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Sesame traders and the ECX

An overview with focus transaction costs and risks

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1 Introduction

Before the 90's, most African governments intervened in the agricultural markets mainly as a part of development policy framework. Even though the instruments of interventions varied across countries and also across the different agricultural commodities, the target was stabilizing producers' income mainly through marketing boards, which provided a single channel for exports and imports, state ownership of processing centres, and which administered domestic prices that were normally pan-seasonal, pan-territorial, and detached from international prices (Akiyama et al. 2001). However, several changes in terms of improvement in productivity in agriculture, transportation and communication, began to erode the efficiency of these intervention instruments forcing economists and policymakers to turn to market-based approaches. It is at this stage that the World Bank and other international organizations began a series of structural adjustment loans and credits conditional on certain policy reforms, which most African governments accepted.

The market reforms in Ethiopia–as in most other African countries–have resulted in improvement in performance of the agricultural markets in terms of significant re-engagement of the private sector in trade, improved market integration, and the reduction of marketing margins (Dadi, Negassa, and Franzel 1992; Lirenso 1993; Dercon 1995; Negassa and Jayne 1997; Dessalegn, Jayne, and Shaffer 1998; Gabre-Madhin 2001; Gabre-Madhin 2003). Nonetheless, these studies also pointed out that the reforms did not have the envisaged impact on agricultural growth and poverty reduction. This is mainly associated with the presence of prohibitively high transaction costs, evidenced by the lack of sufficient market coordination between buyers and sellers, the lack of market information, the lack of trust among market actors, the lack of contract enforcement, and the lack of grades and standards.

The persistence of these market constraints in Ethiopia points to the fact that market reforms alone, defined as the removal of policy distortions, are necessary but not sufficient to enhancing market performance. This suggests that the new development agenda, not only in Ethiopia but throughout post-reform Africa, is to move beyond market reform to market development. In addition to policy incentives, key interventions are required to develop appropriate incentives, market institutions and build needed infrastructure, defined together as the "3 I's of market development" (Gabre-Madhin and Goggin 2005).

It is with the intention of moving from market reform to an integrated market development that the government of Ethiopia started promoting the establishment of Ethiopian Commodity Exchange (the ECX) with the technical and financial support of international organizations like IFPRI, World Bank, UNDP and others. The Ethiopian Commodity Exchange was established in Ethiopia in 2006 and opened for major cereal crops, oil crops, pulses and coffee.

1.1 Background

Ethiopia is a landlocked country in the horn of Africa. Its economy is based on agriculture, accounting for 45% of GDP, and 85% of total employment. With a GDP per capita of 700 USD per year (PPP), it is one of the poorest countries in the world. Sesame is an important crop for Ethiopia in terms of economic development. Ethiopia is the third world exporter of sesame seed after India and Sudan. Oilseeds are the third important crop in acreage in Ethiopia after cereals

and pulses (Wijnands, Biersteker, and van Loo 2009). The major sesame growing areas are located in the Northwest; in Humera area in Tigray near the border with Sudan and Eritrea; in Metema in North Gondar and in Wollo area of Amhara region, Chanka area in Wollega of Oromiya, and in Pawi area in Benshangul Gumuz region.

The Ethiopia Commodity Exchange (the ECX), which was officially opened May 2008, is expected to play an important role as a platform for transparent and cost effective marketing (See (Alemu and Meijerink 2010). It opened for sesame trade in late 2009. The ECX does not include futures yet, it is basically a spot market, where on a trading floor transactions are made through open outcry bidding. The produce (e.g. sesame) is brought to various warehouses where it is sampled, weighed, graded and certified. The producers who deposit their produce at the warehouse, receive a warehouse receipt, which they keep until the produce has been sold at the ECX and they are paid.

After the ECX opened for coffee, and it was made mandatory for all export coffee to be sold through the ECX, there was much protest from exporters who were selling various specialty coffees to specific buyers. This led to the establishment of the " Direct Specialty Trade" facility (DST) in February 2010, whereby specialty coffee is offered for sale with a more extensive description (including e.g. origin) instead of the standard grades the ECX used for its other non-specialty coffee.

1.2 Objectives

This report documents the overall role of the ECX in addressing the major marketing constrains mainly related to market risks and transaction cost focusing on sesame traders. The report presents (i) the overview of sesame traders along with their trading practices and participation in the ECX, (ii) the estimated transaction costs before and after the ECX, (ii) the marketing cost comparisons, (iii) the determinants of trader's willingness to trade through the ECX along with the issues of sustainability of the current trade through the ECX.

