

Livestock marketing in Ethiopia: A review of structure, performance and development initiatives

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[Table of Contents](#)

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Table of Contents

[Acknowledgements](#)

[Executive summary](#)

[1 Introduction and objectives](#)

[2 Domestic livestock marketing and prices](#)

[2.1 Market structure and price formation](#)

[2.2 Evidence on market structure, performance and prices](#)

[2.2.1 Market information and statistics](#)

[2.2.2 Evidence from field studies](#)

[3 Livestock exports](#)

[3.1 Official exports](#)

[3.2 Unofficial exports](#)

[4 Policy and project initiatives to improve livestock marketing](#)

[5 Information gaps and conclusion](#)

[References](#)

[Appendix A](#)

[Appendix B](#)

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Executive summary

The livestock sector in Ethiopia contributes 12 and 33% of the total and agricultural Gross Domestic Product (GDP), respectively, and provides livelihood for 65% of the population. The sector also accounts for 12–15% of total export earnings, the second in order of importance. However, in recent years official export has been declining while illegal export has been increasing. The Middle Eastern countries have been a traditional export market for Ethiopian animals but increasingly stringent health and quality control regulations restricted exports to these countries in recent years. Of the total household cash income from crop and livestock, livestock account for 37–87% in different parts of the country, and the higher the cash income the higher is the share of livestock, indicating that increased cash income come primarily from livestock, particularly in the pastoral areas. Therefore, the long-term impact of export ban on the local economy, especially in the pastoral areas, is likely to be severely negative on several fronts. There will be increased pressure on feed resources due to increased livestock population, while unsold animals will depress domestic prices of animals thus reducing the income and purchasing power of livestock owners. This will further reduce domestic trade for other commodities, creating a downward spiral in several sectors.

However, current knowledge on livestock market structure, performance and prices is poor and inadequate for designing policies and institutions to overcome perceived problems in the marketing system. Knowledge on how marketing routes and systems could contribute to the spread of diseases and the implications of these for national and international trade in livestock is also highly inadequate to design any policy or institutional innovation to improve marketing for the benefit of the poor. Further, regaining the export market will require an understanding of the market potential in the importing countries including growth in demand, sanitary and phytosanitary (SPS) and other quality requirements, rules and regulations governing the market, Ethiopia's competitiveness in the market in relation to alternative suppliers and ability of the domestic market to respond to the export market opportunities.

Since the livelihood of smallholders is highly dependent on the cash income from livestock and livestock products, alleviating constraints to the export market and domestic trade and marketing structure, improving market information, and upgrading marketing infrastructures including health and sanitary conditions will increase the welfare of smallholder producers, urban consumers and improve the national balance of payments.

This paper reviews current knowledge on market structure, performance, export and related issues, livestock marketing development efforts and outcomes. It then identifies information gaps and recommends research that may help to reduce inefficiencies in the domestic market and identify opportunities in the export market.

