rise again.

In 2011 and 2012, the international price rose substantially due to a global production shortfall; indeed, starting in 2010, the international price for mild Arabicas started to increase steadily and hit over 200 USD cents/pound in July (a price not seen throughout the period). Almost one year later, in April 2011, the price exceeded 300USD cents/pound: the highest price in at least 30 years (Indexmundi, 2014).

On the other hand, domestic prices went up at the same time due to a sudden national supply shortfall as a result of export intensification. Indeed, wholesale and farm-gate prices increased by 116 and 135 percent, respectively. This might have been due to a devaluation of the Ethiopian Birr in the third trimester of 2011 that led to substantial inflation of food prices but also the access costs along the value chain (transport costs). As the wholesale prices of coffee soared, the price margins (between FOB and wholesale prices) failed to fully cover access costs between Addis Ababa and Djibouti, i.e. access costs exceeded price differentials (Figure 19). From an exporter point of view, the situation seems to be puzzling. Indeed, exporters had not faced great incentives to trade coffee internationally.

Figure 18: Differentials between FOB price and wholesale price, and FOB to wholesale differential to access costs for coffee in Ethiopia (ETB/ton), 2005-2012



Source: Authors

This seemingly bad situation for exporters might be due to two reasons:

- As already discussed, wholesalers might have oligopolistic behavior in ECX to get better prices from the coffee processors and farmers. Moreover, the same power can be applied when selling coffee to exporters. Indeed, wholesalers could have colluded, knowing the contract (export) planning of their major exporters. By creating an artificial shortage at a time when exporters are desperate to meet deadlines of importing companies, wholesalers can benefit from very high prices that exporters are ready to pay.
- In addition, exporters cannot wait for the right price signal in the international market as they are not allowed to keep their stock for more than two months. The consequence is that exporters might lose out in the export of Ethiopian coffee.

On the other hand, exporters have agreements with the government to be paid a portion (10 percent) of the foreign currencies they generate. This would allow exporters to benefit from having foreign currency which they can use to import machinery, equipment or any other item for sale in the local market or for personal use. Furthermore, if an exporter wants more foreign currency to import goods, he/she can apply for additional allocation depending on the total amount he/she generated through coffee export. Given that the informal or black market exchange rates are higher than the official exchange rates, exporters can make a good profit from the hard currencies they are allocated. Government control over exchange rates may also have led to some under-invoicing practices by exporters.

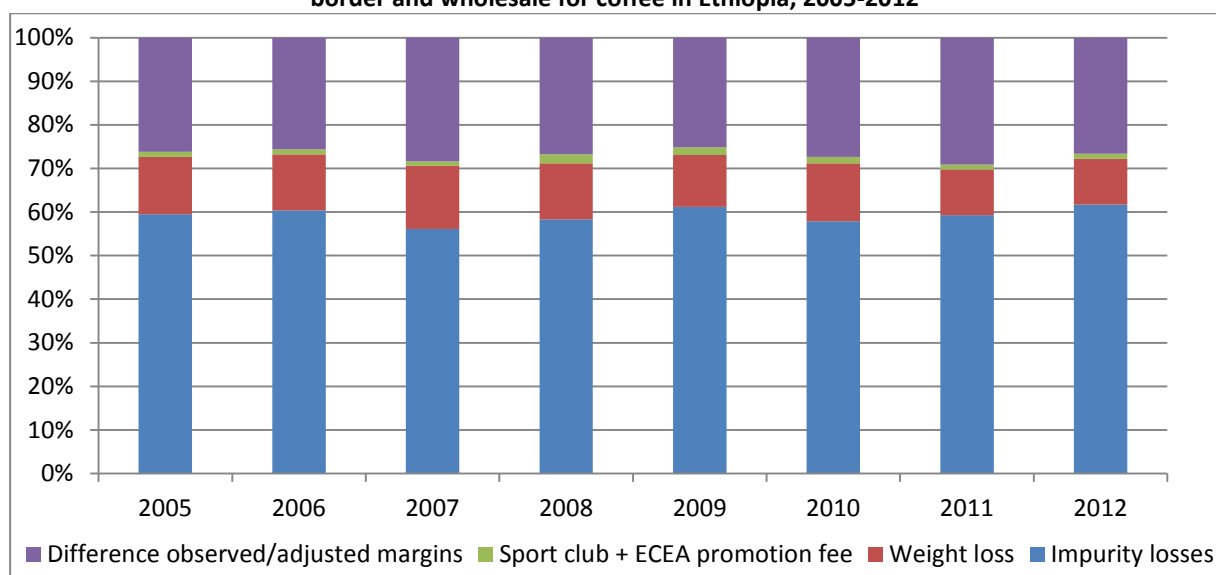
The introduction of ECX in 2008 has not changed the market structure. It appears that ECX has failed to bring about more balanced domestic prices. First, the ECX has reduced the number of middle men but this has increased the market power of the coffee suppliers and probably allowed them to inflate prices by creating shortages. Indeed, although ECX is now the main wholesale structure for coffee in the country, the coffee still has to go through local wholesalers before reaching regional ECX level. Second, inefficient and non-transparent grading contributes to excessive losses at wholesale-exporter level, and raises their costs significantly.

