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Cross-Border Trade and Food Security in the Ethiopia-Djibouti and Ethiopia-Somalia Borderlands

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and
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Organisation for Social Science Research in
Eastern and Southern Africa



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1. INTRODUCTION

1.1 Statement of the Problem

Trade between countries in the Horn of Africa is largely unofficial and unrecorded. The recent recorded data show that Ethiopia's trade with its neighboring countries is very little and is limited to some manufactured imports from Kenya and vegetable and *chat* exports to Djibouti and recently to Somaliland (Northern Somalia). On the other hand, hundreds of thousands of all types of livestock and bulk of coffee, vegetables and *chat* originating from Ethiopia are smuggled to neighboring countries. In return, a wide range of manufactured goods is imported illegally. This illicit cross-border trade has been there for a long time.

Several interrelated factors have facilitated the existence of the unofficial trade in the area. In the case of Ethiopia, the borderlands are poorly integrated with the central regions. Therefore, official channels hardly provide adequate outlets for livestock and other products of the lowland pastoral areas found in the borderlands. This weak link is also a constraint on the smooth flow of food crops from the central highlands to the peripheral lowlands. Other factors such as government trade policies had also discouraged trade along official lines. Thus, the unofficial cross-border trade has been filling the gaps by creating outlets for the products of the border region and by providing goods that could not be supplied by the official channels. Therefore, the eastern Ethiopia border region has been more linked with Djibouti and Somalia.

Djibouti and Somalia import livestock, coffee, *chat*, vegetables, and food grain officially and unofficially from the eastern Ethiopia region. Livestock is imported primarily for re-export to the Middle East. Traders also unofficially import new and used clothes, electronics, cigarettes, manufactured food items, vegetable oil, and pharmaceuticals from these countries. Not all these items are products of Djibouti and Somalia. They are imported illegally across the border through these two countries from Asian

and European countries. This trade is conducted beyond the control of official institutions.

The government regards the cross-border trade as illegal and it is commonly referred to as "contraband". Control mechanisms such as border patrols and searches at various checkpoints are employed to curb this illegal trade. However, success in this area seems very limited. The cross-border trade rather showed expansion in terms of the items traded, areas covered and number of people involved. Cross-border trading has now become a major economic activity in the area.¹

If some sources of market imperfections can be removed, the cross-border trade in the borderlands of the Horn of Africa would play several vital roles for people in the borderlands and beyond. These would include promoting regional integration for market creation and expansion, maintaining peace and stability in the area and enhancing food security. The study focuses on the relationship between cross-border trade and food security in Eastern Ethiopia with special emphasis to the pastoral lowlands. The underlying assumption of the study is that improved market access including the cross-border trade will improve disposable income and hence the food security situation of the inhabitants in the borderlands.

Little is known about the structure and performance of external trade networks in pastoral areas of Ethiopia. Some attempts have been made in relation to specific issues such as regional integration (Maruye 1992; Belay 1996). Other studies where cross-border trade issues are marginally incorporated also include Sentayehu (1996) whose study indicates that there are important cross-border livestock markets in neighboring countries for livestock originating from the adjacent borderlands of Ethiopia. Generally, not all these studies investigate adequately the cross-border trade issue and

¹ As an uncontrolled trade, one may assume potential dangers on the performance of the country's economy as well as security. However, measures need to be selective so that provisions are made to seize favorable aspects of this trade.

its relationship with food security relations in the area. This issue is important particularly among the pastoral groups who inhabit the borderlands of this region and whose food security is highly exchange dependent.² Accordingly, the study aims at addressing the following questions:

- i) What is the current structure and performance of the cross-border trade in the Ethiopia-Djibouti and Ethiopia-Somalia borders?
- ii) What are the major policy and other factors influencing cross-border trade and food security in the region?

1.2 Data and Methods

Field surveys were conducted in the Ethiopia-Djibouti and Ethiopia-Somalia (Somaliland) borderlands in October 1999 and March, April and July 2000. In the Ethiopia-Djibouti side of the border area, the survey covered urban centers in Afar Region, Dire Dawa Administration, Shinnille Zone of the Ethiopia-Somali Region. In addition, to map the unofficial trade route that passes through the Ethiopia-Djibouti border, the study also conducted interviews and market observations in South and North Wollo Zones of the Amhara Regional State and the Alamata area of Tigray Regional State. Most of the Ethiopia-Somali region and part of the Harerghe highlands are important catchments for Ethiopia's cross-border trade with Northern Somalia. Markets visited in this part of the study area include Jijiga, Kebri Beyah, and Hartishek in Ethiopia-Somali region as well as Harer town and its surroundings within the Harerghe highlands (Map 1).

² The OSSREA/BASIS-CRSP research project on Cross-Border Trade and Food Security in the Horn of Africa aims to narrow this gap. Similar studies conducted under the theme include "Cross-Border Livestock Trade and Food Security in Eastern and Southeastern Ethiopia Borderlands" and "Market Access and Food Security in Pastoral Areas of Ethiopia". The study is part of the overall project and focuses on the case of Ethiopia-Djibouti and Ethiopia-Somalia (Somaliland) border.

Interviews were conducted with key informants who were officials working in governmental organizations involved in promoting trade in the area as well as in non-governmental organizations dealing with food security in the region. These are:

- i) Customs controllers in Dire Dawa Harer, Jijiga, Kombolcha (South Wollo) and in many places along the main roads on the way to Djibouti and Somaliland: The issues discussed with customs controllers included, among others, unofficial trade routes, items traded, profile of actors, and the performance of the customs control operation in the area.
- ii) Foreign Trade Office in Dire Dawa and Trade Bureaus in Afar and Ethiopia-Somali Regional States: The interview was on the status of the recently established cross-border petty trade in the eastern region.
- iii) National Bank of Ethiopia in Dire Dawa compiles data on official trade between Ethiopia and the rest of the world for items originating from Eastern Ethiopia region. The discussion focused on the official large-scale trade from Ethiopia to Djibouti and Somalia.
- iv) Disaster Prevention and Preparedness Bureaus in Afar and Ethiopia-Somali regions as well as Save the Children Federation-UK in Jijiga: The discussion held in these bureaus was regarding the early warning activities and the food security situation in the area.

Questionnaire based interviews were carried out with the cross-border petty traders. These traders are currently found only in Dire Dawa area.³ About 66 traders were interviewed using a structured questionnaire. Several questions

³ The cross-border petty trade that has been made legal with respect to some selected items was allowed for people living in the Afar, Dire Dawa and Jijiga areas. However, during the interview period in 1999 and 2000 those engaged were only few petty traders from Dire Dawa side of the border for Ethiopia-Djibouti Cross-Border Petty Trade.

were incorporated in various categories. The first category of questions dwelt on the trader's identification. These included location, gender, ethnic and religious background, languages, education, family size, experience in cross-border trading, and type of any other activity. The second category focused on the type, volume and value of the items traded back and forth Dire Dawa area to Djibouti. The third category of questions was on trader inputs including transport and credit facilities. Finally, open-ended questions were asked on the problems encountered by the petty traders.

Secondary sources used in the study included the following:

- i) Unpublished data on the volume and value of the official trade from Ethiopia to Djibouti and Somaliland obtained from National Bank of Ethiopia Dire Dawa;
- ii) Progress reports of Dire Dawa Foreign Trade Office and Customs Offices in North Eastern and Eastern Region;
- iii) Food and livestock prices collected by the Bureaus of Disaster Prevention and Preparedness and Agriculture in Afar and Ethiopia-Somali Regions; and
- iv) Prices of different types of livestock, milk, grain, vegetable oil, and fuel wood compiled by Save the Children - UK. ⁴

The paper has five sections organized as follows. Section two presents the profile of the eastern Ethiopia borderlands. Section three discusses the structure of both official and unofficial trade in Eastern Ethiopia Region. Section four is about the relationship between market access and food

⁴ SAVE the Children UK compiles reports on the food security situation in Ethiopia-Somali region based on data collected on monthly prices of sheep and goat, cow milk, grain (maize, imported rice, relief wheat and sorghum), edible oil, sugar, water, and fuel wood. Markets included in this data are found in Jijiga Zone of the Ethiopia-Somali Region. The market centers are Darwenaji, Hartishek, Jijiga, Kebri Beyah, Teferi Ber. The data series covered the period from April 1995 to December 1999. We used this data to assess price volatility and market integration.

security in the pastoral areas. Finally, concluding remarks are made in Section 5.

2. PROFILE OF EASTERN ETHIOPIA BORDERLANDS

2.1 Delineation of the Cross-Border Trade Area

The Ethiopia-Djibouti and the Ethiopia-Somalia (Somaliland) border areas primarily cover parts of the Afar and the Ethiopia-Somali regions. The Harerghe highlands have also trade linkages with the neighboring countries. Some commodities originating from this part of the eastern Ethiopia region are sold in Djibouti and Somalia crossing the Afar and Somali lowlands. When compared to Ethiopia, Djibouti and Somalia have smaller geographical areas and the whole region of these two countries is linked to the eastern border area of Ethiopia. For instance, in Somalia, markets as far as Berbera, Bossasso and Mogadishu are important for unofficial trades of goods originating from the eastern border area of Ethiopia (see Maps 2 and 3).

The eastern border area is inhabited by few ethnic groups. The Afar and different Somali clans are found bordering Djibouti and Somaliland. The Oromos occupy the Harerghe highlands. All these ethnic groups speak their respective languages belong to the Cushitic family. People on the other side of the border also share all these linguistic and religious characteristics.

2.2 Resources

The Afar and the Somali regions are lowlands with arid and semi-arid agro-ecological zones. The areas are marked by inadequate and highly variable rainfall. The annual precipitation can hardly support substantial rain-fed cultivation. However, major rivers including the Awash, Wabishebelle and Genale cross the region. Along these riverbanks, commercial and small-scale

irrigation are practiced and crops such as cotton, maize, sorghum, vegetables and fruits are grown. The region is also said to have potential for important mineral deposits and energy (geothermal) resources.

The eastern region, comprising both highlands and lowlands, is an important area for the production of the country's major exportable items. These are coffee and *chat* in Harerghe highlands and live animals in Afar and Somali regions. These three items accounted for 77% percent⁶ of the country's merchandise exports in 1998/99.^{6 7} Coffee and live animals, which are among the most important commodities in the illicit trade, are re-exported by Djibouti and Somalia.

Coffee is the largest export item of Ethiopia. It is produced in many parts of the eastern, southern and western highlands. Most of the coffee from the eastern region comes from the Harerghe highlands. It is said to be the best quality coffee and it is mostly exported to the Middle East mainly to Saudi Arabia

Chat is mildly narcotic leaf cultivated in many places of the country. The export quality, which is produced in Harerghe highlands, is exported to Djibouti and Somalia in both official and unofficial channels. Unlike live animals and coffee, which are re-exported, *chat* enters these countries' markets for immediate consumption. The importance of this item in the country's export has shown an increasing trend since the 1990s. Its share in total exports was less than 3% in 1987/88 and increased to about 10% in

⁵ Including hides and skins.