After the introductory section, we explain the methodology used to gather and analyse the data used in this report. Section 3 presents the data and section 4 concludes.

2 Data and methodology

2.1 Sampling and sample size

For this study, market centres in the major sesame production areas i.e. Humera, Gonder/Metema, and Nekemte together with the terminal market Addis Ababa were selected. Except for Nekemte, the list of sesame traders was taken from the ECX branch office. For Nekemte, the list of traders was prepared by the enumerators by consulting Nekemte office of Trade and Industry. The sample sizes for each market centre were determined by the willingness of the traders to respond to the questionnaire. Accordingly, the number of respondent traders was as summarized in for each market centre with a total sample size of 194 traders.

Table 1: the number of respondent traders by market centre

Market centre	Respondent traders by market centre	
	Number	% of respondents
Humera	31	16
Gende Wuha / Gonder	58	30
Addis Ababa	78	40
Nekemte	27	14
Total	194	100

Source: Own survey, 2010
Note: Gende Wuha town is the central trade centre in Metema area

The data was collected using a pre-tested questionnaire using enumerators who have knowledge about sesame trade in respective market centers and also exposure to the ECX operations. The data were collected from February 2 to March 7, 2010 simultaneously in the four marker centres.

2.2 Estimation of determinants of willingness to trade through the ECX

In order to identify the factors affecting the willingness of traders to trade through the ECX, traders were categorized into willing (1), consisting of traders who are interested to trade through the ECX; and non-willing (0), consisting of traders who have no interest to trade sesame through the ECX. A probit model was then used for the analysis of determinants for traders to have interest (willing) to trade through the ECX. The probit model is one of the most widely used models where a discrete dependent variable is involved; the other equally widely used being the logit model (Aldrich and Nelson 1984; Amemiya 1981; Greene 2008). Both models give comparable results particularly when sample sizes are large. In this study, the probit model was chosen because it fitted to the data best. The probit model is specified as:

$$Z = \beta' X + \varepsilon\,,\ \varepsilon \sim \mathrm{N}(0,1)$$

$$Y = 1 \text{ if } Z > 0 \text{ and } Y = 0 \text{ if } Z \leq 0$$

Where:

β' represents vector of parameters to be estimated
Z is observed probability to have interest to trade through the ECX (willing)
Y is estimated probability to have interest to trade through the ECX
X represents vector of independent variables listed
ε is error term

For validation of the model, tests for multi-collinearity were performed using variance inflation factor (VIF) and Breusch-Pagan/Cook-Weisberg test for heteroskedasticity and adjustments were made accordingly.

Marginal effects, which measure the change in the probability to have interest to trade through the ECX due to a unit change in an explanatory variable, can be estimated either at the sample means of the data or at every observation and using the sample average of the individual marginal effects. In this study, the marginal effects were estimated using the sample means of the respective explanatory variables as:

$$\partial Y / \partial X_i = \Pr\left(Y = 1 \mid \overline{X}, \Delta X_i\right)$$

Where:

$\partial Y / \partial X_i$ is the marginal effect of explanatory variable X_i on the probability to have interest to trade through the ECX

$\overline{X}$ represents the sample means of other explanatory variables

ΔX_i is the unit change of X_i

The hypothesized determinants of traders' willingness to trade through the ECX and their descriptions are summarized in Table 2. In general, the determinants are categorized into household socio-demographic factors, asset ownership, livelihood diversification/ specialization in agricultural activities, agricultural commercialization, access to and utilization of support services. Software packages of SPSS, STATA and MS/EXCEL were used to carry out the computations.

Table 2: Description of hypothesized determinants of traders' willingness to trade through the ECX

Variable	Definition of the variable	Expected sign	Rationale
Willingness to trade	Traders' willingness to trade through the ECX (1= willing 0=non willing	Dependent variable	
Demographics	Age of household head in years	+	Age is a proxy for experience, which can positively influence willingness
	Formal education in years	+	Education is a source of skill to undertake economic activity
	Number of language spoken (both local and foreign)	+	As the number of language spoken increases, traders ability for getting international experience increases
Resource ownership	Warehouse ownership (1=Yes, 0=No)	+	The higher resources, the better the ability to try new things
	Cleaning facility ownership (1=Yes, 0=No)	+	
	Truck ownership (1=Yes, 0=No)	+	
	Working capital (in Million ETB)	+	
Transaction cost related variables	Number of purchase markets	+	If the number of purchase markets is high, traders will be interested to trade through the ECX to reduce the transaction costs due involvement in many markets
	Number of buying agents the trader works with	+	If the number of buying agents is high, traders will be interested to trade through the ECX to reduce the transaction costs due involvement in many markets
	Time required to undertake a transaction (days)	+	If the number of days required to undertake a transaction is high, traders will be interested to trade through the ECX to reduce the transaction costs due involvement in many markets
	Perceived change on the time required for a transaction with the ECX (1=decreased 0=increased or remained the same)	+	If traders perceive that the time required is decreasing by trading through the ECX, then they will be interested
Regional difference	Dummy for regions (Tigray is a base)	±	There will be regional difference in willingness due to the unaccounted variables listed above