The consideration of adjusted indicators permits further understanding of the trade and marketing structure of coffee in Ethiopia. The adjusted nominal rates of protection are calculated to reflect the functioning of the market and whether inefficiencies are present such as impurity or weight losses, excessive margins, or over-valued exchange rate (see Figure 17).

The adjusted Nominal Rate of Protection is negative at wholesale and farm gate level, with respective averages of -17 percent and -26 percent over the period. This suggests that producers and traders would have received lower prices than the international ones in a perfectly efficient value chain. Over the period, adjusted NRPs are greater at wholesale level than producers', except in 2007 (Figure 17). Wholesalers, in particular, could have benefitted from higher prices without having to use oligopolistic practices if the exchange rate was not overvalued and if market inefficiencies were removed.

Impurity losses represent by far the main share of market inefficiencies between the border and point of competition, followed by excessive margins from exporters (see Figure 19). It must be noted however that the share of impurity losses may be even higher. This is because the relatively high margins are adjusted based on MAFAP methodology, and may in fact only occur in rare cases, leaving a greater share of the market inefficiencies to impurity losses. Indeed, due to the market power of coffee suppliers, exporters have limited capacity to receive such high margins, especially since they cannot store their coffee more than two months.

Figure 19: Share of various market inefficiencies in the observed and adjusted access costs gap between border and wholesale for coffee in Ethiopia, 2005-2012

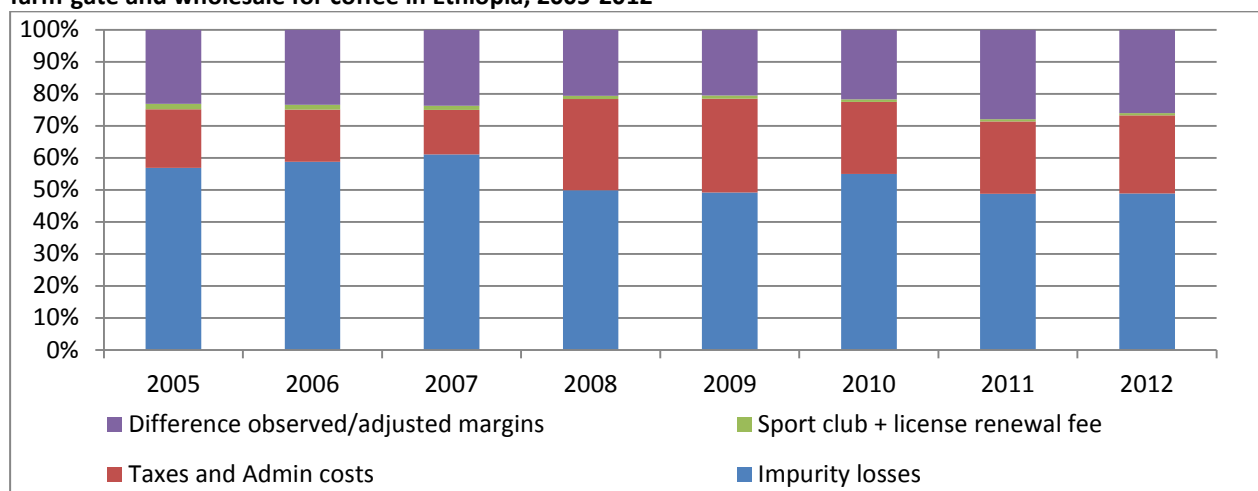


Source: Authors

The share of each inefficiency component is very similar to that of the wholesale to border level (Figure 20), with commission for traders, license fee to sit at ECX trading floor and high impurity losses during cleaning.

The importance of losses due to impurities and weight losses in the value chain suggests that the market could be more efficient by improving the quality of coffee produced but also the quality of the grading system. Indeed, although it is understandable that there are quality losses on the producer-wholesale segment, there should not be such losses on the wholesale to border segment since the coffee is supposed to be graded at ECX regional level.