⁶Export coffee also comes from other parts of the country. However, all export quality *chat* and most of the livestock exports originate from this region.

⁷Except for the increasing importance of *chat* since very recently, the structure of the country's foreign trade remained the same for the last 30 years. Given little diversification in the country's export structure, the country has been vulnerable to the performance of this crop's production and international trade (Naude 1995).

1990/91. For instance, in 1998/99, it was the second largest export item (next to coffee) accounting for 12% of the country's merchandise exports.

Livestock is the most important resource in eastern region in general and in the Afar and Ethiopia-Somali regions in particular. The two regions alone contribute about 60-80% of the lowland livestock (table 1). Production is for subsistence using natural pasture. Herd diversification and maximization is practiced mainly to mitigate climatic and market risks. All types of livestock are found in the area with little spatial diversification in composition and type. All cattle in pastoral areas are *zebu* types. The cattle in Afar are long-horned, tall and skinny. Whereas the Somali cattle are Borana breed, which are beef type and short-horned. The sheep in the eastern pastoral lands are blackhead Somali and Awash/Adal types. Goats in the area are generally medium sized. Camels are single-humped types. They provide meat, milk and transport services. All camels are found in the lowlands and 77% of them are in the eastern region.

Table 1. Livestock population in heads in the lowland/pastoral regions of Ethiopia

Region	Livestock population				
	Cattle	Sheep	Goats	Camels	Equines
Lowland region					
Eastern region					
• Afar	3,620,147	2,004,063	2,939,298	871,832	192,248
• Somali	2,308,620	7,985,738	3,134,065	1,341,998	231,662
Total eastern region	5,928,767	9,989,801	6,073,363	2,213,830	423,910
Other regions ⁸	3,362,414	2,434,403	1,987,709	643,045	175,293
Total lowland	9,291,181	12,424,204	8,061,072	2,856,875	599,203
Percent of Eastern Region to total lowland livestock	0.64	0.80	0.75	0.77	0.71

SOURCE: Sandford and Habtu (2000) and Somali Region Planning and Economic Development Bureau.

⁸ In order of importance, other regions include Borena and Kereyu in Oromia, North and South Omo and Bench Maji in Southern Nations Nationalities Regional State, Gambella and Benshangul Gumuz.

Livestock constitutes the major share in the illicit trade from Ethiopia to Djibouti and Somalia across the border. Animals are trekked to these countries primarily for re-export to some countries in the Gulf, which are important destinations for livestock originating from Eastern Africa (Zaal 2000). Preference is to the blackhead Somali type of male sheep followed by male goats, younger cattle, and young male camels. Small stocks are the most important export animals. Sheep account for 85-90% and goats about 10 to 15% of the small stock export (Ahrens 1998: 3; Sentayehu 1996, 60).

2.3 Economic Activity

Similar to the rest of the country, people in the eastern part depend on subsistence agriculture. The Oromos in the Harerghe highlands are predominantly subsistence cultivators. Cereals, pulses, vegetables, fruits, coffee and *chat* are grown in the area. These cash and food crops are sold in the nearby urban centers. The cash crops *chat* and coffee account for more than 40% of the household income in coffee producing Harerghe highlands (Kedir 1997). This area does not share borders with Djibouti and Somalia. Therefore, compared to the lowland pastoral groups, they are more interacted to the local markets than to the unofficial cross-border market. However, vegetables, *chat* and coffee grown in this area are exported to Djibouti and Somalia officially and unofficially. They also keep some cattle, sheep and goats. They sell their animals in major town centers in the area such as Dire Dawa and Harer. In addition, fattened cattle from these areas are trucked to Addis Abeba and trekked to border markets.⁹

Most of the Afar and Somali ethnic groups inhabiting the lowlands of the eastern region are nomadic pastoralists. The nomadic pastoral groups account for about 98% and 63% of the rural population in Afar and Somali

⁹The external market for quality cattle from this area becomes more important during drought and dry season when the quality of cattle in the lowland declines. These animals are collected from Eastern Harerghe area and sold in Ethiopia-Somalia (Somaliland) border markets (field observation in April 2000).

regions, respectively. Traditional livestock keeping is the major source of livelihood in the area. Some (agro-pastoralists) also cultivate cereals mainly maize, sorghum and millet. However, most of the grain comes from highland farmers. The cash income to purchase these items comes from sale of livestock. There are also few of non-pastoral sources of income such as fuel wood and charcoal selling, and Arabian gum collecting. Recently, however, there is an increased involvement in the smuggling of live animals, coffee and *chat* to neighboring countries and in unofficial importing of manufactured items of various types from these countries.

2.4 Pastoral Development Interventions

The pastoral lands in Ethiopia are generally underdeveloped when compared to other parts of the country. Formal sector institutions and infrastructure are limited. Pastoral studies in Ethiopia often attribute this to the marginalization of the lowland livestock sector in mainstream development programs. According to these critics, the government's policies were in favor of agricultural (crop) land. Some pastoral development projects were implemented since 1950s, however. The projects' package included animal health, range development, and off-take or market improvement. The market improvement aspect of the projects was geared towards lowland-highland integration within the domestic territory. However, all these failed to achieve the intended objectives (Hogg 1996; Solomon 1996).

Several interdependent factors had a role on the status of the area. According to Hogg (1996), development projects allowed little local participation; they focused on technical solutions ignoring indigenous strategies; they focused on implementation of project components neglecting maintenance, sustainability and cost recovery. In addition, the war between Ethiopia and Somalia in the 1970s contributed to the damage of the available meager infrastructure. It also interrupted development activities in the surroundings. As a result, the borderlands in the area remained interacted more with the neighboring countries through unofficial and informal trade networks that

provided outlets and made available basic commodities mainly manufactured food and non-food items. Due to the absence of strong formal institutions in the borderlands, traditional institutions based on clan or ethnic relations determine access to resources such as pasture and water as well as cross-border and domestic market routes. These institutions are also important mechanisms to resolve intra- and inter-ethnic conflicts over farmland, pasture, and water.

3. STRUCTURE OF ETHIOPIA'S TRADE WITH DJIBOUTI AND SOMALIA

3.1 Official Trade

Official trade as used in this study is trade that is recorded, known by the concerned institutions, and conducted in accordance with the country's required procedures. Currently there are two types of official trade in eastern Ethiopia: large-scale trade and cross-border petty trade. Large-scale trade involves convertible currencies and bank procedures such as opening of letters of credit by an importing country. It is run by business firms with large capital and formal organizational set-ups. Cross-border petty trade does not involve convertible currencies and bank formalities. Rather it is checked by the barter balance, i.e., an equivalent amount of import for export. The petty trade business is a self-employment scheme that currently employs poor women living in the area.

3.1.1 Large-Scale Trade between Ethiopia, Djibouti and Somalia

Ethiopia's direction of external trade is characterized by geographical concentration in both export and import. Its trading partners are few Western European countries, USA, Japan and Saudi Arabia. More than 80% of its import and export trade is with these countries. Ethiopia exports unprocessed agricultural products and imports manufactured consumer and capital goods. Available data shows that this structure has been there for the last four

decades and has showed only little diversification particularly on the composition of export commodities (table 2).

Table 2. Direction of official external merchandise trade in share of trade partners - 1983-1995 (in percent)

Trading partners	83/84	84/85	85/86	86/87	87/88	88/89	89/90	90/91	91/92	92/93	93/94	94/95
Africa												
Imports	1	0.6	0.8	1.7	2	2.1	3.5	3.7	6	7.9	8.3	5.8
Exports	6.9	7.8	4.4	7.9	7	3.9	9.3		3.2	8.9	12.4	7.3
West Europe,												
Middle East and												
USA												
Imports	74.1	76.1	76.8	77.5	74.6	75	69.4	70.4	34.7	65.7	64.4	68.2
Exports	70.4	73.9	83.9	72.4	80.1	81.8	80.4	83.5	89.5	80	60.4	73.4
Others												
Imports	24.9	23.3	22.4	20.8	23.4	22.9	27.1	25.9	59.3	26.4	27.3	26
Exports	22.7	18.3	11.7	19.7	12.9	14.3	10.3	5.4	7.3	11.1	27.2	19.3

SOURCE: MEDaC (2000).

From table 2, we can see that Ethiopia's merchandise trade with African countries is very low. The trend shows that there has been some improvement in the last two decades, however. Imports from these countries increased from 1% in 1983/84 to 5.8% in 1994/95. The share of exports has also shown little improvement during the same period. The little trade that existed between Ethiopia and its African partners is accounted by the neighboring countries Djibouti and Kenya and since the mid-1990s Somaliland.

Ethiopia's Trade with Djibouti

Djibouti is the largest African trading partner to Ethiopia. The two countries have been connected by a railway for more than a century. Ethiopia exports

chat, fruits and vegetables, livestock products, animal feed, cereals and other food items to Djibouti. Of all these items, *chat*, fruits and vegetables nearly represent the total value of Ethiopia's exports to Djibouti. For example, in the 1990s, *chat* alone accounted for more than 80% of the total value of Ethiopia's exports to Djibouti. The second largest items are fruits and vegetables, which accounted for about 15% during the same period. Most of the items exported to Djibouti are produced in the eastern parts of Ethiopia.¹⁰

Merchandise imports from Djibouti are limited to very few items such as salt. Djibouti primarily sells port services to Ethiopia the performance of which is strongly linked to the performance of Ethiopia's exports. The port service has now appeared to be critical to Ethiopia following the Ethio-Eritrea conflict that terminated exports and imports through the Eritrean ports of Assab and Massawa.

Ethiopia's Trade with Somalia/Somaliland

The relationship between Ethiopia and Somalia has been dominated by conflict since Somalia's independence in the 1960s. The Siyad Barre regime's claim of the Ogaden region of Ethiopia led the two countries to conflicts in the 1960s and to a full-fledged war in the 1970s. The war resulted in the displacement of people in the area and the damage of infrastructure, among other things. The continued hostility after the end of the war also hampered free movement of livestock and people in the area. The Siyad Barre's expansionist policy failed to be successful; rather it led to the disintegration of Somalia and the downfall of the regime in 1991 (Belay 1995). Since then, however, the political relationship between Ethiopia and the self-declared state of Somaliland Republic (Northern Somalia) started to improve. Currently, the relationship is improving and there exists some official trade relation between the two countries. Ethiopia is now expanding trade infrastructure such as road construction leading to Somaliland.

¹⁰ The dominance of these items in the large-scale official export trade is because these items are less attractive in the unofficial channels when compared with the less perishable ones such as livestock, coffee and cereals.

Although it failed to be operational due to some implementation problems, Ethiopia has also recognized official, small-scale cross-border trading, for people living on both sides of the border without bank procedures.