3 Results

3.1 Overview of sesame traders

The distribution of respondents by trader type shows significant differences among the market centres (Table 3). More exporters are found in Addis Ababa and Humera and wholesalers in Nekemte and Gende Wuha/Gonder. Similarly, there are larger number of retailers in Nekemte and Gende Wuha/Gonder, which reflects the existence of local market for local consumers in these areas.

Table 3: distribution of respondents by trader type (% of respondents)

Market centre	Exporter	Wholesaler	Retailer	Assembler	Mixed activities	Chi square
Humera	26	6	3	52	13	208.44**
Gende Wuha / Gonder	9	74	12		5	
Addis Ababa	79	6	1	1	12	
Nekemte		78	19	4		
Total	39	37	7	9	8	

Source: Own survey, 2010
Note: *** indicates significance at 1% probability level

The distribution of the trader types by period of business establishment is statistically different. Most of the businesses were established in the first 10 years after marker liberalization (since 1991) followed by the 2000s (Table 4). Retailers and to a lesser extent wholesalers, however, show a different pattern: the majority of retailers (86%) and wholesalers (56%) started their business in the past 10 years.

Table 4: Distribution of traders by period of business establishment (% of respondents)

Period of Establishment	Exporter	Wholesaler	Retailer	Assembler	Mixed activities	Total	Chi square
Before market liberalization (1991)	14	10	-	17	19	12	34.47***
In the first 10 years of market liberalization (1991 - 2000)	60	34	14	61	69	48	
In the 2nd 10 years of market liberalization (2000 - 2010)	26	56	86	22	13	40	

Source: Own survey, 2010
Note: *** indicates significance at 1% probability level

The average years of formal education of respondent traders varies by market centre. As expected, in Addis Ababa where there are more sesame exporters, the formal education level is higher (about 12 years) followed by Humera (about 10 years). Traders in Gende Wuha/Gonder

seem to have the lowest level of formal education with about an average of four years of formal education (Table 5).

Table 5: Average years of formal education of respondents by marker centre

Market centre	Mean	Std
Addis Ababa	12	3
Humera	10	4
Nekemte	8	4
Gende Wuha / Gonder	4	5
Average of total	8	5
F-value	23.21***	

Source: Own survey, 2010
Note: *** indicates significance at 1% probability level

The average number of local and foreign languages spoken by respondent traders varies in the different market centres (Table 6). The highest number of local languages (on average) is spoken by traders in Humera followed by traders in Nekemte and Addis Ababa with total average of 1.36 languages. Similarly, more traders in Humera speak foreign languages as compared to traders in the other market centres.

Table 6: Average number of local and foreign languages spoken by market centre

Market centres		Number of local languages spoken	Number of foreign languages spoken	Number of languages spoken
Humera	Mean	1.87	1.23	3.10
	Std	.34	.50	.60
Gende Wuha / Gonder	Mean	1.05	.09	1.14
	Std	.22	.28	.40
Addis Ababa	Mean	1.27	.47	1.74
	Std	.50	.66	1.04
Nekemte	Mean	1.67	.22	1.89
	Std	.55	.42	.85
Total	Mean	1.36	.44	1.80
	Std	.51	.64	1.02
F-value		31.57***	35.11***	40.79***

Source: Own survey, 2010
Note: *** indicates significance at 1% probability level

The ownership of warehouses and cleaning facilities varies by market centre: more traders in Addis Ababa and Humera own warehouses and cleaning facilities (Table 7). The capacity of these resources also varies among market centres, where higher capacity warehouses and cleaning facilities are found in Addis Ababa followed by Humera.