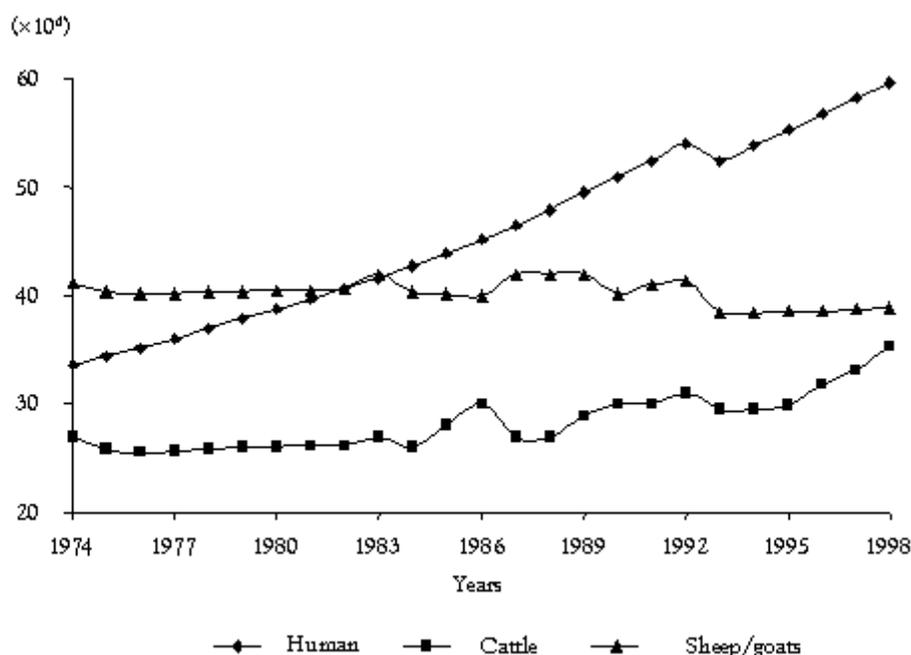
1 Introduction and objectives

Livestock perform multiple functions in the Ethiopian economy by providing food, input for crop production and soil fertility management, raw material for industry, cash income as well as in promoting saving, fuel, social functions, and employment. Various estimates show that the livestock sub-sector contributes 12–16% of the total and 30–35% of agricultural GDP, respectively (MEDaC 1998; AAPBMDA 1999). The sector's contribution to national output is underestimated because traction power and manure for fertiliser are not valued. Contributing 12–15% of total export earnings, the sub-sector is the second major source of foreign currency through export of live animals, hides and skins (MEDaC 1998; FAO 1999). The sector also employs about one-third of the country's rural population (EARO 2000). Therefore, livestock can serve as a vehicle for improving food security and better livelihood, and contribute significantly to agricultural and rural development.

Ethiopia has the largest livestock population and the highest draft animal population in the continent. There are approximately 35 million cattle, 39 million sheep and goats, 8.6 million equine, 1 million camels, and 55.4 million chickens in the country¹ (FAO 1999). Generally, sheep are the predominant livestock in areas over 3000 metre above sea level (masl) and at altitude over 3500 masl farmers keep only sheep. Cattle are common below 3500 masl. Livestock are most common in the 1500 to 2800 masl range. Cattle, camels and goats are prominent domestic animals in the lowlands below 1500 masl. Chickens are ubiquitous in all production systems.

1. The Ethiopian Central Statistical Authority (CSA) estimated 35.1 million cattle, 12.2 million sheep, and 9.5 million goats only in the highlands (1,500 metre above sea level, masl) and mixed farming systems, home and 75–80% of cattle and sheep and 30% of goat population in the country (CSA 1999a).

Between 1974 and 1998, human population increased by 78% while cattle population increased by 31%, and small ruminant population decreased by 5.6% (Figure 1). Annual growth rate for human population was 2.5% while that for cattle and small ruminants was 1.1 and –0.2%, respectively. During the same period meat, milk and skins and hides production have increased by 23.8, 42.7 and 5.7%, respectively (FAO 1999). Despite the large number of livestock, there has been a decline in national and per capita production of livestock and livestock products, export earnings from livestock, and per capita consumption of food from livestock origin since 1974, in comparison to other African countries (Assegid 2000).



Source: Assegid (2000).

Figure 1. Human and livestock population trends, 1974–98.

Among exports of livestock products, skins and hides have the largest share of exports followed by live animals (MEDaC 1998; FAO 1999). In recent years, exports of live animals to the Middle Eastern countries, the traditional outlet for Ethiopian animals, have substantially decreased since these countries have imposed ban on imports of live animals from the Horn of Africa due to prevalence of certain diseases such as Rift Valley fever. Although the ban was triggered by the outbreak of the disease, most likely the ban has been also prompted by a number of other factors, e.g. change in consumer preferences and greater demand for high quality products with adequate guarantees of food safety while supply conditions in Ethiopia remained virtually unchanged to meet the rapidly changing market conditions in the importing countries. On the other hand, alternative suppliers who were better prepared and able to meet the market demand and conditions entered the market gradually replacing Ethiopia as a supplier. However, adequate understanding of these changing market conditions are not available among the export market stakeholders in Ethiopia and without such an understanding, it may be difficult to develop proper strategies to re-enter the lost market.

Although live animals make a considerable contribution to the economy in terms of export earnings, a great number of the country's ruminants have been traditionally smuggled to neighbouring countries. The ban on import by Middle Eastern countries has led to increased illegal sale of livestock through Somalia and Kenya, and to a lesser extent, through Sudan and Djibouti. Studies have tried to estimate losses from illegal export and also generated other widely variable estimates. Some of the reasons identified as contributing to illegal exports are excessive regulations involving several ministries and agencies and related fees. Overall transaction costs in dealing with these agencies for export clearance are also apparently high both in terms of time and money. But these studies are dated and the sources of these distortions need to be identified and policy remedies be implemented. In general, research is required to identify the real causes of live

animal smuggling and make appropriate interventions to improve the welfare of producers, consumers and marketers and increase government revenue.

The structure and performance of the live animal market both for domestic consumption and for export, is generally perceived to be poor. Underdevelopment and lack of market-oriented production, lack of adequate information on livestock resources, inadequate permanent animal route and other facilities like water and holding grounds, lack or non-provision of transport, ineffective and inadequate infrastructural and institutional set-ups, prevalence of diseases, illegal trade and inadequate market information (internal and external) are generally mentioned as some of the major reasons for the poor performance of this sector (Belachew and Jemberu 2002; Yacob 2002). However, some of these conclusions are not based on detailed and up to date field research.