In terms of large-scale official trade, Somaliland is now the largest importer of Ethiopia's second largest export, *chat*. According to the records of the National Bank of Ethiopia, Dire Dawa Branch, the official export of this item started in the second half of 1998. In 1998, Ethiopia exported more than half a million kg of *chat* per month to Somaliland. The amount increased to about one million kg of *chat* per month in 1999. This is almost 200 percent higher than the export to Djibouti during the same period. The National Bank records also show that Ethiopia had exported some cement and haricot beans in 1996 to Somaliland. Generally, all these developments are important to enhance Ethiopia's integration with its neighbors. Ethiopia would improve its potential to use Somali ports such as Berbera and Bossasso as well as sell some of its products in Somali markets. Similarly, the service industry in Somalia would be invigorated.

3.1.2 The Official Cross-Border Petty Trade in Eastern Ethiopia

Official cross-border petty trade in eastern Ethiopia was introduced for the first time in 1978/79 between Ethiopia and Djibouti. At the time of its inception, it was meant for rehabilitating displaced persons of the Ethio-Somalia war in 1970s.

The cross-border traders were known as inter-nations and the trade took the form of Franco Valuta import and stayed in operation for some time. After the change of the government in 1990 and the consequent policy changes, Franco Valuta import was abandoned.

After some time during 1996/97, the government of Djibouti requested to resume the cross-border trade. According to our interviews with the Dire Dawa Foreign Trade officials, the request was based on facts pertaining to the border area. These include: (i) the people found in both sides of the

border area are similar and inter-linked; (ii) the items did not stop crossing the border illegally; and (iii) alternative trade networks to supply the required items in the area are absent. Following Djibouti's request, the government of Ethiopia (Ministry of Trade and Industry) established a study team to investigate the issue. The committee came up with guidelines to accommodate the request without harming the official (large-scale) trade. Consequently, the implementation began in May 1998.

In the eastern region, the current cross-border petty trade area covers three border sites: i) from the Afar region side to Djibouti; ii) the Dire Dawa-Djibouti side that covers Dire Dawa Administration and Shinille Zone of the Ethiopia-Somali region; and iii) from Jijiga area to Somaliland.

The cross-border petty traders are people living in the border area. License is issued by the Foreign Trade Office in Dire Dawa, and the Trade and Tourism Bureaus of Afar and Ethiopia-Somali regions. These government offices operate within their respective surrounding border areas. Customs controllers ensure the licensed traders work according to the Ministry's guidelines. Accordingly, they make sure that the items are the ones included in the guidelines, determine the value of each trader's exports and imports, and collect import taxes where applicable.

The following commodities are not allowed from Ethiopia to Djibouti and Somaliland: oil seed, coffee, *chat*, hides and skins, live domestic and wild animals, pulses, antiques and national heritages, and all items that are not produced in Ethiopia.

On the other hand, those items allowed in the return trade are the following: cigarettes, edible oil, sandal sticks, Thermos, slipper shoes, sugar, rice, dates, radios, flashlights with battenes, various kitchen utensils, salt and fish.

It was indicated that the maximum value of the items carried by a trader in a single trip was Birr 2000. The cross-border petty trade arrangement also

ensured that items produced in Djibouti have improved market access in Ethiopia by allowing traders to import salt and fish free of tax. Commodities included in this direction of trade are those consumed by people in the border area, which could not be supplied easily by domestic industries or official large-scale importing agencies. Therefore, some products that are not produced in Djibouti and Somaliland are included.

Although the government allowed the cross-border petty trade in all the above mentioned border areas, the only operational site was that part of the Djibouti border from Dire Dawa-Dewelle side. In 1997/98 and 1998/99, there were 1309 and 1,326 cross-border licensed petty traders, respectively. However, according to the customs officials' estimate at Dewelle, those who actively carry out the trade were not more than 200.

In their trip from Dire Dawa area to Djibouti, the traders carry fruits, vegetables, cooked food, spices and eggs (table 3). The items are sold in Djibouti for immediate consumption and they often arrange their trip to complement days when large-scale exports from Dire Dawa are transported to Djibouti. Both large-scale and cross-border petty traders use the railway freights from Dire Dawa to Djibouti.

Table 3. Items traded from Dire Dawa to Djibouti by official petty traders

Item	Number of respondents	Percent out of total (66) traders
Fruits and vegetables	61	92.1
Spices (pepper flour)	5	7.6
Chicken, eggs	6	9.1
Cooked food item (<i>shiro</i> , <i>besso</i> , etc.)	4	6.1
Grain and pulses (maize, wheat, etc.)	3	4.5

SOURCE: Sample Survey, 2000.

Note: There are multiple responses, i.e. a trader imports more than one item. Therefore, percents do not sum up to 100.

The return trade has also focused on very few out of the many allowed items. At the start of the cross-border petty trade between Djibouti and Ethiopia traders imported all the permitted commodities. The traders gradually concentrated on very few commodities. According to our interview with cross-border traders and customs officials, the items brought from Djibouti were rice and sugar only (table 4).

Table 4. Items brought from Djibouti to Dire Dawa by official petty traders

Item	Number of respondents	Percent out of total (66) traders*
Rice	62	93.9
Sugar	22	33.3
Spaghetti and macaroni	3	4.5
Vegetable oil	3	4.5
Textiles (cloth and ready made clothes)	1	1.5
Salt	1	1.5

SOURCE: Sample Survey, 2000.

* Note: There are multiple responses, i.e., a trader imports more than one item. Therefore, percents do not sum up to 100.

The unofficial traders concentrate on rice and sugar because they import all other items unofficially to evade taxes. This drove official importers out of the market on many of commodities such as textile products, electronics and household utensils. However, since an equivalent amount of import is compulsory, official petty traders chose to stick to rice and sugar. They also wanted to minimize losses because the same items are less attractive to unofficial traders when compared to other items. Traders complain that the tax they are paying for rice and sugar is too much. They reported that they stayed in the business only because they were able to compensate the loss from sugar and rice imports by their sales of vegetables and fruits. Some also disclosed that sometimes they succeed to import some items that are not allowed by hiding from customs controllers. Almost all of the respondents

emphasized that they preferred to stay in this less paying business only because of the scarcity of other employment opportunities in the area.

Although the guidelines allowed traders to carry a 2000 Birr worth of goods per trip, all carried much less than this. In one month, a trader covers two to three round trips. The average values of purchases per month are Birr 1500 and Birr 1060 in Dire Dawa and Djibouti, respectively. Even by the minimum estimate, i.e., two trips per month, petty traders took only 37.5% of the maximum permitted amount. Table 5 shows the purchase value of the items bought and the percent of traders who fell in each category in both Dire Dawa and Djibouti markets.

Table 5. Values of trader purchases in one month (up to three trips) in Dire Dawa and Djibouti

Range of Values in Birr-	Purchases/Trader/Month in Dire Dawa for resale in Djibouti (Trader responses in %)	Purchases/Trader/Month in Djibouti for resale in Dire Dawa (Trader responses in %)
Up to 500	21.2	30.3
501-1000	21.2	31.8
1001-2000	31.8	15.9
2001-3000	16.7	9.1
3001-4000	7.6	1.5
4001 and above	1.5	1.5
Total	100.0	100.0
Value of average purchase (mean) per trader/month	Birr 1500.00	Birr 1060.00
Number of valid cases interviewed	66	66

SOURCE: Sample Survey, 2000.

Cross-border petty traders tend to under-invoice their exports when they declare to customs to avoid imports of an equivalent amount of any of the allowed items from Djibouti. The differences in the mean values would indicate this possibility. Therefore, customs controllers use their own estimates based on the information collected from the Dire Dawa Foreign Trade Office. The Foreign Trade Office in Dire Dawa compiles the price of about 50 types of fruits, vegetables and spices that are purchased by cross-border traders for resale in Djibouti.

In general, the objectives of the cross-border petty trade have not been met. For instance, it could not be operational from the Afar and Jijiga side of the borderlands. Even in the only functional site, i.e., Dire Dawa area to Djibouti, very few traders were in the business in 1999 and 2000. During this period, there were only about 15% of the total licensed petty traders. Moreover, these traders focused only on few of the products included. The trade from the Dire Dawa side of the border lasted longer when compared to the other sides of the border areas. One possible reason is that, unlike other sites on the Afar and Jijiga side, there is a regular transportation facility from Dire Dawa to Djibouti. The other is that items such as vegetables and fruits are produced in Harerghe highlands that are not far from Dire Dawa.

The cross-border petty trade arrangement seems to have both design and implementation problems. The major produce of the border area such as livestock and livestock products are excluded. Only fruits and vegetables are included, which are at the same time supplied by large-scale official exporters. The situation is similar on the import side. Although the items identified are the ones purchased by people in the area, the taxes imposed on these items and the lax in illegal import of the same commodities could not encourage official traders.

3.2 Unofficial Trade

The official trade has been unattractive especially to small-scale traders found in the border areas due to structural and policy related problems. The requirements of this type of trade such as the use of convertible currencies, licenses, bank procedures for money transfer, and transit service providers are beyond the reach of small-scale livestock traders in the border areas. Moreover, total foreign currency surrender requirement on the one hand and the overvaluation of the domestic currency on the other, that were in place at different times, discouraged other traders from expanding their coverage and incorporating markets in the peripheral areas. Inadequate infrastructure in the area worsened the problem. All these factors led the people in the area to stick to alternative markets, i.e., unofficial cross-border trade that is undertaken beyond the government's control. Some studies estimate the volume of this trade to be far greater than the recorded trade (Maruye 1992; Belay 1996).

3.2.1 Traders' Profile and Goods Traded in the Unofficial Channel

The unofficial trade in eastern Ethiopia borderlands involves a diversified group of people living in Ethiopia, Djibouti and Somalia as well as some manufacturing and trading firms in Asia and the Middle East. However, the principal actors are people found in the eastern region of Ethiopia bordering Djibouti and Somalia and the people in the two countries bordering Ethiopia. These are the Afar and the Issa Somali groups from the Djibouti side and different clans on the Somalia/Somaliland side of the border. They supply the imported commodities to people in adjacent central regions of Ethiopia and for onward resale. The same people also supply exportable items to the traders for resale in Djibouti and Somalia.

The unofficial trade is in general young men's domain. This is due to the difficulties associated with this risky business, including long distance travels on foot during nighttime and armed confrontation with customs

patrollers.¹¹ The difficulty is particularly severe in the case of unofficial import than export.¹² The involvement of women is limited to those places accessed by motorized transport.

The goods traded in the unofficial channel are almost similar to the ones in official trade (table 6). The country's major exportable commodities are the ones smuggled out of the country. The major ones are live animals, coffee, *chat*, fruits and vegetables. The only item re-exported is petroleum.¹³ The structure of unofficial import is also similar to the official one except few items such as used clothes and few textile products preferred by people in the area. All the items are produced neither in Djibouti nor in Somalia. Unlike the case of the Ethiopia-Kenya border area where Kenyan products dominate the unofficial import, the cross-border imports in eastern Ethiopia originate from Asian countries.

¹¹ Unofficial border traders or their transport service providers in most cases carry arms in their trip to and from the neighboring countries. Thus, customs controllers often encounter strong resistance by the smugglers.