Table 7: Resource ownership (% of respondents)

Market Centre	Resource ownership (% of respondents)		Average capacity of resources		
	Warehouse	Cleaning facility	indicator	Capacity of warehouse in quintal	Capacity of cleaning facility (qts/day)
Humera	84	35	Mean Std N	27,617 39,899 26	970 659 11
Gende Wuha / Gonder	52	9	Mean Std N	14,258 26,854 30	1,238 1,201 4
Addis Ababa	96	65	Mean Std N	154,054 359,287 74	58,583 111,595 50
Nekemte	78		Mean Std N	2,240 2,518 21	
Total	84	35	Mean Std N	83,396 260,976 151	45,304 100,656 65
Chi square	38.38***	64.32***	F-value	1.95*	0.79

Source: Own survey, 2010
Note: * indicates significance at 1% probability level

As expected, exporters have higher initial and working capital followed by traders with mixed activities and wholesalers. On average, a sesame trader had about 8 million ETB (or around € 467.000) initial capital and about 19 million ETB (or around € 1,110,000) working capital with about 65% from own funds (Table 8). Use of own funds is the lowest for the exporters compared to other types of traders.

Table 8: Average Initial and current working capital by trader type (in millions)

Trade type		initial start-up capital	Current working capital	Proportion of working capital from own funds
Exporter	Mean	7.4	37.4	52.6
	Std	12.1	36.6	27.3
	N	63	70	63
Wholesaler	Mean	0.25	4.67	75.35
	Std	1.24	24.92	36.58
	N	69	68	62
Retailer	Mean	0.17	1.27	69.58
	Std	0.53	2.70	39.34
	N	14	14	12
Assembler	Mean	0.24	2.46	61.47
	Std	0.48	1.47	28.981
	N	17	16	17
Mixed activities	Mean	1.98	29.15	73.46
	Std	2.00	31.93	31.32
	N	16	16	13
Total	Mean	2.91	18.79	64.78
	Std	7.96	32.86	33.64
	N	179	184	167
F-value		9.41***	14.36***	4.23***

Source: Own survey, 2010
Note: *** indicates significance at 1% probability level

3.2 Trading practices

The major purchase markets vary across the different types of traders. The majority of exporters, assemblers and traders with mixed trading activities use Humera as their major purchase market. A considerable proportion of wholesalers and retailers purchase sesame from other rural markets (Table 9).

Table 9: Major purchase market centre by trader type (% of respondents)

Market centres	Exporter	Wholesaler	Retailer	Assembler	Mixed activities	Total	Chi square
Humera	57	6	14	93	67	39	135.32***
Gonder	11	30	-	-	20	17	
Tikur Wuha in Metema	4	29	50	-	7	16	
Addis Ababa	20	4	-	-	7	10	
Nazareth	3	-	-	-	-	1	
Nekemte	5	-	-	-	-	2	
Other markets	-	30	36	7	-	14	

Source: Own survey, 2010
Note: *** indicates significance at 1% probability level

Even though the average number of sesame purchase markets varies across trader type, most of the traders operate in more than one market centre with the highest number for exporters (Table 10).

Table 10: Average number of purchase and sale market centres by trader type

Trader type		Number of markets where purchase is performed	Number of markets where sale is performed
Exporter	Mean	1.95	1.28
	Std.	.79	.45
Wholesaler	Mean	1.34	1.10
	Std.	.63	.30
Retailer	Mean	1.21	1.00
	Std.	.43	.00
Assembler	Mean	1.22	1.11
	Std.	.65	.32
Mixed activities	Mean	1.31	1.06
	Std.	.48	.25
Total	Mean	1.55	1.16
	Std.	.74	.37
F-value		10.59***	3.72***

Source: Own survey, 2010
Note: *** indicates significance at 1% probability level

The average number of contacts in the first purchase market centre per trader is about six people and it is not statistically different across the trader types. However, the average number of contacts in the first sales market is different across the trader type with the highest for assemblers with about 6 people followed by exporters with about 4 people (Table 11).

Table 11: Average number of contacts in the first purchase and sale market centre by trader type

Trader type		Number of trading contracts in first purchase market	Number of trading contracts in first selling market
Exporter	Mean	7.00	4.13
	Std.	10.48	3.58
Wholesaler	Mean	4.38	2.63
	Std.	10.68	1.88
Retailer	Mean	4.44	3.88
	Std.	5.88	1.46
Assembler	Mean	10.50	5.87
	Std.	7.05	4.60
Mixed activities	Mean	9.00	3.00
	Std.	9.17	1.15
Total	Mean	5.90	3.53
	Std.	9.91	2.94
F-value		1.19	4.28***

Source: Own survey, 2010
Note: *** indicates significance at 1% probability level

The sesame trade is seasonal and seems to be a four month activity for most of the traders, starting in November and ending in February following production season (Table 12). Of course, the exporters operate in a bit longer period mainly due to need for cleaning/grading along with bulking.