This paper reviews current knowledge on market structure, performance, export and related issues, livestock marketing development efforts and outcomes. The paper also identifies information gaps and recommends research that may help to reduce inefficiencies in the domestic market and identify opportunities in the export market. In Section 2, domestic market structure and price formation along with findings of past studies are presented. In Section 3, information on exports and related issues are presented. In Section 4, various livestock market development initiatives and their outcomes are summarised. A synthesis of the findings along with information gaps and research needs are outlined in Section 5.

2 Domestic livestock marketing and prices

[2.1 Market structure and price formation](#)

[2.2 Evidence on market structure, performance and prices](#)

[2.2.1 Market information and statistics](#)

[2.2.2 Evidence from field studies](#)

2.1 Market structure and price formation

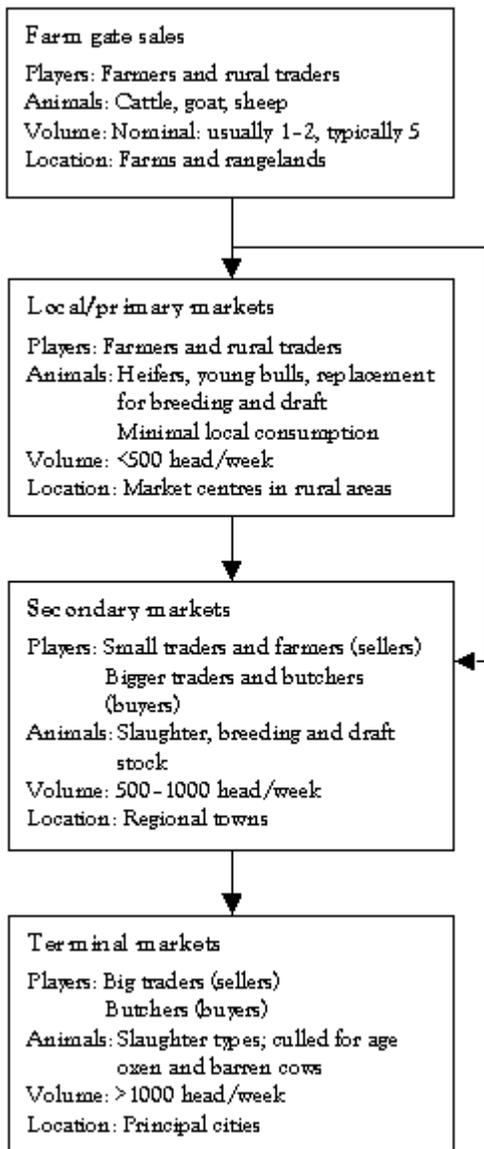
Field studies in different parts of the highland of Ethiopia show that livestock account for 37–87% of total farm cash income of farmers, indicating the importance of livestock in rural livelihood (Gryseels 1988; ILRI 1995). Despite the contribution of livestock to the economy and to smallholders' livelihood, the production system is not adequately market-oriented. There is little evidence of strategic production of livestock for marketing except some sales targeted to traditional Ethiopian festivals. The primary reason for selling livestock is to generate income to meet unforeseen expenses. Sales of live animals are taken as a last resort and large ruminants are generally sold when they are old, culled, or barren. In the highlands, large numbers of cattle are kept to supply draft power for crop production whereas prestige and social security are the predominant factors in the lowland pastoral areas.

Generally, the livestock marketing structure follows a four-tier system (Figure 2). The main actors of the 1st tier are local farmers and rural traders who transact at farm level with very minimal volume, 1–2 animals per transaction irrespective of species involved. Some traders may specialise in either small or large animals. Those small traders from different corners bring their livestock to the local market (2nd tier). Traders purchase a few large animals or a fairly large number of small animals for selling to the secondary markets. In the secondary market (3rd tier), both smaller and larger traders operate and traders and butchers from terminal markets come to buy animals. In the terminal market (4th tier), big traders and butchers transact larger number of mainly slaughter type animals. From the terminal markets and slaughterhouses and slabs, meat reaches consumers through a different channel and a different set of traders/businesses. The channels from Addis Ababa terminal market to consumers are depicted in Figure 3. Consumers get meat through one of the three channels. They may purchase live animals directly from the terminal market and slaughter by themselves or they may get meat from markets, which by-pass the formal procedures through abattoirs; or they may access from butchers who process the meat via abattoirs. In the former two cases, consumers' health may be at risk of zoonotic diseases and the government is also denied revenue from service charge from abattoirs.