Figure 20. Share of various market inefficiencies in the observed and adjusted access costs gap between farm-gate and wholesale for coffee in Ethiopia, 2005-2012



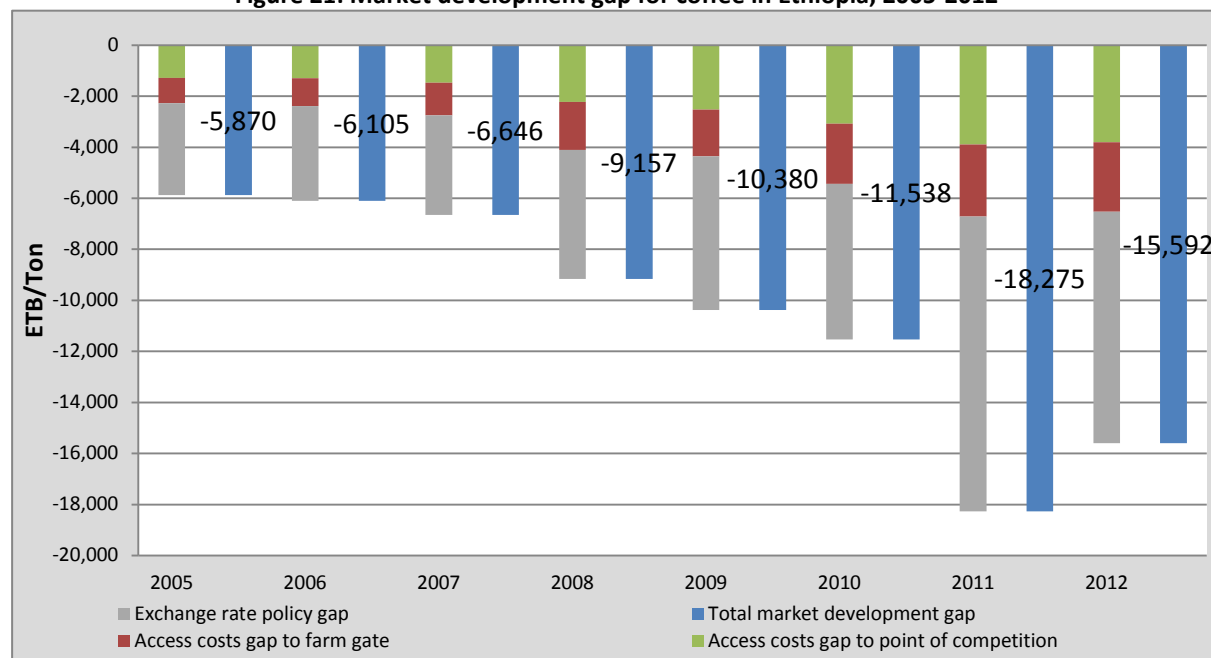
Sources: Authors

The difference between observed and adjusted access costs is used in the calculation of what is referred to as the Market Development Gap (MDG). The Market Development Gap indicator permits the understanding of structural inefficiencies (from market and exchange rate misalignment) that act

as disincentives to producers and wholesalers. For coffee, the MDG is significant, at -36 percent on average over the 2005-2012 period (see

Figure 21). This indicator reflects the fact that despite apparent incentives in the observed domain for coffee producers and wholesalers, the market development gap remains high, meaning that there is scope to ensure high domestic prices by removing inefficiencies.

Figure 21: Market development gap for coffee in Ethiopia, 2005-2012



Source: Authors

6. RECOMMENDATIONS

In order to improve the coffee market and trade structure, the government could focus more on the following policy work:

- Improve the efficiency of the coffee grading system; ensuring that grading is done effectively between farm-gate and wholesale would reduce the overall costs along the value chain.
- Refine the fees for the services provided by the Ethiopian Commodity Exchange (marketing, storage and sampling among others).
- Focus on improving the quality and traceability of coffee as well as the effectiveness of the marketing system. This would certainly lower access costs and offer incentives to supplier and exporters, preventing them from having to resort to market practices that create artificially high prices.
- Ensure better connection between farm-gate and exporters. This is especially true for high-quality coffee, for which value is lost in the opaque ECX system, as exporters do not fully trust the quality attributed by ECX. Better linkages between farm-gate level and exporters would ultimately lead to high prices for producers that would not derive from coffee suppliers' oligopolistic behavior.