Table 12: Seasonality of sesame purchase by trader type (% of respondents)

Month	Exporter	Wholesaler	Retailer	Assembler	Mixed activities	Total
January	28	79	64	17	19	47
February	19	30	-	17	25	22
March	5	3	-	22	13	6
April	1	-	7	17	13	4
May	-	1	-	-	-	1
June	1	-	-	-	-	1
July	4	-	-	-	-	2
August	5	-	-	-	-	3
September	12	-	-	-	-	5
October	8	-	7	-	6	4
November	16	65	36	22	25	37
December	27	82	86	50	31	54

Source: Own survey, 2010

3.3 the ECX and sesame trade

The ECX was officially opened in May 2008, but sesame trade through the ECX did not start until early 2009. The delayed start was mainly due to the need of setting the standards that are linked

with origin and other common quality indicators, and the need to establish the required infrastructure in the main production areas that are far from the central market in Addis Ababa. Even after the start of sesame trade, traders' interest to trade through the ECX was very minimal. Cognizant of the limited interest of traders to trade though the ECX not only for sesame but also for other major export commodities, the government passed a law that makes trade through the ECX compulsory in early 2010. It expected that the 2010/11 production season sesame, which will start entering the market in October, 2010 will be traded mainly through the ECX.

Currently, there are about 51 full ECX members who are registered for sesame trade along with other ECX traded commodities and all of them are exporters. The Akrabi's–traders that collect sesame from the production areas and supply to the central markets (to exporters)—have limited membership status[1]. Five Akrabi's have limited trading membership and 21 Akrabi's have limited intermediary membership. There are also 44 exporters with limited membership status (Table 13). Most ECX members operate in Addis Ababa, Amhara (Gonder and Metema area) and in Tigray (Humera area).

Table 13: Status of the ECX registered Sesame Members by membership and region as of January 27, 2010

the ECX Membership status	**Trader type**	**Total number**	**Regional distribution**					
			Addis Ababa	Amhara	Tigray	Oromia	SNNP	Dire Dawa
Full members	Exporter	51	43	0	1	6	1	0
Limited Members	Akrabi Limited Trading Member (LTM)	5	1	1	3	0	0	0
	Akrabi Limited Intermediary Member (LIM)	21	1	13	6	1	0	0
	Exporters	44	40	1	1	0	0	2
Total Sesame Members (Full & Limited)		121	85	15	11	7	1	2

Source: the ECX, Feb, 2010

The survey results indicate that the traders' interest to trade through the ECX varies by trader type (Table 14). About 27% of the sesame exporters and about 25% of wholesalers are interested to trade through the ECX mainly due to the estimated reduction in transaction cost. None of the retailers or traders with mixed trading activities are interested to trade through the ECX. Overall, 20% of the total surveyed traders are interested to trade through the ECX stating reasons linked to reducing transaction costs.

[1] See Alemu (2010) for a more detailed description of the ECX

Table 14: Trader's interest to trade through the ECX (% of respondents)

Trader type	Interested due to the estimated benefit	Interested based on the information from others	Not interested
Exporter	27	21	52
Wholesaler	25	7	68
Retailer	-	-	100
Assembler	-	50	50
Mixed activities	-	-	100
Total	20	15	65
Chi square	44.28***		

Source: Own survey, 2010
Note: *** indicates significance at 1% probability level

3.4 the ECX and transaction costs in sesame trade

The literature on transaction costs present two broad categories of transactions costs, proportional and fixed transactions costs (Key, Sadoulet, and Janvry 2000). Proportional transactions costs change according to the volume sold or bought (e.g. price premiums deriving from bargaining capacity) as per unit transportation costs. Fixed transactions costs are independent of the quantities sold or bought. They include information, bargaining, and monitoring costs. Information costs occur before the exchange takes place and include aspects such as searching for attributes that could facilitate the transactions, seeking better prices, and looking for potential buyers. Bargaining or negotiation costs are incurred during the exchange and include the time to negotiate a contract, reach an agreement, and make arrangements for payment. The extent to which a person is able to minimize these costs is usually assumed to be a function of individual characteristics (education, skills, gender), product attributes like quality, and the relationship between agents participating in the transactions. Finally, monitoring costs are incurred to ensure that the conditions of an exchange are met (for example enforcing the payment schedule agreed upon or the specified quality of the product) (Stifel, Minten, and Dorosh 2003; Key, Sadoulet, and Janvry 2000).