Livestock markets are generally under the control of local authorities. Livestock market locations in primary and secondary markets are typically not fenced; there are no permanent animal routes and no feed and watering infrastructures. Yet buyers and sellers are subjected to various service charges by the local authority

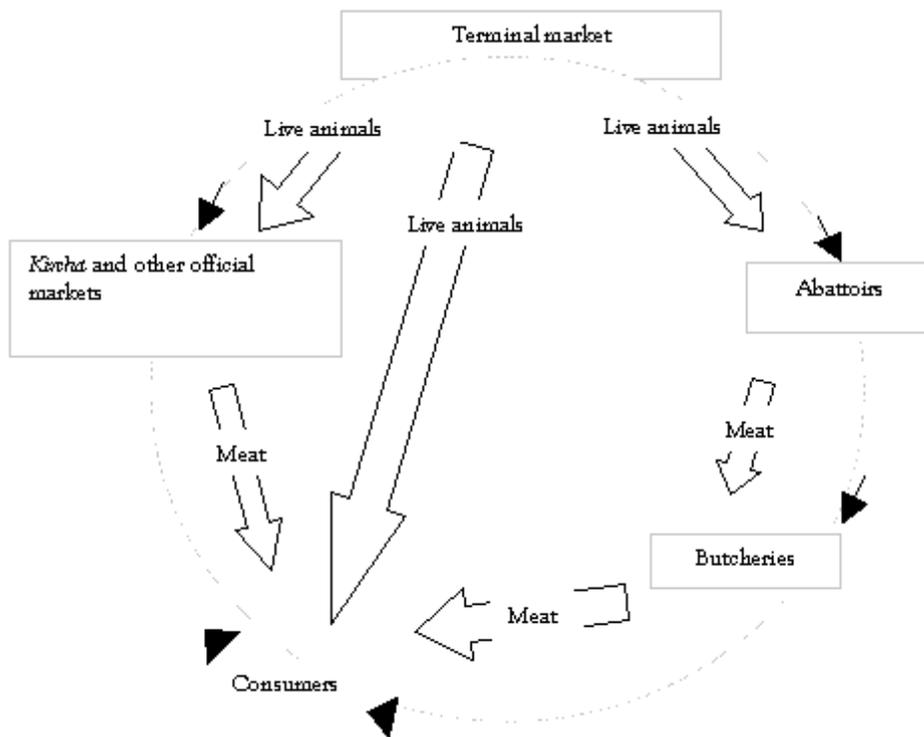
as well as other bodies. For example, service charges for use of terminal markets range between Ethiopian Birr (ETB) 2–10 for cattle and 0.25 cents to ETB 2 for sheep and goats (depending on the city or municipality). ETB 2 per head for cattle and ETB 1 per head for sheep or goat are charged for quarantine services. In addition, Inland Revenue collects ETB 5 per head of cattle sold and ETB 1 per sheep or goat sold (LMA, unpublished data). The Livestock Marketing Authority (LMA) has recently proposed some stock routes based on past knowledge about animal movement (see Appendix A). However, closure of the Eritrean ports and ban on imports by the Arabian peninsula in recent years have probably changed the pattern of animal movement, which also need to be recognised in developing new routes to meet evolving domestic and export opportunities.

2. US \$ 1 was approximately ETB 8.50 in 2000.



Source: Beyene and Lambourne (1985), Zewdu et al. (1988)

Figure 2. Typical Ethiopian livestock market structure.



Source: Getachew (1977).

Figure 3. Flow of livestock and livestock products from the Addis Ababa terminal market to final consumers.

Markets are dispersed with remote markets lacking price information. Generally, the number of animals offered in a market is usually greater than the number demanded, so there is excess supply. This effectively suppresses producer prices since the more mobile trader is better informed on market prices, while better information combined with excess supply place the trader in a better position during price negotiation.

Livestock are generally traded by ‘eye-ball’ pricing, and weighing livestock is uncommon though auctions were used to be practised in some of the southern (Borana) markets where weighing was also practised (MOA 1976). This has been abandoned in recent years. Prices are usually fixed by individual bargaining. Prices depend mainly on supply and demand, which is heavily influenced by the season of the year and the occurrence of religious and cultural festivals. Northern Ethiopia’s livestock supply is heavily influenced by the severity of the dry season; supply peaks after the October– January rainy season then drops rapidly. In the South, low sales volume characterises the July–September main rainy season, and the fasting period (February–April), but trade peaks immediately following these periods (Negussie 1983).

2.2 Evidence on market structure, performance and prices

2.2.1 Market information and statistics

The Central Statistical Authority (CSA) reports monthly prices of livestock, and hides and skins for 26 secondary or terminal markets (3rd or 4th tier) located in 26 major cities including Addis Ababa and Dire Dawa (CSA 1999b). Retail price data

for Addis Ababa dates back to 1963 and coverage was increased to include 14 urban centres in 1975 and 21 urban markets in 1978. Four *killil* (region) capitals (Asosa, Asaita, Gambella and Jijiga) and Debre Zeit were added in March 1996 to give a current total of 26 markets (Table 1).

Table 1. Urban retail markets covered by the CSA market survey.

Group A	Group B	Group C
Mekele	Ghimbi	Arba Minch
Asaita	Goba	Awasa
Bahir Dar	Jimma	Dila
Debre Markos	Nazareth	Gambela
Desie	Negele Borena	Harar
Gondar	Nekemt	Addis Ababa
Agaro	Shashemene	Dire Dawa
Asela	Jijiga	
Debre Zeit	Asosa	National average

Notes: The following product categories are covered in the price data: Sheep (10–15 kg), goat (10–15 kg), heifer (2–4 years), cow (>4 years) bull (2–4 years), ox (>4 years) and meat (beef).
Source: CSA (1999c).