¹² In the case of export, smugglers do not face any resistance until they attempt to cross the border. Customs controllers argue that this legal barrier is a challenge to their effective operation.

¹³ It is the most important import in Ethiopia as well as those of the neighboring countries in the east. However, because of differences in subsidies, domestic retailing prices vary from country to country. This variation determines the direction of the flow in the unofficial channel. According to our interviews with customs officials in the area, the flow of petroleum products across the border has always been one way, i.e., from Ethiopia to the neighboring countries.

Table 6. Structure of the unofficial cross-border trade in eastern Ethiopia borderlands

From Ethiopia to Djibouti and Somalia/Somaliland	From Djibouti and Somalia/Somaliland to Ethiopia
<ul style="list-style-type: none"> • Live animals (cattle, sheep, goats and camels) and hides and skins • Coffee • <i>Chat</i> • Fruits and vegetables • Grain • Petroleum products • Arabian gum 	<ul style="list-style-type: none"> • Textiles and shoes (new, used, readymade, cloth) • Electronics (tape recorders, radios, televisions, video decks, computers and their accessories, calculators and game devices) • Food items (sugar, rice, milk powder, vegetable oil, spaghetti and macaroni) • Cosmetics and detergents • Household furniture • Pharmaceuticals • Cigarettes

SOURCE: Sample Survey, 2000.

The similarity between the official and unofficial external trade would suggest the following implications:

- i) Tax/price incentives would have substantial redirecting effect of the unofficial to the official channel. For instance, according to the Dire Dawa Coffee Marketing Authority, reduction in export taxes on coffee in the 1990s increased the volume of exports in the official channel.
- ii) The extent the tax incentive can reverse the channel is limited for some items due to the importance of marketing costs. For example, the trade liberalization measure undertaken in the 1990s also included the abolition of all non-coffee export taxes. However, the unofficial export of several non-coffee items such as livestock and *chat* is still substantial.

3.2.2 Markets, "Sheds" and "Channels"

Channels and Sheds of the Unofficial Export Trade from Eastern Ethiopia

Most of the livestock traded across the border originates from lowland pastoral areas of the eastern region of Ethiopia. Livestock are trekked to the border markets and after the border is crossed, trucks are used to move them farther to large cities for slaughter and to ports for export to the Middle East (see Map 2).

Chat, coffee, and few vegetables originating from the Harerghe highlands are taken to Djibouti and Somalia markets for consumption (see Map 3). Since customs authorities do not check the flow of these items within the domestic territory, most of the unofficial trade destined to Djibouti and Somalia follow the major routes up to the border towns. From tables 7 and 8, we can see that *chat* and vegetables for both official and unofficial trade are collected and transported in the same channels. These items are further transported by human loads and camels to cross the border.

Table 7. Domestic and external trade routes for chat in eastern Ethiopia

Collection center and departure for loaded vehicles	Passing through and partly sold for consumption at	Destination	Route
1. Aweday		- Addis Abeba - Harer - Jijiga - Dire Dawa - Djibouti through Dire Dawa by air	Official
2. Haraghe highlands (Bedessa,, Chelenko, Felana, Karamille, Kobo Kulubi)	- Dire Dawa - Gursum - Jijiga	- Djibouti - Somalia (Hargeysa and Berbera)	Official and unofficial

SOURCE: Sample Survey, 2000

Table 8. Domestic and external trade Routes for vegetables in eastern Ethiopia

Collection center and departure for loaded vehicles	Passing through and partly sold for consumption at	Destination (for consumption)	Route Status
1. Alemaya	Dire Dawa	Djibouti (exporters and cross-border traders by train)	Predominantly official but subject to high under-invoicing and some unofficial
2. Kombolcha (Harerge)		Jiiga and partly to Somalia	Official and unofficial
3. Lange, Weter, Kulubi	Dire Dawa	Djibouti	Predominantly official but subject to high under invoicing and some unofficial

SOURCE: Sample Survey, 2000.

Note: 80% of supply of vegetables to Dire Dawa and Djibouti comes from Alemaya Area, Eastern Harerghe. In addition, some potatoes and onions come from western Harerghe.

Coffee destined to Djibouti and Somalia is collected from various sites of the Harerghe highlands. Cereals are collected from the highlands of Wollo and

partly from the central part of the country. These items are transported by camels from the border areas of the Afar Region to Djibouti (see Map 3).

Channels and Sheds of the Unofficial Import Trade to Eastern Ethiopia

The unofficial import involves wide range of goods such as used clothes, new manufactured products such as textiles, electronics, cosmetics and detergents, and food items. All these items originated from Asian and Gulf countries. Most of these items are smuggled through Somalia and Djibouti.

Used Clothes:

Secondhand clothes are some of the most important items in the return illicit trade in eastern Ethiopia. They usually come in packs commonly known as *Bonda*. Once imported, these items reach almost the entire nation (see Map 4). The pack (*Bonda*) comes with labeled tags, indicating the type and number and in some cases the origin. All traders in the channel effectively use the label. A buyer trusts the seller that the items in packs are as good as their labels. At retail markets, the *Bonda* is unpacked and the clothes are sold in pieces to individual buyers.

The origin of the used clothes is Europe and North America. During our field visit, in eastern Ethiopia, used clothes' traders identified packs of coats for adult men as of Italian, German, French, and American origin. Unlike new products, the origins in this case indicated the place where the item was last worn, not its original manufacturing site.

Manufactured Product Trade Routes:

Unofficial imports of new manufactured products comprise various items including ready-made clothes and shoes, cloth, electronics, household utensils, pharmaceuticals, cosmetics and detergents. Similar to the used clothes, these items reach almost all urban markets in Ethiopia. The origins of most of these items are Middle East and Asian countries. They are transported by ship to Djibouti and Somalia ports and are transported to the Ethiopian borderlands by trucks. Trucks from Hargessa and Berbera move to

the border towns of Ethiopia. During the survey period, the most active site for this trade was the Hartishek area of the Ethiopia-Somaliland border. The trucks are unloaded at Hartishek and wholesaling and retailing is started at this market. Most of the clients are traders who resale the items at Jijiga Harer and Dire Dawa towns. These traders use small, specialized vehicles in their connection from Hartishek to Jijiga. Generally, the channels tracing from various urban centers in eastern Ethiopia are extended to large towns such as Addis Abeba, Dessie, Kombolcha, Nazareth, and Mekelle (see Map 5).

Imported Food Items:

Other important items in the unofficial trade in the region are food items such as rice, edible oil, spaghetti, sugar, and wheat flour (see Map 6). Unlike other commodities, most of these items are destined to the eastern region only. There may be two reasons for this: i) food items from central regions hardly reach the area or become more expensive by the time they reach these places. (This is why subsidized sugar exports of Ethiopia are again imported to the border area illegally.); and ii) cross-border traders who concentrate on live animal export from Ethiopia also focus primarily on the goods that have demand and can easily be sold in the border areas. The food items are sold in the border areas including some urban centers in Harerghe highlands and Dire Dawa.

3.2.3 Marketing Inputs

Transport accounts for the largest cost of marketing inputs. Traders use both motorized transport and pack animals mainly camels. The type of transport used depends upon the direction, location and type of commodity traded. In the case of livestock trade, trekking is the only means of moving animals to cross-border markets. After the border towns, however, several marketing agencies in the neighboring countries use specialized vehicles to move these animals deeper to large market centers for consumption and ports for re-export.

Trucks that are used to transport used clothes from northern Somalia enter up to 50 km to the Ethiopian territory. These trucks are properties of Somalia-based smugglers and are most of the time accompanied by armed assistants to counteract any confiscation attempt by customs police. Camels are then used to transport deeper to Melka Jebdu, Bike, Miesso and Gedamaitu. The use of vehicles and the train starts again within the Ethiopian transport network. However, from Gedamaitu to Wollo and Tigray areas, camels are also used (see Map 5). The same channel is used in the reverse trade. Re-exportable items such as coffee are smuggled to Djibouti and Somalia by camels.

Market information on prices and demands in the area is obtained by private search. Traders visit markets or acquire from other traders and clients. In livestock trade, brokers who charge both the buyer and the seller are used in most cases.

3.2.4 Currencies

In general, the transaction in the unofficial channel is effected in the most flexible mode of payment, money. According to our interviews with traders in the area, instances of barter are rare. This is similar to Teka *et al.* (1999) study on the Ethiopia-Kenya border area. The unofficial trade in the eastern borderlands of Ethiopia involves a number of currencies including the Ethiopian Birr, the Djibouti Franc, the Somali Shilling, and the US Dollar. Customs records in the area also show that currencies of some countries in the Gulf, mainly Saudi Arabia and United Arab Emirates, were confiscated from smugglers. Traders use one or more of these currencies depending on the location and direction of the transaction.

The relationship between the Ethiopian Birr to the Djibouti Franc along the Ethiopia-Djibouti border as well as its relationship with the Somali Shillings along the Ethiopia-Somalia border would indicate the performance of the

merchandise trade balance in the unofficial channel. Thus, when more items are smuggled out of Ethiopia than the amount imported in the same channel, the Ethiopian Birr tends to appreciate and vice versa vis-a-vis the other currency. Such exchange rate variations in different periods have implications on resource transfers across currency holders. Therefore, speculations and trust over a particular currency' would affect the volume of transactions negatively.

During our survey in 1999 and 2000, the Somali Shilling was the most preferred currency in the unofficial trade. It is widely used in the Ethiopian-Somali region together with the Ethiopian Birr. In the Djibouti side of the border, the situation is different. The Djibouti Franc is not used beyond its territory. However, according to interviews with customs officials in the area and their records, there were several instances where customs controllers encountered that traders smuggle the Ethiopian Birr to Djibouti. According to our interviews with customs officials in the area, the two possible uses of the Birr in Djibouti were to: (i) buy items for resale in Ethiopia, since traders in Djibouti accept the Ethiopian Birr and use it to purchase smuggled livestock and other products from Ethiopia by other traders; and (ii) change the US Dollars smuggled from Ethiopia.

3.2.5 Causes and Consequences of the Unofficial Trade

Causes

The determinants of the performance of the unofficial trade can be categorized as external and domestic. The external factors operate at the global or regional (Horn-African) level. In the export trade, the external factors include proximity of the Middle East markets to Djibouti and Somalia ports. These countries are likely to encourage their respective exports and hence unofficial traders of these countries pay higher prices in their respective border markets. This would attract commodities mainly livestock and coffee from Ethiopia. Based on FAO data Zaal and Polderman (2000) revealed that livestock official exports to the Middle East from

Ethiopia mirrors those exports from Djibouti and Somalia. When Ethiopian export rises, export of Djibouti and Somalia declines and vice-versa. This would imply that part of the official exports by Djibouti and Somalia is the unofficial imports from Ethiopia. Steffen *et al.* (1998) also showed that huge amount of livestock originated from Ethiopia unofficially enters Somali markets for re-export. We have also confirmed this during our field surveys in the area in 1999.