We present the trends in transaction costs based on estimates of respondents for "before" and "after" the ECX became operational. The indicators for transaction costs used for comparison are (i) the average number of intermediaries each trader used (buying agents, brokers, and selling agents) along with the role of ethnicity and religion, (ii) average number of people consulted and involved to make a transaction per market day (number of people consulted in the main market and in other markets, number of employees involved to collect market information, (iii) methods/means of verification employed for sesame quality assurance, and (iv) time required per transaction (number of trips made to market centres, costs incurred in paying trips, time required to purchase and sale).

The average number of intermediaries traders used to undertake transaction has declined for all types of traders. All traders who have traded through the ECX have stopped using brokers and

selling agents which has reduced the number of buying agents with whom they have been working (Table 15).

Table 15: Use of intermediaries before and after the ECX in same trade by trader type

Trade type		Buying Agent		Brokers		Selling Agent	
		Before the ECX	After the ECX	Before the ECX	After the ECX	Before the ECX	After the ECX
Exporter	Mean	1.60	1.20	1.60	0	1.33	0
	Std	0.89	0.45	1.34	-	0.58	-
	N	5	5	5	5	3	5
Wholesaler	Mean	1.25	1.25	1.00	0	0.50	0
	Std	0.50	0.50	0.82	-	0.71	-
	N	4	4	4	4	2	4
Assembler	Mean	2.00	1.67	1.33	0	1.00	0
	Std	1.00	0.58	1.53	-	-	-
	N	3	3	3	3	2	3
Total	Mean	1.58	1.33	1.33	0	1.00	0
	Std	0.79	0.49	1.15	-	0.58	-
	N	12	12	12	12	7	12
F-value		0.51	0.44	0.78		0.34	

Source: Own survey, 2010

The details of the use of buying agents for the different trader types shows that along with the reduction in the number of buying agents used to undertake transaction, the proportion of buying agents from similar ethnic groups and religions has declined for traders who are using the ECX. However, the proportion of buying agents with social linkage has remained more or less similar (Table 16).

Table 16: Use of buying agents before and after the ECX in same trade by trader type

Trade type		Number of buying agents		Proportion of buying agents from the same Ethnic group		Proportion of buying agents from the same religion		Proportion of buying agents with Social linkage	
		Before ECX	After ECX	Before ECX	After ECX	Before ECX	After ECX	Before ECX	After ECX
Exporter	Mean	1.60	1.20	0.90	0.60	0.90	0.60	1.00	1.00
	Std	0.89	0.45	0.22	0.55	0.22	0.55	-	-
	N	5.00	5.00	5.00	5.00	5.00	5.00	3.00	3.00
Wholesaler	Mean	1.25	1.25	0.75	0.67	0.83	0.75	1.00	1.00
	Std	0.50	0.50	0.50	0.58	0.29	0.35	-	.
	N	4.00	4.00	4.00	3.00	3.00	2.00	3.00	1.00
Assembler	Mean	2.00	1.67	0.83	0.83	1.00	1.00	1.00	0.50
	Std	1.00	0.58	0.29	0.29	-	-	.	.
	N	3.00	3.00	3.00	3.00	3.00	3.00	1.00	1.00
Total	Mean	1.58	1.33	0.83	0.68	0.91	0.75	1.00	0.90
	Std	0.79	0.49	0.33	0.46	0.20	0.42	-	0.22
	N	12	12	12	11	11	10	7	5
F-value		0.51	0.44	0.82	0.82	0.65	0.49		

Source: Own survey, 2010

The transaction costs in terms of the average number of people consulted to undertake a transaction along with the average number of employees involved in information collection has considerably declined following the ECX as compared to before the ECX (Table 17).

Table 17: Transaction cost in terms of number of employees involved and number of people consulted for market information

Market Centre		number of people consulted at main market per market day		number of people consulted at other markets per market day		Number of employees participating in information collection	
		Before ECX	After ECX	Before ECX	After ECX	Before ECX	After ECX
Humera	Mean	3.33	2.00	4.50	-	2.50	2.00
	Std.	1.53	.	3.54	-	2.12	.
	N	3	1	2	-	2	1
Gende Wuha / Gonder	Mean	3.30	3.00	2.42	-	1.53	-
	Std.	2.67	-	2.63	-	1.99	-
	N	57	1	57	1	58	1
Addis Ababa	Mean	2.81	3.25	1.93	2.25	3.42	1.17
	Std.	2.11	1.26	1.82	0.50	6.36	0.41
	N	37	4	27	4	48	6
Nekemte	Mean	8.39	4.00	3.85	4.00	2.56	-
	Std.	20.03	.	3.66	.	1.19	-
	N	23	1	20	1	25	-
Total	Mean	4.13	3.14	2.60	2.17	2.42	1.13
	Std.	9.13	1.07	2.75	1.33	4.14	0.64
	N	120	7	106	6	133	8
F-value		2.16*	0.44	2.41*	16.17**	1.86	6.13**

Source: Own survey, 2010

Traders use different mechanisms to verify the quality of purchased sesame, such as sample verification, direct observation, buying from people whom they trust, weighing each bag. After the ECX became operational, traders also use the ECX certificate of quality. A higher proportion of traders who has experience with the ECX now depends on the ECX quality certificate even though some still use the other methods (Table 18). For instance, of the 86% of traders who reported that they used to weigh each bag of sesame bought before the ECX, about 14% of traders still verify the accuracy by weighing each bag.