The CSA also reports rural retail prices of livestock along with prices of some 360 producer and consumer goods and services. The CSA has also conducted monthly Rural Integrated Household Survey Programme (RIHSP) since 1981, which cover both retail and producer prices (CSA 1999c). The reports included a regional level data up to July 1994. From November 1994–August 1998, rural retail price reports were available up to the *killil* level, and for 'Group of Zones' (GZ) as follows: Oromiya Region (5 GZ), Amhara Region (4 GZ) and Southern Nations, Nationalities and Peoples Region (4 GZ). Since September 1998, zonal reporting has been expanded. Table 2 lists all the *killilis* with the number of zones for which prices are reported (CSA 2000). The August 1999 survey sampled 437 enumeration areas (EA)³ with a maximum sample of 10 EAs per zone. There is typically one major livestock market per zone.

3. An enumeration area is a rural area defined as 'a locality that is less than or equal to a farmers' association area, consisting of 150–200 households'.

Table 2. Killilis (regions), number of zones and categories covered by CSA rural price surveys.¹

Geographic categories (regions)	Livestock/products covered in rural retail price survey	Livestock/products covered in rural producer price survey
Tigray (4 zones)	Sheep (10–15 kg)	Sheep (castrate)
Amhara (10 zones)	Goat (10–15 kg)	Lamb
Oromiya (12 zones)	Heifer (2–4 years)	Other sheep (10–15 kg)
Afar (3 zones)	Cow (4 years <)	Goat (castrate)

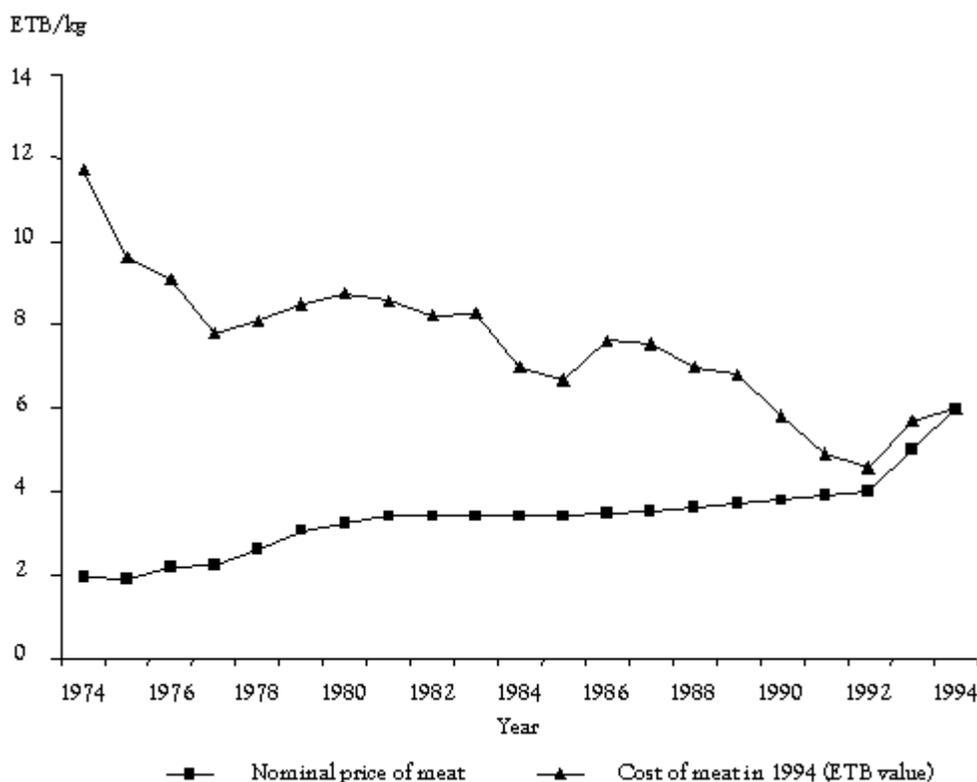
Somali (3 zones)	Bull (2–4 years)	Goat (1–2 years)
Benishangul-Gumaz (3 zones)	Meat (Beef)	Other goat (10–15 kg)
SNNPS (14 zones)		Calf (1–2 years)
Gambella (3 zones)		Heifer (2–4 years)
Addis Ababa (2 zones)		Cow (4 years and above)
Dire Dawa Average		Bull (2–4 years)
National Average		Ox (4 years and above)
		Pullet (local)
		Bovine hides, sheep and goat skins (dry)

1. Appendix B lists the reporting zones.
Source: CSA (1999c).

The CSA also reports data taken from 450 rural markets. This survey is conducted at the EA level and covers a maximum of 10 EAs per zone. It is not clear if primary or secondary (2nd and 3rd tier) livestock markets are sampled in this survey (CSA 1999c). Monthly producer price surveys have been done (as part of the RIHSP) in selected EAs since 1981, but collection of producer price data at the zonal level began in September 1997.