7. CONCLUSION

MAIN MESSAGE

Wholesalers and producers of coffee bean in Ethiopia seem to receive production incentives between 2005 and 2010, at 20 percent and 30 percent on average, respectively. However, such incentives derive from specific market practices: the oligopoly of coffee suppliers allows them to inflate prices at wholesale level, a “protection” that is transmitted through a cascade effect to producers.

The introduction of the ECX system in 2008 does not seem to change this practice. On the contrary, it increased access costs and disconnected exporters from producers, which increased market power for coffee suppliers, while setting up a grading system that has to be reinforced to avoid the sale of overpriced coffee at ECX.

The market development gap is high, at 43 percent, due to very high impurity and weight losses along the value chain but also to over-valued exchange rate. This means that there is scope to increase domestic prices in the coffee value chain by adopting a lower exchange rate and improving the marketing system.

LIMITATIONS

All results and conclusions provided are contingent on the quality of the data. Price data used in the analysis seems very reliable but it is difficult to ensure that coffee of the same quality is being compared - although prices for Jimma coffee have been used for producer, wholesale/ECX, and border level. Data on access costs have been collected through various sources, but mainly result from discussion with coffee traders and ECX in Addis-Ababa and on the field. Access costs may thus have been over-valued, especially between producer and wholesale level, although they have been cross-checked to ensure they are close to the reality.

An important weakness of the research lies in the fact that the analysis has not been carried over into 2013 and 2014, although these years will be considered in the next MAFAP note. This shows the relevance of an institutionalized monitoring system tracking the changes in policies and prices over time, and not on a one-off basis.

Finally, although this analysis does not consider the input side, there is an intention to conduct this form of analysis in the next stages of MAFAP work.

FURTHER INVESTIGATION AND RESEARCH

There are a number of areas where further research would be useful:

- On access costs, to ensure the structure is as precise as possible. However, the data collected already reaches a particularly detailed level.
- On prices, to ensure the same Jimma coffee is precisely compared, and to better understand how producer and wholesale prices are fixed and why they seem to be so high.
- On the impact of ECX on incentives and disincentives. This would require a longer time series of prices and access costs.

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ANNEX I: Data and calculations used in the analysis

				Year	2005	2006	2007	2008	2009	2010	2011	2012
DATA		Unit	Symbol	trade status	x	x	x	x	x	x	x	x
Benchmark Price												
1	Observed	XXX/TON	P _{b(int\$)}		2,077	2,123	2,120	2,580	2,489	2,368	5,256	4,318
1b	Adjusted	XXX/TON	P _{ba}									
Exchange Rate												
2	Observed	YYY/XXX	ER _o		8.67	8.70	9.00	9.60	11.90	14.70	16.90	17.60
2b	Adjusted	YYY/XXX	ER _a		10.40	10.49	10.80	11.50	14.30	17.70	19.10	19.70
Access costs border - point of competition												
3	Observed	YYY/TON	ACo _{wh}		3,995	4,052	4,686	6,829	7,773	9,516	12,066	12,145
3b	Adjusted	YYY/TON	ACa _{wh}		2,714	2,761	3,213	4,608	5,246	6,441	8,181	8,340
4	Domestic price at point of competition	YYY/TON	P _{dwh}		16,023	15,772	19,730	21,906	23,072	32,230	69,683	53,633
Access costs point of competition - farm gate												
5	Observed	YYY/TON	ACo _{fg}		3,569	3,813	4,223	7,077	6,959	8,205	9,531	9,698
5b	Adjusted	YYY/TON	ACa _{fg}		2,452	2,593	2,831	5,074	5,006	5,728	6,604	6,861
6	Farm gate price	YYY/TON	P _{dfg}		9,787	11,304	13,859	18,042	17,309	25,061	59,000	49,000
7	Externalities associated with production	YYY/TON	E									
8	Budget and other product related transfers	YYY/TON	BOT									
	Quantity conversion factor (border - point of competition)	Fraction	QT _{wh}									

Quality conversion factor (border - point of competition)	Fraction	QL _{wh}									
Quantity conversion factor (point of competition - farm gate)	Fraction	QT _{fg}									
Quality conversion factor (point of competition - farm gate)	Fraction	QL _{fg}									