Table 18: Means of verification about sesame quality (% of respondents)

Quality indicators	Means of verification	Before the ECX	After the ECX
Place of origin	Sample verification	23	-
	Direct observation	62	15
	Personal trust	15	-
	Use of the ECX issued certificates	-	85
Adulteration	Sample verification	22	8
	Direct observation	77	15
	Personal trust	1	77
Seed Color	Sample verification	21	14
	Direct observation	79	7
	Use of the ECX issued certificates	-	79
Seed Size	Sample verification	19	-
	Direct observation	81	21
	Use of the ECX issued certificates		79
Quantity	Direct observation	7	7
	Personal trust	7	-
	Weighting each bag	86	14
	Use of the ECX issued certificates	-	79

Source: Own survey, 2010

On average, the proportion of traders making trips to market centres and the number of trips made have both considerably declined after the ECX has become operational. Similarly, the time required to sell sesame has declined from about 42 days to about 16 days, on average. However, the time required to purchase sesame seems to remain the same (Table 19).

Table 19: Some indicators of transaction costs in sesame trade before and after the ECX

Indicators		Before the ECX	After the ECX
Proportion of traders paying trip to market centres	% of traders	19	6
number of trips made to market centres	Mean	5.64	2.42
	Std	5.46	2.57
	N	36	12
Total costs incurred in paying trips (in ETB)	Mean	8,214.36	5,908.63
	Std	16,067.90	6,115.36
	N	39	8
Purchase time (in days)	Mean	14.02	14.43
	Std	19.90	22.41
	N	134	13
Sale time (in days)	Mean	42.36	16.46
	Std	59.19	23.31
	N	141	12

Source: Own survey, 2010

3.5 the ECX and Marketing costs

Table 20 presents the marketing cost breakdown based on the estimates of respondents before and after the ECX for the last transaction made converted into a quintal of sesame (100 kg). The costs that are incurred lump-sum per transaction were divided with the volume purchase. The estimate shows that the marketing costs have declined by about 57%.

Table 20: Estimated marketing costs before and after the ECX (per quintal of sesame)

Marketing cost components	Before the ECX			After the ECX			Effect on marketing cost
	Mean	Std	N	Mean	Std	N	
Cost of empty sacks	6.29	5.23	174	19.00	20.16	15	-
Bagging & sewing	2.51	1.40	176	3.46	1.48	13	-
Loading at purchase market	3.76	6.94	183	1.42	0.57	13	+
Payment to intermediary agent at purchase	19.08	102.00	106	105.73	296.37	11	-
Tips during purchase	0.14	0.15	87	0.06	0.04	4	+
Market levies	7.76	22.33	103	17.50	24.75	2	-
Transport cost from purchase to Intermediary market	45.64	25.78	140	49.78	28.80	9	-
Transport cost from intermediary to final market	50.60	29.59	89	10.00	14.14	2	+
Total payments at road stops (kellas)	0.00	0.01	46	-	.	1	+
Total bribes	0.00	0.01	34	-	.	1	+
Payment to transport broker	0.11	0.14	81	-	.	1	+
Off-loading at intermediate market	3.65	3.29	79	0.67	0.58	3	+
Loading at intermediate market	3.75	4.04	70	-	.	1	+
Off-loading at final scale at final sale market	8.38	59.29	159	1.30	0.75	10	+
storage costs per quintal per month	7.93	41.56	92	3.46	1.33	13	+
Telephone/radio costs	0.39	0.60	157	0.09	0.13	2	+
Payment to intermediary agent at sale	334.09	1,529.54	77	4.80	8.67	5	+
Tips during sale	0.09	0.19	49	-	-	2	+
Personal travel costs	0.32	0.66	96	0.54	0.43	6	-
municipality market levies	12.00	98.47	103	-	.	1	+
Total	506.51			217.82			57%

Source: Own survey, 2010

3.6 Determinants of willingness to trade through the ECX

The probit estimate of the determinants of traders' willingness to trade through the ECX is presented in Table 21. Along with the overall significance of the model, from the hypothesized 11 explanatory variables, five variables were found to significantly affect the trader's willingness of trade through the ECX. In terms of demographics, traders with higher formal education and higher number of languages spoken tend to be more willing to trade through the ECX. A unit-change in formal education and language spoken increase the probability of willingness of a trader on average by about 2% and 12%, respectively. In terms of resource ownership, traders with higher working capital tend to be more willing.