However, the CSA reports only raw or semi-processed data and does not conduct any detailed analysis of price data from these various surveys to discern regional, and other sources of price differences and their causes. Such analysis of the large volume of CSA price data could shed light on the current market structure and performance and provide the basis for increasing efficiency in the marketing system at the aggregate level. For example, Figure 4 shows that the real producer price of meat has fallen drastically.⁴ The figure also shows the closing of the gap between nominal and real prices, which may indicate that current prices are reflecting the true price of the commodity. What could have triggered this seeming convergence? One possible explanation may be that there was macro and sectoral economic policies change (after 1992) in relation to price: devaluation of ETB against US Dollar, the lifting of price control etc. However, CSA data being both spatial and temporal could provide a good basis for analysing the reasons for these price trends and their implications for consumers, producers and traders.

4. real producer price was calculated by using Consumer Price Index (CPI) for Addis Ababa provided by the Central Bank and FAO producer price for 'indigenous cattle meat'.



Source: FAO (1999) (producer price data); and Ethiopian Central Bank's Consumer Price Index (CPI) for Addis Ababa.

Figure 4. Real and nominal producer price of beef.

2.2.2 Evidence from field studies

In 1983/84, weekly terminal (or close to terminal) cattle markets in Addis Ababa, Nazareth, Koka and Guder were surveyed before, during and after Easter (Beyene and Lambourne 1985). General conclusions from all the markets and time periods are as follows:

- Time of sale is generally from 0900 to 1400 with the heaviest animals being sold earlier in the day. Price per kg was observed to gradually rise until noon, and then return to morning prices by the close of market, indicating that the best deals (lowest price and larger animal) for buyers were early in the morning.
- Since these were terminal markets, most buyers (40%) were butchers followed by traders (34%). A majority of the sellers (66%) were traders followed by farmers (23%) and butchers (7%).
- Price per kg (liveweight) rose with increased weight with a range of ETB 0.72–2.14 and a price by weight correlation of 0.8. Most animals were in the range of 300 kg.
- Of the cattle sold, 96% were castrated oxen, 3% cows and 1% non-castrated oxen. Oxen, on average, fetched ETB 1.33, and cows fetched ETB 1.66 per kg. Younger animals generally fetched higher prices.
- Sixty percent of cattle had full mouth (i.e. had a full set of teeth) and 19% had broken mouth (indicating that these were perhaps old, culled animals).
- Most cattle (62%) were Highland Zebu breeds followed by Horro and then Boran. Boran fetched the highest price per kg followed by Highland Zebu.

The Horro breed commanded the lowest price.

- Prices also varied according to the health and weight of the animal ranging from ETB 1 to 2.82 per kg.
- Weight loss due to trekking from Guder to Addis Ababa was higher, by as much as 69%, during the dry season compared to the rainy season.

These results were not subjected to any rigorous statistical tests or of multivariate analysis to analyse factors affecting price variation by breeds and markets.

Andargachew and Brokken (1993) studied the spatial and seasonal variation in sheep prices in the Ethiopian highlands and found that prices and the volume of sales increased significantly immediately before major festivals. Different traits of animals, e.g. age, weight, colour and breed also influenced price variation. Price differences between primary, secondary and terminal markets could be largely explained by marketing costs indicating that most of the market links operated efficiently.

Ehui et al. (2000) studied the nature of urban demand for live sheep based on a detailed survey in Addis Ababa and found that sheep prices, household income as well as socio-demographic factors such as household size and composition significantly affect the likelihood of buying live sheep and the extent of expenditure on live sheep. Probability and extent of purchase also differed significantly between quarters in a year depending on the occurrence of important festivals.

Few studies of this nature have been conducted in the past and almost all studies on livestock markets and marketing in Ethiopia were done prior to 1990. Most of these studies, which covered broad livestock farming system descriptions, focused on specific geographic areas and only a few of them included price data that accounted for animal quality. However, marketing and market development per se was not the focus of these studies. Spatially, some of these studies focused on the highlands, southern (Borana) and eastern (Jijiga) Ethiopia (Habte 1974; Ayele and Hillmann 1975; Geremew 1975; Ayele 1976; Getachew 1977; Negussie 1983; Dyce 1987).

The Food and Agriculture Organization of the United Nations (FAO) studies undertaken in the 1960s and 1970s deal specifically with studying and improving the nationwide livestock marketing system but these were not based on detailed field research. One FAO study recommended the introduction of a new marketing system based on auction at strategically located markets with well-defined stock route, staging camps and grazing reserves (Hollyer 1971). The study explained with diagrams the various stock routes and on how the suggested 'staging points' and 'grazing reserves' should be designed. The study also provided examples of prescribed auctioneer's control ticket and sales receipts. There is no evidence that this system was actually introduced or is currently in operation.