In the unofficial import trade, the most important external factor is that those manufacturing companies that could not find adequate market access elsewhere in developed countries encourage unofficial imports. Somalia now has appeared to be "duty free". Djibouti is also used as a transit site to third country products of Asian and European origin to Ethiopia. In the case of Eastern Ethiopia, unofficial imports originate from Asian countries. Some shopping centers in some urban centers including Addis Abeba are named after these countries, e.g., Taiwan. Used clothes are the dominant items particularly in the channel from Somaliland leading to Dire Dawa, Afar, Wollo then to Tigray areas. The items are dumped by some Asian and European countries. Suppliers in these countries encourage traders in both Somalia and Ethiopia by allowing them to pay after the clothes are sold and by exempting liabilities if the items are confiscated by customs.

Domestic causes can be classified as policy and non-policy factors. Policy factors include the country's import substitution development strategy that has been there since the 1960s and that deepened during the 1970s and 80s during the previous regime. This development strategy aimed to protect domestic industries. Protection measures including foreign exchange overvaluation and restrictions on several imports were imposed, which negatively affected the performance of the export sector. Consequently, the country's foreign exchange earning declined. The situation forced domestic industries, which are by large dependent on imports of raw materials and spare parts, to operate under capacity. As a result, many areas particularly those found in the peripheries remained uncovered by the supply of these

manufactured goods, which led to the unofficial importation of such goods. The situation is similar from the export side. The absence of attractive prices in domestic markets also led people in the border area to intensify their interaction with the cross-border markets. As a result, pastoralists in the borderlands often preferred to move their animals to the neighboring markets than to domestic alternatives. Other products such as coffee and *chat* were also partly sold in a similar way.

The unofficial interaction of the border area with neighboring markets has also been facilitated by other factors such as the topography of the area, and similarities in ethnic, cultural and social aspects of people on both sides of the border. The topography of the area has provided smugglers various routes that are beyond the reach of customs control. Other relationships that exist among local people in the border area complemented missing formal institutions and helped traders to get credit and information.

Consequences

The existing cross-border trade could entail both negative and positive impacts. The negative impacts, among others, could include: (i) encouraging unfair competition and affecting the performance of domestic manufacturing enterprises as well as legal importers and exporters; (ii) loss of government revenue; and (iii) lack of quarantine and standard checks. However, there is no doubt that cross-border market access widens opportunities for people living in the area. As indicated earlier, these networks have created outlets for livestock particularly cattle, sheep, goats and camels. They have also made available some food and clothing items that are rarely obtained from alternative sources.

3.2.6 Government Responses to the Unofficial Trade in Eastern Ethiopia

The Ethiopian government response to the proliferation of the unofficial import and export trade across the border has been direct control. Thus, smuggled commodities are confiscated and smugglers are sued. However,

such measures could not be effective owing to several inhibiting factors such as limited capacity of customs officials that restricted their operation to few areas, the vast possible entry and exit border sites, and social and cultural links that facilitate the trade. In addition to the use of various entry and exit sites, smugglers confront the customs controllers using arms.

The move to indirect control methods is a recent phenomenon. Political and economic developments in both the country and the neighboring countries helped to initiate some non-traditional measures. These include: (i) improving the market infrastructure such as road and other communication networks; (ii) providing tax and price incentives particularly for export trade; and (iii) recognizing cross-border petty trade free of bank procedures. Although it is early to comment on the effectiveness of some of the on-going efforts, these are positive indications towards the regional trade in the Horn and consequently broadening the market access by people in the border areas. Nevertheless, the ongoing efforts need to go beyond the actual practices and incorporate macro level discussion with the neighbors so that provisions for adequate market access to pastoral products of the borderlands are put in place.

4. CROSS-BORDER TRADE AND FOOD SECURITY

4.1 Conceptual Framework

Cross-border trade networks would affect the food security situation in eastern borderlands of Ethiopia in one or more of the following three ways. First, cross-border trade broadens available market options for commodities produced in the area¹⁴. Therefore, pastoralists in the border area would benefit from increased demands. Secondly, people in the area would consume food items produced elsewhere and imported across the border that

¹⁴ In this regard, cross-border livestock markets in Djibouti and Somalia are important.

could not be supplied officially or those that are brought from the central parts of Ethiopia. For instance, rice, wheat flour, spaghetti, macaroni, vegetable oil and sugar are the major food items imported across the border and sold in many places of the eastern region. Similar items produced domestically reach these areas rarely and inadequately. Moreover, they are often more expensive than their imported substitutes. Thirdly, cross-border trade widens opportunities in non-pastoral activities. According to Little (2000), the absence of alternative employment in these areas forces many people to engage in cross-border trading. Therefore, in one or more of such links, the cross-border trade would increase income and hence improve the food security situation.

Food security among the pastoral households of the eastern borderlands is production and trade dependent¹⁵. The relationships among production, marketing and food security are presented in a framework (dig 1). Pastoralists need to keep livestock for milk and meat consumption. In addition, they need to be involved in trade to sell part of their animals and purchase other food items (Webb and von Braun 1994). This is particularly important to smooth calorie intakes during the dry season when milk production declines. Pastoralists would also reduce drought and livestock disease risks from increased involvement in livestock trade. This would reduce high livestock mortality rates (Bailey *et al.* 1998). In dig. 1, the relationship is implicitly depicted in the causation that runs from saving and investment to physical resources.

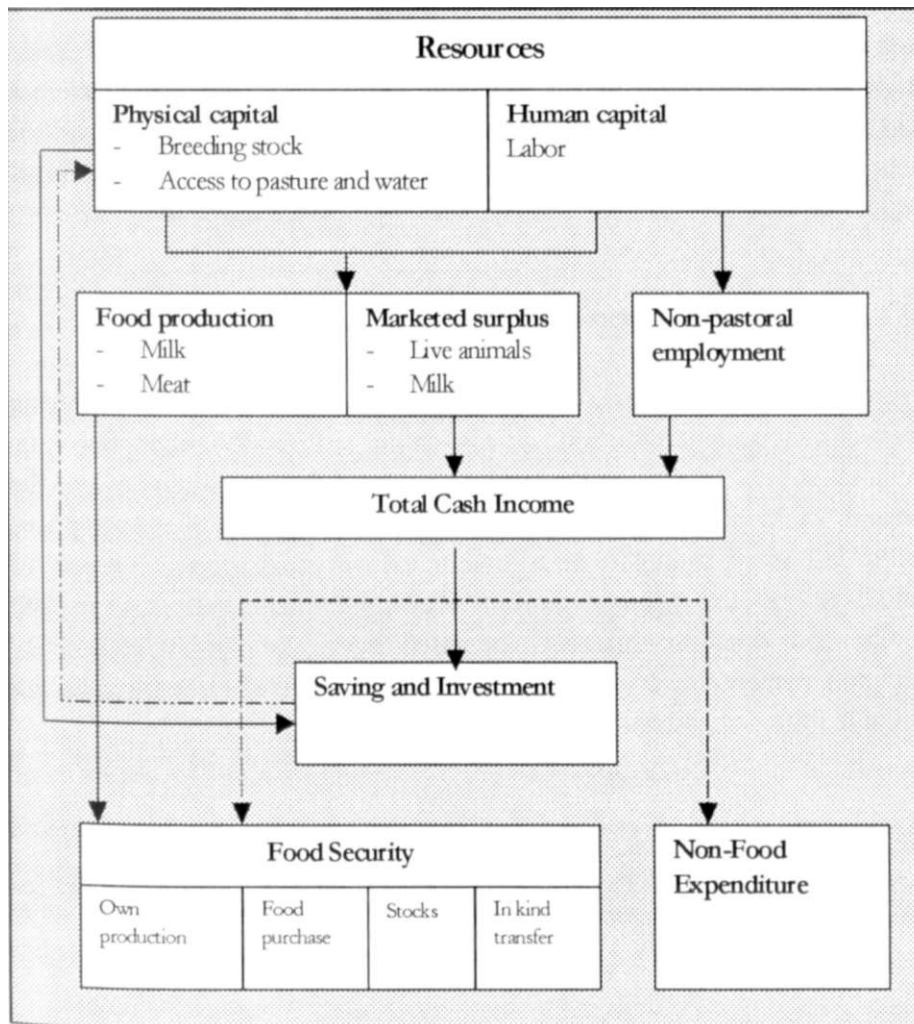
Among pastoral households, sale of live animals is the major source of cash income. In addition, with increased urbanization in the area poor pastoral households are also involved in milk trade. A study has shown that pastoralists found near the Ethiopia-Kenya border sell milk in Kenyan border towns including Mandera, Moyale, Ramu and Thakaba (Teka *et al.* 1999). Due to the high perishable nature of milk, the opportunity is limited to those

¹⁵ Although there are non-pastoral people in the area, the analysis here focuses on the majority and on the main economic activity in the area.

found within 50km radius of any of these markets. Agro-pastoral groups along the river basins also cultivate some food crops, but activity is restricted to very few places

From fig. 1, we can see that the identity equation of total pastoral income is implicit. Proceeds of marketed surplus and income from off-farm activities add up to total cash income. Part of the total cash income goes to savings and non-food expenditure and part of it is used to buy food.

Diagram 1. Cross-Border Trade and Food Security in the Pastoral Areas of Ethiopia



In a given period, the food security status of pastoralists is given by own production of milk and meat, food purchase, stocks and food transfers. The identity shows that production and market risks can be mitigated by food reserves or food aid.¹⁶ Given this relationship, the question of interest is, "How far is the performance under consideration in the study area?"

4.2 Performance

Two indicators are considered to assess the performance of market access and hence its implication on food security. One is on income from livestock sales. For this purpose, we consider fluctuations in livestock prices and the spatial integration of livestock markets particularly between local and cross-border markets.

4.2.1 Fluctuations in Livestock Prices

Livestock prices in the area are subject to seasonal fluctuations following seasonal patterns in production and consumption. From the production side, livestock supply to the market increases during the dry season when the demand for food purchases rises. During the same period, livestock prices tend to fall owing to quality deterioration and increased aggregate supply of trade livestock. The quality deterioration makes animals unattractive to both foreign and domestic markets. Increased aggregate supply caused by individual response to dry season and drought in the area often saturates the available little demand and hence suppresses prices.

¹⁶ Food or grain reserve in the area is not practiced. However, some NGOs and the government have food aid programs.

Coefficients of variation were calculated for different types of livestock in different markets of eastern borderlands (see Annex 2). The values for eastern borderlands in the Jijiga area show that sheep and goat prices are more volatile in markets located near the border. These markets are supplied by feeder markets found inside the domestic territory. The values also suggest the price risks faced by different market agents. In this regard, pastoralists and small traders tend to face lower risk but get lower prices. On the other hand, larger traders who sell at higher prices face higher risk of price variation because two groups of agents found at different but consecutive level of the market chain incur different sunk entry (moving animals to the market) and sunk exit costs (moving animals back to pasture). Larger traders are aware of this situation and hence tend to suppress their buying prices and adjust their costs and profits targeting the minimum possible price at selling markets found in the border areas. Thus, variability would show unexpected benefits for higher-level traders. For example, when we compare the monthly price trends during 1995-1999, in Jijiga and Hartishek livestock markets, the latter exhibited more peaks at different times (see figs. 1 and 2 in Annex 1).