Table 21: Determinants of willingness to trade through the ECX (*Probit* Estimates)

Variable	Definition of the variable	Coefficient	Robust Std Error	Marginal effects
Demographics	Age of household head in years	- 0.0145	0.0161	- 0.0043
	Formal education in years	0.0791**	0.0398	0.0234
	Number of language spoken (both local and foreign)	0.3903***	0.1571	0.1157
Resource ownership	Warehouse ownership (1=Yes, 0=No)	- 0.5070	0.3964	N.A.
	Cleaning facility ownership (1=Yes, 0=No)	0.2749	0.3339	0.0848
	Truck ownership (1=Yes, 0=No)	- 0.3851	0.3297	N.A.
	Working capital (in Million ETB)	0.0091**	0.0039	0.0027
Transaction cost related variables	Number of purchase markets	0.2454	0.2124	0.0728
	Number of buying agents the trader works with	0.1803***	0.0718	0.0535
	Time required to undertake a transaction (days)	0.0065	0.0077	0.0019
	Perceived change on the time required for a transaction with the ECX (1=decreased 0=increased or remained the same)	1.2862**	0.5401	N.A.
Regional difference	Amhara	- 0.4916	0.6027	N.A.
	Oromiya	1.7785***	0.5154	N.A.
	Addis Ababa	0.4340	0.4252	N.A.
Constant term		-2.1186**	1.0074	
Number of observation =170 LR chi2(14) =82.36*** Pseudo R2 =0.39 Log likelihood =-65.38				

Note: *** and ** indicate significance at 1% and 5% probability levels
Marginal effects for probit estimates require more calculation and are not presented here.

Among the transaction cost related explanatory variables, the number of buying agents the trader works with and perceived change in time required for a transaction with the ECX were found to positively influence traders willingness to trade through the ECX. On average, a unit increase in the number of buying agents the trader deals with, increases the probability of the traders to be willing to trade through the ECX by about 5%. Similarly, the perception of a trader about the

reduction in the time required to undertake transaction due the ECX increased the probability of willingness

4 Conclusions

The comparison between the situation before and after the ECX indicates that transaction costs have declined in terms of (i) the average number of intermediaries each trader used (buying agents, brokers, and selling agents), (ii) average number of people consulted and involved to make a transaction per market day (number of people consulted in the main market and in other markets, number of employees involved to collect market information), (iii) methods/means of verification employed for sesame quality assurance, and (iv) time required per transaction (number of trips made to market centres, costs incurred in paying trips, time required to purchase and sale). Similarly, the marketing costs have show reduction after the ECX, which is estimated to decline by about 57% as compared to the situation before the start of the ECX. It is therefore surprising that only a small proportion of traders is willing to use the ECX.

The probit estimate of the determinants of traders' willingness to trade through the ECX shows that traders with higher formal education and higher number of languages spoken tend to be more willing to trade through the ECX. A unit-change in formal education and language spoken increase the probability of willingness of a trader on average by about 2% and 12%, respectively. In terms of resource ownership, traders with higher working capital tend to be more willing. Among transaction cost related factors, number of buying agents the trader works with and perceived change on the time required for a transaction with the ECX were found to positively influence traders' willingness to trade with the ECX. On average, a unit increase in the number of buying agents the trader deal with, increases the probability of the traders to be willing to trade through the ECX by about 5%. Similarly, the perception of a trader about the reduction in the time required to undertake transaction due the ECX increased the probability of willingness by about 47%.

Why so many traders are reluctant to trade through the ECX remains still somewhat unclear. It seems as if the more educated traders with more resources, and those who can reduce transaction costs by trading through the ECX, are willing to use the ECX. It could therefore be that it is a matter of time before other traders will change their view. However, one reason not captured by our survey is the greater likelihood of being taxed when selling through the ECX. Taxation is a sensitive issue.

Making the ECX mandatory could be a solution to the problem of perception traders have about the usefulness of the ECX. Experience with trading through the ECX could show the benefits of the ECX. However, making trade mandatory has other drawbacks, such as the difficulty of dealing with specialty, organic or fair trade, as described by Mheen-Sluijer (2010).

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