The Animal Resources Marketing Department (ARMD) of the Ministry of Agriculture (MOA) conducted several detailed market structure studies and price analysis of various livestock markets in the country with the assistance of an Australian consulting firm (MOA 1981; AACMC 1984a, b, c). The overall four-tier market structure (as shown in Figure 2) was also described in these studies along with some longstanding problems such as contraband trading and lack of market information.

To what extent the information in these reports have changed at the present with

respect to market structure, prices and rules and regulations is a critical question. The studies may provide relevant general information and background, but empirical data are probably obsolete. More recent studies of this nature are not available and investigations in different parts of the country are needed to answer questions related to development of livestock marketing system in the country.

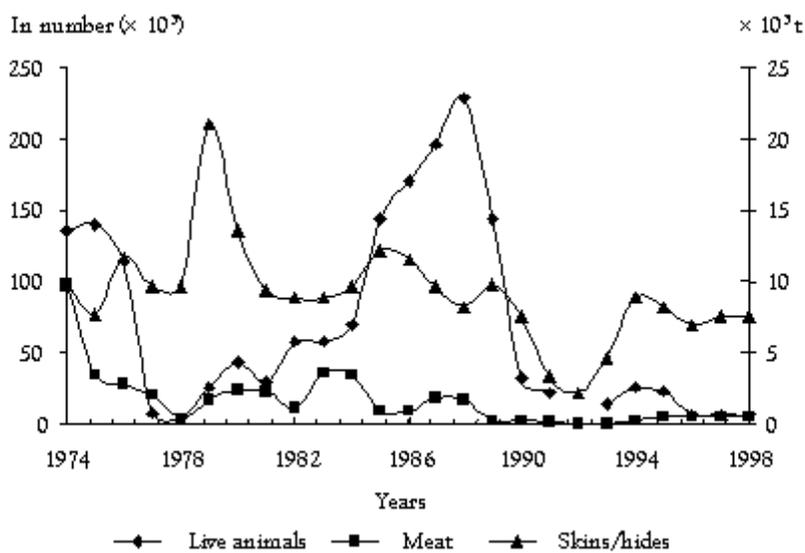
3 Livestock exports

3.1 Official exports

3.2 Unofficial exports

Official exports

Livestock and livestock products are the major foreign exchange earners, only second to coffee, with hides and skins contributing the most. For example, in 1995/1996 livestock exports accounted for close to 14% of the value of agricultural exports, of which 96% came from hides and skins. Exports dropped from 5% of the total value of exports in 1987/88 to 0.02% in 1995/96 due to decreased live animal exports, and an overall increase in the value of all exports (Zewdu 1995; MEDaC 1998). The share of live animal exports in total livestock and livestock products export earnings have declined in recent years (Figure 5). Skins and hides exports increased during this period while meat exports remained relatively constant.



Source: Assegid (2000).

Figure 5. *Export of animals and animal products.*

Increased domestic demand due to population growth and stagnant or declining production in the early 1990s might led to major decrease in exports. It was predicted that because of a 2.9% population growth rate, official exports were absorbed by domestic consumption, and an increase in productivity was recommended to prevent the decline in export levels (FAO 1993). This was based on the premise that increased population growth coupled with increased urbanisation and income would significantly increase demand for meat while, in the absence of productivity growth, increased domestic demand would be met by reducing export. However, the main reason for recent decline in export was not increased domestic demand but an import ban by some importing countries.

The Middle Eastern countries have been a traditional export market for countries in the Horn of Africa including Ethiopia. A study in the early 1970s (Assefa et al. 1972) highlighted the export potential of Ethiopian livestock to the Middle East. The potential and the problems of exporting livestock from Ethiopia and surrounding countries to the Middle East was discussed at a workshop attended by 14 participating countries and 6 international organisations (FAO 1985a). To increase export, the conference made the following recommendations:

- take actions for achieving improvements in livestock and meat trading systems as well as marketing, market knowledge and commercial infrastructures
- take actions for achieving improvements in animal health and sanitary regulations
- take actions for achieving improvements in transportation of livestock and meat.