In addition, livestock prices in the lowlands are highly affected by frequent border closures because of insecurity and embargo by importing countries. During these periods, cross-border market prices of livestock fall lower than those at local markets implying that livestock originating from these areas and sold in neighboring markets are ultimately exported to the Middle East. Figures 1 and 2 show that sheep and goat price differentials between Jijiga and Hartishek took a reverse sign during the livestock embargo by Saudi Arabia in 1998.

4.2.2 Spatial Integration of Local and Cross-Border Livestock Markets

The other aspect of income from livestock sales by pastoralists is the issue of how markets are spatially integrated and how they distribute benefits among agents in the market chain. Thus, tests of spatial market integration are conducted. The purpose of this test is to determine appropriate intervention

of price stabilization. In spatially integrated markets, price movements are transmitted across markets and commodities. Therefore, price stabilization measure, when needed, at one central market is sufficient. On the other hand, if markets are segmented, selective intervention that is appropriate to each market area is required. Markets in developing countries are suspected of fragmentation and spatial oligopoly pricing. Thus, studies have addressed the issue of testing empirically the degree of market integration (Sadoulet and de Janvry 1995). Two techniques can be used to test the existence of spatial market integration. The simplest technique is to test the linear association using correlation.

Correlation tests of livestock prices were undertaken across the transect of livestock markets in eastern borderlands. These livestock markets are at Darwenaji, Hartishek, Jijiga, Kebri Beyah and Teferiber. Jijiga and Kebri Beyah are feeder markets to Hartishek and Teferi Ber markets. Darwenaji is another border market site supplied from Gursum area (tables 9 and 10).

Table 9. Pearson's correlation coefficients of male sheep prices in Jijiga area

Markets	Hartishek	Kebri Beyah	Teferiber	Darwenaji
Kebri Beyah	.762*			
Teferiber	.667*	.814*		
Darwenaji	.752*	.777*	.815*	
Jijiga	.330*	.256	.092	.091

*Note: Correlation is significant at the 0.05 level, *Correlation is significant at the 0.01 level, no. of valid cases 51 for Jijiga and 57 otherwise*

Table 10. Pearson's correlation coefficients of male goat prices in Jijiga area

Markets	Hartishek	Kebri Beyah	Teferi Ber	Darwenaji
Kebri Beyah	.649*			
Teferi Ber	.711*	.749		
Darwenaji	.679*	.677	.690*	
Jijiga	.275	.444*	.377*	.031

Note: *Correlation is significant at the 0.01 level, no. of valid cases=49 for Jijiga and 57 otherwise

Correlation results show that markets in eastern borderlands (Jijiga area) are integrated with cross-border markets in Somaliland. The results are found responsive to distance. Teka *et al.* (1999) have found that livestock markets in Borana area (southern borderlands) are not integrated with border markets in Kenya.

A more powerful approach is to model price determination across markets. This takes time series econometric models to identify long run and short run impacts of the central market (deficit region) on the peripheral markets (surplus region) (Sadoulet and de Janvry 1995). According to Ravallion (1986), an econometric model of a spatial market structure is specified assuming that there is a group of local (feeder) markets and one central market. Thus, the historical price of the commodity in the central market determines local price formation. Algebraically, the spatial price determination model is given by:

(1) $P_r = P_r(P_1, \dots, P_n, X_r)$ central market price

(2) $P_i = P_i(P_r, X_i)$ $i=1, \dots, n$ feeder market price

where X are market specific seasonal and exogenous variables which affect price formation in that particular market. According to Sadoulet and de Janvry (1995), for estimation purposes, the dynamic structure of the feeder market price equations is specified explicitly, as a function of past prices with a General structure of l lags as follows

$$(3) P_{it} = \sum_{j=1}^l \alpha_{ij} P_{i,t-j} + \sum_{j=0}^l \beta_{ij} P_{r,t-j} + \gamma_i X_{it} + \varepsilon_{it}, \quad i=1, \dots, n$$

The hypotheses are:

- i) There exists market segmentation: present and past central market prices do not influence the i th local market, if $\beta_{ij}=0, j=1, \dots, l$.

- ii) There is short-run market integration: a price increase in the central market is fully and immediately passed on the i th market if $\beta_{i0}=1, \beta_{ij}=\alpha_{ij}=0, j=1, \dots, l$.
- iii) There is long run market integration: a permanent price change in the central market is fully passed over time to the feeder markets, but potentially through lagged effects. Solving eq. 3 for the long-run equilibrium change dP_i due to a change dP_r in the central market price

gives:

$$dP_i = \sum_{j=0}^l \alpha_{ij} dP_i + \sum_{j=1}^l \beta_{ij} dP_r \text{ or } dP_i = \frac{\sum_{j=0}^l \beta_{ij}}{\sum_{j=1}^l \beta_{ij}} dP_r$$

The corresponding test for long run market integration is:

$$\sum_{j=1}^l \alpha_{ij} + \sum_{j=1}^l \beta_{ij} = 1$$

If there is only one lag, the feeder market price equations simplify to:

$$(4) P_{it} = \alpha_i P_{i,t-1} + \beta_{i0} P_{rt} + \beta_{i1} P_{r,t-1} + \gamma_i X_{it} + \varepsilon_{it}$$

which can be written in first differences as:

(5)

$$\Delta P_{it} = (\alpha_i - 1)(P_{i,t-1} - P_{r,t-1}) + \beta_{i0} \Delta P_{rt} + (\alpha_i + \beta_{i0} + \beta_{i1} - 1)P_{r,t-1} + \gamma_i X_{it} + \varepsilon_{it}$$

Equation (5) relates the change in local price to past spatial price differentials, the current change in central market price, past central price, and market specific exogenous variables. To reduce the problem of multicollinearity, the difference equation (5) is estimated rather than the price equation (4). The tests of market integration (in equation (5)) are then given as:

- Segmentation: $\beta_{i0} = \beta_{i1} = 0$
- Short-run integration: $\beta_{i0} = 1, \beta_{i1} = \alpha_i = 0$
- Long-run integration: $\alpha_i + \beta_{i0} + \beta_{i1} - 1 = 0$

To test the above hypotheses on livestock prices across markets, adequate time series data were collected only for eastern markets by SAVE the Children UK. Among these markets, Jijiga and Hartishek were selected

based on distance. However, due to large missing values in data series collected at Jijiga town, Kebri Beyah remained to be the next possible option. Livestock bought at this market are trekked to Hartishek for onward resale. Hartishek is one of the most important livestock routes to Somaliland and ultimately to Saudi Arabian markets. Before the 1998 livestock embargo by Saudi Arabia (in normal years), about 800,000 animals (70% small stalk, 20% cattle and 10% camels) used to pass annually through Hartishek (Ahrens 1998, 6). The results are given in tables 11 and 12.

Table 11. Regression results for the determination of male goat price in Kebri Beyah

Variable Description	Var. Symbol in Eq. 5	Coef.	Std. Error	T	Sig.
Past price differential (between Kebri Beyah and Hartishek)	$P_{1,t-1}-P_{r,t}$	-0.546	0.129	-4.245	0.000
Change in log of Hartishek goat price	ΔP_{rt}	0.392	0.115	3.413	0.001
Lagged Hartishek price	P_{rt-1}	-0.287	0.090	-3.185	0.002
Constant		3.309		3.153	0.003

Note: RSq. =0.343, R BarSq=0.306, F=9.068(0.000)

Table 12. Regression results for the determination of male sheep price in Kebri Beyah

Variable Description	Var. Symbol in Eq. 5	Coef.	Std. Error	t	Sig.
Past price differential (between Kebri Beyah and Hartishek)	$P_{i,t-1}-P_{r,t}$	-0.479	0.123	-3.886	0.000
Change in log of Hartishek goat price	ΔP_{rt}	0.411	0.112	3.664	0.001
Lagged Hartishek price	P_{rt-1}	-0.139	0.072	-1.928	0.059
Constant		1.592	0.851	1.870	0.067

Note: RSq. =0.324, R BarSq=0.285, F=8.312(0.000)

Similar to the correlation tests, the regression results show that there exists weak spatial integration between livestock market centers in eastern borderlands. Hence, feeder market prices respond, but weakly, to past price differentials and change in prices of the boarder market. Accordingly, market segmentation is rejected, i.e., β_{10} and β_{11} have non-zero values.

The result further shows that the performances of goat and sheep prices are similar. It is difficult to conclude that the same performance holds for a number of livestock markets that are located very far from the border areas. As indicated earlier, animals sold at these border markets are transported to Hargessa and finally to Berbera for re-export to the Middle East (Steffen et al. 1998). A complete analysis of spatial market integration, therefore, needs to investigate the relationship between domestic prices and prices in Hargessa and Berbera

4.2.3 Terms of Trade between Livestock and Grain

Real income to the pastoralists is a function of their sales (livestock) and their major purchases (grain). Therefore, for more insight on the situation of exchange entitlements, the relationship between pastoralists' sales and purchases is important (Zaal 1999). Studies reveal that the most important reason for selling livestock is to buy grain (Coppock 1994; Geberemariam 1996; Zaal 1999). Therefore, the relationship between the prices of livestock and livestock products on the one hand and those of grain on the other provide more insight on the real income of pastoralists and hence on the food security situation in the area¹⁷.

The barter terms of trade calculated based on prices of livestock and grain collected in eastern pastoral lands show that pastoral products have been less

¹⁷ The barter terms of trade compares only unit prices and hence fails to capture wealth effect. In this regard, the TOT does not indicate the amount of livestock sold. More insight would have also been provided if the analyses were made in terms of calories (Zaal 1999).

and less paying against their purchases of basic items. The most important items used by pastoralists in eastern borderlands are maize, rice, sorghum and wheat. The majority use maize and sorghum particularly in Afar area whereas rice (imported) is largely used among Somali pastoralists (Little 2000).

In three selected markets of the Afar region, the terms of trade between livestock and grain shows that there has been a consistent decline. The overall decline during five years was more than 80 percent (table 13). This decline has been brought about by both the decrease in livestock prices and increase in grain prices.

Table 13. Terms of trade between livestock and grain in Afar, 1995-99

Market centers	Livestock - Grain	95/96	96/97	97/98	98/99	99/00	change 95 to 00 (%)
Asaita	Oxen to sorghum	629	462	100	0.67	86	-86.33
	Small stock to sorghum	104	50	13	10.00	9	-91.35
Yallo	Oxen to sorghum	538	321	100	167	56	-89.59
	Small stock to sorghum	77	21	8	13	11	-85.71
	Small stock to wheat	67	20	8	13	11	-83.58
Amibara	Oxen to sorghum	438	250	381	174	33	-92.47
	Small stock to sorghum	94	47	31	20	13	-86.17
	Small stock to wheat	83	39	36	20	16	-80.72

SOURCE: Computed based on price data obtained from the Afar Social Affairs, Disaster Prevention and Preparedness Bureau

Note: Values are in kg of the specified grain.