CALCULATED PRICES		Unit	Symbol	2005	2006	2007	2008	2009	2010	2011	2012
Benchmark price in local currency											
9	Observed	YYY/TON	P _{b(loc\$)}	18,007.59	18,470.10	19,080.00	24,768.00	29,619.10	34,809.60	88,821.91	75,994.28
10	Adjusted	YYY/TON	P _{b(loc\$)a}	21,600.80	22,270.27	22,896.00	29,670.00	35,592.70	41,913.60	100,384.52	85,061.78
Reference Price at point of competition											
11	Observed	YYY/TON	RP _{o_{wh}}	14,012.98	14,418.21	14,394.02	17,938.82	21,846.05	25,293.36	76,755.73	63,848.90
12	Adjusted	YYY/TON	RP _{a_{wh}}	18,886.56	19,508.79	19,683.49	25,061.71	30,347.16	35,472.24	92,203.88	76,721.95
Reference Price at Farm Gate											
13	Observed	YYY/TON	RP _{o_{fg}}	10,444.24	10,605.55	10,170.54	10,862.29	14,887.37	17,088.24	67,225.10	54,150.96
14	Adjusted	YYY/TON	RP _{a_{fg}}	16,434.48	16,915.39	16,852.09	19,987.82	25,341.55	29,744.51	85,599.92	69,860.51

INDICATORS		Unit	Symbol	2005	2006	2007	2008	2009	2010	2011	2012
Price gap at point of competition											
15	Observed	YYY/TON	PG _{o_{wh}}	2,010.02	1,353.79	5,335.98	3,967.18	1,225.95	6,936.64	(7,073.15)	(10,215.91)
16	Adjusted	YYY/TON	PG _{a_{wh}}	(2,863.56)	(3,736.79)	46.51	(3,155.71)	(7,275.16)	(3,242.24)	(22,521.30)	(23,088.96)
Price gap at farm gate											
17	Observed	YYY/TON	PG _{o_{fg}}	(657.24)	698.45	3,688.46	7,179.71	2,421.63	7,972.76	(8,225.10)	(5,150.96)
18	Adjusted	YYY/TON	PG _{a_{fg}}	(6,647.48)	(5,611.39)	(2,993.09)	(1,945.82)	(8,032.55)	(4,683.51)	(26,599.92)	(20,860.51)
Nominal rate of protection at point of competition											
19	Observed	%	NR _{Po_{wh}}	14.34%	9.39%	37.07%	22.12%	5.61%	27.42%	-9.22%	-16.00%

20	<i>Adjusted</i>	%	NRPa _{wh}	-15.16%	-19.15%	0.24%	-12.59%	-23.97%	-9.14%	-24.43%	-30.09%
Nominal rate of protection at farm gate											
21	<i>Observed</i>	%	NRPo _{ig}	-6.29%	6.59%	36.27%	66.10%	16.27%	46.66%	-12.24%	-9.51%
22	<i>Adjusted</i>	%	NRPa _{ig}	-40.45%	-33.17%	-17.76%	-9.74%	-31.70%	-15.75%	-31.07%	-29.86%
Nominal rate of assistance											
23	<i>Observed</i>	%	NRA _o	-6.29%	6.59%	36.27%	66.10%	16.27%	46.66%	-12.24%	-9.51%
24	<i>Adjusted</i>	%	NRA _a	-40.45%	-33.17%	-17.76%	-9.74%	-31.70%	-15.75%	-31.07%	-29.86%

-	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(3,593.21)	(3,800.17)	(3,816.00)	(4,902.00)	(5,973.60)	(7,104.00)	(11,562.61)	(9,067.50)

Decomposition of PWAfg				2005	2006	2007	2008	2009	2010	2011	2012
Unit	Symbol										
25 International markets gap	YYY/TON	IRG		-	-	-	-	-	-	-	-
26 Exchange policy gap	YYY/TON	ERPG		(3,593.21)	(3,800.17)	(3,816.00)	(4,902.00)	(5,973.60)	(7,104.00)	(11,562.61)	(9,067.50)
27 Access costs gap to point of competition	YYY/TON	ACG _{wh}		(1,280.38)	(1,290.41)	(1,473.47)	(2,220.89)	(2,527.52)	(3,074.88)	(3,885.54)	(3,805.55)
28 Access costs gap to farm gate	YYY/TON	ACG _{ig}		(1,116.65)	(1,219.26)	(1,392.08)	(2,002.64)	(1,953.06)	(2,477.39)	(2,926.67)	(2,836.50)
29 Externality gap	YYY/TON	EG		-	-	-	-	-	-	-	-
Market Development Gap	YYY/TON	MDG		(5,990.24)	(6,309.84)	(6,681.55)	(9,125.53)	(10,454.18)	(12,656.27)	(18,374.82)	(15,709.55)
Market Development Gap	%	MDG		(0.36)	(0.37)	(0.40)	(0.46)	(0.41)	(0.43)	(0.21)	(0.22)



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