Table 14 shows that there has been a decline in the terms of trade between livestock and grain in those areas of the Ethiopia-Somali region bordering Somaliland. The range of the terms of trade decline is from between 11 to 50% in Jijiga and Hartshek to between 28 to 66% in Kebri Beyah. The table also shows that the highest and the lowest declines were for locally supplied

grain (maize) and for imported rice, respectively. Over the period under consideration, 1995-1999, the terms of trade values of livestock and grain showed a converging tendency in all cases. This convergence is largely driven by the terms of trade decline with respect to local maize. This indicates that this item continues to be more expensive when compared to rice, which showed relatively stable price.

Table 14. Terms of trade between livestock and grain in eastern Ethiopia borderlands (Jijiga area), 1995-1999_

Markets	Livestock to grain	1995	1996	1997	1998	1999	change 1995 to 2000 (%)
Jijiga Town	Male sheep to maize	93	77	98	92	50	-46.24
	Male goat to maize	76	67	79	69	38	-50.00
	Male sheep to rice	22	23	34	32	27	22.73
	Male goat to rice	18	20	27	24	20	11.11
Kebri Beyah	Male sheep to maize	130	116	115	67	44	-66.15
	Male goat to maize	114	99	98	60	40	-64.91
	Male sheep to rice	40	33	35	26	27	-32.50
	Male goat to rice	35	28	30	24	25	-28.57
Hartishek	Male sheep to maize	96	94	104	55	50	-47.92
	Male goat to maize	89	82	86	46	45	-49.44
	Male sheep to rice	45	40	47	32	40	-11.11
	Male goat to rice	42	35	39	26	36	-14.29

SOURCE: Computed from data from Save the Children, UK.

Note: Values are in kg of the specified grain.

In general, the livestock to grain terms of trade values in Afar and Ethiopia-Somali regions indicate that the situation has been unfavorable to pastoralists who significantly depend on livestock sales for their purchases of the food items indicated in table 14. The problem is more severe in Afar region where

cross-border market accesses are limited compared to the Ethiopia-Somali region, implying improved cross-border market access.

In summary, although there is potential for cross-border trade to enhance food security in the pastoral areas of eastern Ethiopia borderlands, the distribution of the proceeds of livestock sales is biased in favor of non-pastoral agents due to weak spatial integration. Moreover, pastoralists face unfavorable terms of trade because of declining prices for their sales and rising prices of their major purchases. Therefore, to improve the food security situation in the area, broadening market access for both sales and purchases may be important.

5. SUMMARY AND CONCLUSIONS

5.1 Background

This study is about cross-border trade in eastern Ethiopia, with special emphasis on its impact on food security in the area. The study area primarily covers those places that are closer to the Ethiopia-Djibouti and Ethiopia-Somalia (Somaliland) borderlands. These are the Afar Regional State, the Somali National Regional State (the Ethiopia-Somali Region), Eastern and Western Harerghe highlands in Oromia Regional State, and Dire Dawa and Harer towns. We also visited adjacent places in Wollo and Tigray to identify the routes that connect to the pastoral trade networks. In all these places, we conducted market observation, key informant interviews with various individuals involved in cross-border trade or food security issues in the area and questionnaire based interviews with petty traders. In addition, secondary sources obtained from various governmental and non-governmental organizations have been used.

5.2 Summary

The study found that cross-border trade in the eastern region of Ethiopia is a strong economic activity in the sense that it involves a wide range and volume of goods, a number of trade agents, various marketing inputs, and several routes. The trading business has become an alternative economic activity for pastoral groups in the region. Their linkage to the highland has also attracted other people to the trade. Furthermore, the cross-border trade catchment has been expanded since recently. For instance, cross-border traders collect cereals and pulses from as far as Wollo and Tigray for Djibouti market. Cross-border livestock trade in the area now attracts not only the pastoral lowlanders but also highland farmers in Harerghe. The situation in the return trade is similar. Unofficial imports that are smuggled through Djibouti and Somalia to Ethiopia are sold beyond the border region as far as Addis Abeba and Mekelle.

Goods originating from Ethiopia and directed to the neighboring countries in the east pass through both official and unofficial channels. The relative importance of the two channels depends on the type of the item. Highly perishable products such as *chat*, vegetables and fruits are less attractive in the unofficial channel. The official export to the neighboring countries focuses on items that are consumed by these countries. However, the unofficial export concentrates on re-exportable items such as livestock and to some extent coffee. After the change of Government in Ethiopia in 1991 and the consequent liberalization measures taken in many aspects of the country's economic policy, some improvement has been shown in the use of the official channel. Specifically, the liberalization measures have been effective in redirecting the coffee and *chat* export. However, livestock trade is still carried out unofficially across the border. This is because livestock export requires, among other things, specialized infrastructure such as specialized trucks and holding facilities equipped with feed, water and animal health facilities. This coupled with port fees will have a bearing on

the total cost that would challenge the country's competitiveness compared to the neighboring countries.

Merchandise imports from Djibouti and Somaliland are generally unofficial. The items smuggled to Ethiopia are produce of a third country. Most of these products are manufactured in Asian countries. One major characteristics of the structure of the unofficial imports is their close similarity with the official ones, except for used clothes. This would suggest that revision of import taxes and other associated transaction costs would change the direction of the channel.

In response, the Ethiopian government has instituted various methods (most of them control measures) to discourage the cross-border trade. These are checkpoints along the major roads and surprise patrolling of the smuggling routes. However, such efforts have remained largely unsuccessful. Neighboring countries, particularly Somalia and Kenya, in order of importance, still re-export in bulk or consume smuggled livestock from Ethiopia. Shops of major urban centers are often stocked with unofficially imported goods across the border.

5.3 Conclusions

The age long trade ties among people in the borderlands is shaped and facilitated by various features shared by the people on both sides of the border. These similarities trace economic, geographical, political and social characteristics. Periodic movements in search of water and pasture are conducted irrespective of political boundaries. Proximity to large cities in neighboring countries and external trade infrastructures such as ports, have contributed for prices to remain higher at producer level and lower at consumer level. This has attracted sale of live animals away from the domestic alternatives despite the absence of regional or bilateral arrangement as to the trading of these items. This has been aggravated by shortage of officially supplied manufactured goods in the border area, inappropriate

pricing and marketing policies that were in place at different times, absence of alternative source of employment that encouraged many young men to join the illicit trade, and limited domestic demand for livestock.

From food security perspective, there are two contributions of the cross-border trade. One is by increasing access to livestock markets and the other is by making food items available. In the case of Eastern Ethiopia, grain is supplied to these regions from the central highlands and is complemented by little production in the area and cross-border import. Thus, people in the area buy most of their grain requirement. Therefore, improving livestock sales price alone would not address the problem of food security. A more comprehensive approach to food security-market relationship needs to consider the performance of grain and other food markets.

Political developments in the Horn of Africa are dynamic. It is difficult to predict the long run relationship that may prevail among these countries. Nevertheless, some developments seem to favor cross-border trade and regional integration. These would include the intensification of infrastructure network along the Ethiopia-Djibouti and Ethiopia-Somaliland border areas, the attempt to recognize cross-border petty trade for people inhabiting both sides of the border, and the start of official trade between Ethiopia and Somaliland. There are, however, challenges that would play the other way. These are the fragile situation of security in the border areas and frequent closure of the border, lack of recognition to the Republic of Somaliland by the international community, and neighboring countries' strong dependence on re-exportable commodities from Ethiopia for their foreign currency generation. In addition, the engagement of many people in smuggling because of absence of alternative employment as well as limited possibilities for merchandise import originating from Djibouti and Somaliland would constrain the effort to streamline and legalize the cross-border trade among these countries.

Finally, the research team would like to underline that this study focused on some of the issues in the Ethiopia-Djibouti and Ethiopia-Somalia borderlands. We also understand that food security in the borderlands could be approached from different dimensions. Issues on the role of other incomes, non-pastoral activities, irrigation farming, population pressure, human development for employment, animal health and the environment need to be addressed for sustainable pastoral transformation. Hence, this study is one small contribution to further understand cross-border trade and the dynamics of the economy and transaction in the eastern borderlands and the pastoral areas. We look forward for more research and understanding in the pastoral economy in Ethiopia where food security has become a recurrent problem.

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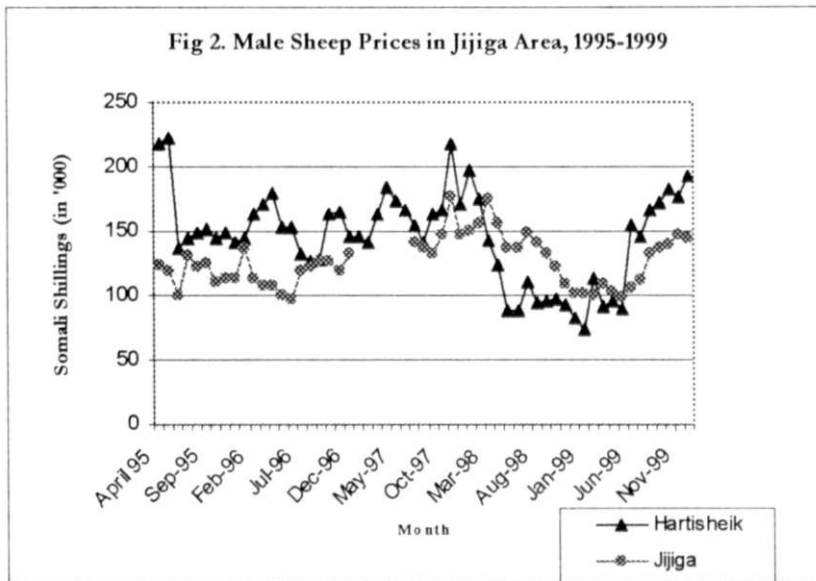
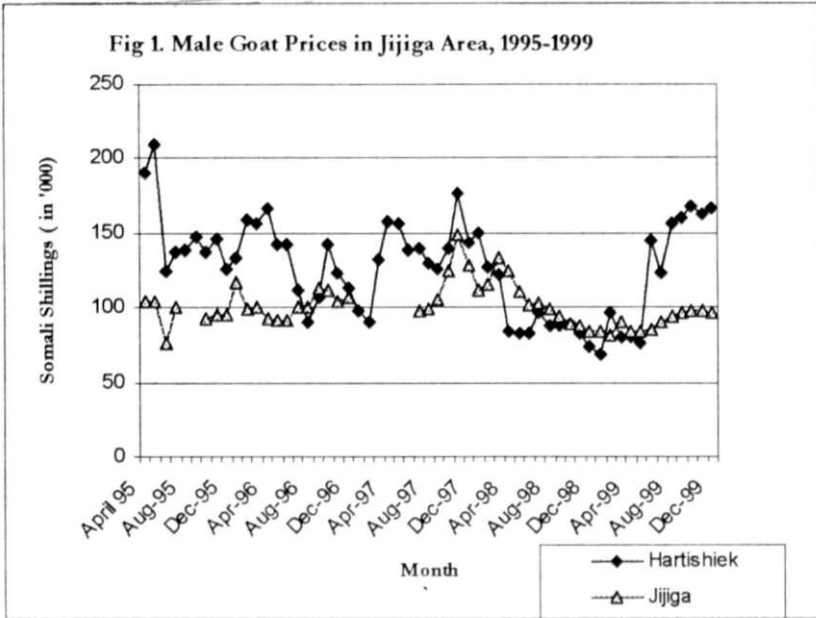
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ANNEXES

Annex 1: Figures



Annex 2: Livestock and Grain Prices in Jijiga Area

Annual Male Goat and Sheep Prices in Somali Shillings and Coefficients of Variation Calculated on Monthly Prices compiled by Save the Children UK, Jijiga

Male Goat

Year		Hartishek	Kebri Beyah	Teferi Ber	Darwenaji	Jijiga	Average
1995	Avg.	150691.67	119333.33	133805.56	125833.33	95557.14	126025.00
	Coef. Var	0.19	0.15	0.22	0.13	0.10	0.14
1996	Avg.	1320200.83	122500.00	110420.00	107875.00	102274.33	115018.03
	Coef. Var	0.18	0.14	0.26	0.20	0.08	0.17
1997	Avg.	135583.33	125289.83	130937.50	99375.00	117277.83	121692.70
	Coef. Var	0.18	0.15	0.28	0.20	0.17	0.20
1998	Avg.	96854.17	99666.67	89872.92	78250.00	104285.58	93785.87
	Coef. Var	0.24	0.23	0.26	0.15	0.15	0.18
1999	Avg.	123488.08	99541.67	106833.33	87764.58	90182.75	101562.08
	Coef. Var	0.33	0.21	0.31	0.35	0.07	0.24

Male Sheep

Year		Hartishek	Kebri Beyah	Teferi Ber	Darwenaji	Jijiga	Average
1995	Avg	161456.44	135847.22	148750.00	142694.44	117481.78	141245.98
	Coef. Var	0.21	0.15	0.18	0.14	0.08	0.14
1996	Avg.	151885.42	144312.50	150729.17	135458.33	117339.83	139945.05
	Coef. Var	0.11	0.13	0.22	0.16	0.11	0.11
1997	Avg.	165416.67	147516.67	148125.00	131312.50	146583.50	149017.73
	Coef. Var	0.13	0.11	0.22	0.16	0.11	0.11
1998	Avg.	115354.17	110416.67	118958.33	103125.00	138917.33	117354.30
	Coef. Var	0.33	0.30	0.23	0.17	0.15	0.21
1999	Avg.	137687.50	108041.67	122645.83	109875.00	119108.42	119471.68
	Coef. Var	0.31	0.19	0.20	0.28	0.16	0.21

Annual Grain Prices in Somali Shillings and Coefficients of Variation Calculated on Monthly Prices Compiled by Save the Children UK, Jijiga

Sorghum

Year		Hartishek	Kebri Beyah	Tefri Ber	Darwenaji	Jijiga	Average
1995	Avg.	1529.13	N/A	1337.50	1575.00	1192.57	1431.79
	Coef. Var	0.21	N/A	0.17	0.17	0.04	0.15
1996	Avg.	1566.25	1277.08	1435.42	1418.75	1314.67	1402.03
	Coef. Var	0.13	0.11	0.21	0.12	0.21	0.13
1997	Avg.	1869.64	1410.00	1566.67	1764.58	1509.00	1644.46
	Coef. Var	0.11	0.10	0.21	0.20	0.14	0.12
1998	Avg.	2169.83	1587.50	1900.00	1683.33	1529.40	1753.96
	Coef. Var	0.37	0.35	0.32	0.35	0.28	0.32
1999	Avg.	3161.30	2242.86	2944.75	2866.67	2371.92	2753.14
	Coef. Var	0.15	0.02	0.21	0.19	0.15	0.10

Relief Wheat

Year		Hartishek	Kebri Beyah	Tefrei Ber	Darwenaji	Jijiga	Average
1995	Avg.	1654.22	1422.22	1133.33	1238.89	1780.57	1424.00
	Coef. Var	0.16	0.14	0.18	0.18	0.06	0.11
1996	Avg.	1684.08	1768.75	1556.00	1566.67	2309.33	1776.97
	Coef. Var	0.25	0.25	0.24	0.26	0.19	0.20
1997	Avg.	1824.08	1842.50	1583.33	1695.83	2764.00	1830.13
	Coef. Var	0.17	0.18	0.20	0.15	0.07	0.15
1998	Avg.	1938.33	1700.00	1577.08	1595.83	2221.10	1778.05
	Coef. Var	0.31	0.34	0.29	0.29	0.09	0.25
1999	Avg.	2601.00	2439.58	2138.64	2354.17	2510.25	2285.50
	Coef. Var	0.09	0.08	0.23	0.15	0.07	0.03

Maize

Year		Hartishek	Kebri Beyah	Teferi Ber	Darwenaji	Jijiga	Average
1995	Avg.	1684.33	1044.44	1186.11	1471.43	1264.00	1334.33
	Coef. Var	0.21	0.20	0.16	0.13	0.04	0.12
1996	Avg.	1613.67	1241.67	1561.11	1658.33	1530.33	1521.00
	Coef. Var.	0.10	0.15	0.19	0.11	0.12	0.10
1997	Avg.	1584.92	1281.25	1522.92	1584.38	1490.50	1496.58
	Coef. Var	0.14	0.15	0.24	0.07	0.18	0.13
1998	Avg.	2085.33	1650.00	1995.83	1783.33	1516.96	1797.92
	Coef. Var	0.40	0.42	0.40	0.34	0.29	0.36
1999	Avg.	2749.42	2475.00	2883.33	2827.08	2382.08	2663.38
	Coef. Var	0.11	0.08	0.19	0.17	0.12	0.11

Rice

	Month	Hartishek	Kebri Beyah	Teferi Ber	Darwenaji	Jijiga	Average
1995	Avg.	3599.11	3407.14	3503.57	3335.71	5382.00	3665.67
	Coef. Var	0.12	0.13	0.08	0.13	0.02	0.14
1996	Avg.	3765.44	4334.67	4094.44	3972.22	5167.50	4654.58
	Coef. Var	0.15	0.08	0.06	0.06	0.11	0.15
1997	Avg.	3516.58	4197.92	3661.25	3616.67	4323.67	3801.42
	Coef. Var	0.11	0.05	0.04	0.03	0.04	0.04
1998	Avg.	3659.00	4233.33	3454.17	3866.67	4370.64	3795.67
	Coef. Var	0.09	0.04	0.04	0.04	0.05	0.09
1999	Avg.	3429.50	4025.00	3618.75	3944.44	4409.67	3810.33
	Coef. Var	0.08	0.10	0.03	0.04	0.08	0.03

Annex 3: List of Persons Met in the Field Survey**Afar Regional State**

Ato Awol Arba, Head, Afar Regional State Economy Sector
Ato Alo Aydahis Head, Afar Region Trade, Tourism, Industry and Transport Bureau
Ato Zewdu Shawel, Unit Head. Afar Region Trade, Tourism, Industry and Transport Bureau
Ato Mohammed Ali, Head Asayita Wereda, Economic Development and Social Services Office
Ato Abebe Reta, Expert, Afar Region Agriculture Bureau
Ato Osman Mohammed. Head, Administration and Finance, Afar Region Planning and Economic Development Bureau
Ato Alemu Berhe, Head, Physical Planning Department, Afar Region Planning and Economic Development Bureau
Ato Tesfaye Girma, Head, Macro Planning Department, Afar Region Planning and Economic Development Bureau
Ato Tamirat Mengistu, Expert, Early Warning Section, Afar Region Disaster Prevention, Preparedness and Social Affairs Bureau
Ato Muktar Kadi, Expert Zone-I Agriculture Development Department, Aysaita
Ato Tahir Abdulkadir, Head, Planning, Afar Region Finance Bureau
Ato Mohammed Hamedu, Head Revenue Department, Afar Region Finance Bureau

North-Eastern Zone Customs Office (Afar and Wello)

Ato Asfaw Shiferaw, General Manager, North Eastern Zone Customs, Kombolcha
Captain Gezahegn Tadesse, Enforcement Section Head, North Eastern Zone Customs, Kombolcha
Ato Solomon Mekonen, Customs Controller, Galafi Customs Station.
Ato Asali few Gedif, Expert, Plan and Statistics Section, Northeastern Zone Customs, Kombolcha

Eastern Zone Customs Office (Dewele, Dire Dawa, Harer and Jijiga)

Ato Getahun Fanta, Eastern Zone Customs Manager. Dire Dawa
Major Fiseha Negash, Enforcement Head, Dire Dawa Lagar Customs

Lieutenant Getachew Addis, Contraband Operations Head, Dire Dawa Lagar Customs

Ato Tekle Asfaw, Operations Head, Dire Dawa Lagar Customs

Ato Wondimeneh Workayehu, Dewele Customs Head

Ato Wondwosen Habtemariam, Operation Head, Dewele Customs Office

Ato Tekle Kifle Meskel, Harar Customs Head

Dire Dawa Foreign Trade Office

W/o Samia Yusuf, Head

National Bank of Ethiopia, Dire Dawa Office

Ato Tewelde , Branch Office Head

Ato Moges Haile

Coffee and Tea Authority, Dire Dawa Office

Ato Amha Hagos, Office Head

Ato Fekede Regassa, Quality Grading Section Head

Ethiopian Maritime and Transit Services Corporation, Dire Dawa Branch

Ato Gashaw Haile, Manager

Khalid and Sisters Transit Services Co, Dewellé

Ato Seyoum Gedlu

Bureau of Agriculture, Dire Dawa

Ato Tsegaye Wolde Meskel, Extension Department Coordinator

Ato Tsegaye Wolde Meskel, Extension Department Coordinator

Ato Mesfin Kebede, Animal Production and Health Service Team Leader

Dr. Alemayehu Mekonnen, Animal Quarantine Service Head

Ato Gezahegn Amede, Livestock and Livestock products Marketing Development Section Head

Finance Bureau, Dire Dawa

Ato Kifle Giorgis Eneyew, Bureau Head

Ato Abdulahi Abdurahman, Revenue Department Head

Ato Genene Gebre Sellassie, Tax Collection Section Head

South East Rangelands Project, Jijiga

Ato Legesse Megersa, Livestock Production and Marketing Unit Head

Ethiopia Somali Region (Region-5) Bureau of Agriculture, Jijiga

Ato Abdihakim

Ato Solomon

Ato Zerihun

Annex 4: Maps