Although little has been done in respect of these recommendations, the Horn of Africa countries used to export up to 3 million sheep and goats, 100 thousand cattle and 50 thousand camels per year to the Arabian peninsula (Stockton 2001). In recent years, however, increasingly stringent health and quality control regulations in the importing countries restricted exports to these countries. In September 2000, Middle East countries banned imports of live animals from six countries in the Horn of Africa and Nigeria due to an outbreak of Rift Valley fever. Although the outbreak of Rift Valley fever triggered the recent ban on imports of animals from Ethiopia (and other Horn of Africa countries), most likely the ban has been prompted by a number of other factors. First, the rapid economic growth in the importing countries has enabled their consumers to look for high quality products with adequate guarantees of food safety. The governments of these countries have also most likely responded by formulating and implementing the necessary regulations in line with global sanitary and phytosanitary (SPS) requirements in food trade. On the other hand, supply conditions in Ethiopia remained virtually unchanged to meet the rapidly changing market conditions in the importing countries. A major problem for exporters from Ethiopia, as elsewhere in the region, is that they have little knowledge about the market structure, rules and regulations, as well as consumer tastes and preferences in importing countries. Apart from diseases, the apparent poor state of health of the animals caused by long rough journeys may also reduce their marketability. Second, alternative suppliers who were better prepared and able to meet the market demand and conditions entered the market gradually replacing Ethiopia as a supplier. The recent outbreak of foot-and-mouth disease in Europe hampered Europe's exports of processed meat to the Middle Eastern countries. This indicates the importance of disease-free export products from Ethiopia. However, adequate understanding of these changing market conditions are not available among the export market stakeholders in Ethiopia and, without such an understanding, it may be difficult to develop proper strategies to re-enter the lost market.

The long-term impact of the import ban on the local economy, especially in the pastoral areas, which supply most of the exporting animals, is likely to be severely negative on several fronts. There will be increased pressure on feed resources due to increased population. Unsold animals will depress domestic prices of animals and meat, thereby reducing the income and purchasing power of livestock owners. This will further reduce domestic trade for other commodities, creating a downward spiral in several directions (The Daily Monitor, 19 October 2000). Nearly half of the animals were exported from Ethiopia, so the negative effects have been

more seriously felt there (Ethiopian Network on Food Security Newsletter, December 2001). The Republic of Yemen lifted its ban in December 2001, but the more lucrative Saudi market is still apparently closed.

Although live animals make a considerable contribution to the economy in terms of export earnings, a large number of the country's ruminants have been traditionally smuggled to neighbouring countries. The ban on import by Middle Eastern countries has led to increased illegal sale of livestock through Somalia and Kenya, and to a lesser extent, through Sudan and Djibouti. This is another reason for the decline in official exports.

Unofficial exports

A number of studies have tried to estimate losses from illegal export and generated widely variable estimates. In a 1976 World Bank development loan application, the Ethiopian Government estimated that ETB 50–250 million equivalent in foreign exchange was lost due to contraband trade in cattle, sheep, goat and camels. In 1983, an estimate by 'concerned ministries' indicated losses of 1.1 million animals excluding camels valued at US\$ 136 million (CIF) or US\$ 120 million (FOB). Similarly, AACMC (1984a) estimated 225,450 cattle and 758,200 sheep and/or goats were illegally exported in 1983/84 causing the country to lose ETB 94,959,540 (US\$ 51 million CIF or US\$ 44 million FOB) in revenue. Table 3 shows some of the more recent estimates of the extent of unofficial exports. The basis of these estimates is not very clear.

Table 3. *Estimates of number of unofficial livestock exports.*

Source of data	Reference period	Cattle (head)	Sheep and/or goat (head)	Camel (head)
Concerned ministries 1983 ^a	1981/82	225,450	758,200	na
AACMC 1984	1983/84	55,000	330,000	na
Ministry of Foreign Trade 1987 ^b	1985/86	260,000	1,200,000	na
FAO 1993	1987/88	150,000	300,000	na
World Bank 1987	1987	225,000	750,000	100,000
MEDaC 1998	1998	260,000	1,200,000	na
Belachew and Jemberu 2002	2001	325,000	1,150,000	16,000

a. Ethiopian Government Committee of Concerned Ministries, unpublished data, 1983.

b. Ministry of Foreign Trade, unpublished data.

A recent study (Tegegne et al. 1999), jointly undertaken by the Organization for Social Science Research in Eastern and Southern Africa (OSSREA) and BASIS–CRSP⁵ covered areas between the Omo to Wabi Shebelle rivers in the Borana zone of Oromiya region, Liben and Afder zones in the Somali region and Konso *woreda* and lower Omo in the Southern Nations, Nationalities and Peoples State (SNNPS). The study created a typology of the players involved in cross-border livestock trade, examined the role of brokers and market information, studied diversification by traders and constraints to cross-border trade. Data was collected on volume and price of livestock traded, and input costs such as marketing, feed,

water, veterinary and service costs. The main findings of the study are as follows:

- Illegal Ethiopian exports are agricultural products mainly livestock (on-the-hoof) while illegal imports are a wide range of manufactured consumer items mainly foodstuffs and clothing items.
- The Borana and Somali inhabitants of southern and South-East Ethiopia are the main players in the illegal trade of livestock, implying that entry barriers to 'outsiders' are high.
- The average trader sells below 200 heads of cattle per annum and is engaged in farming and retailing of manufactured items.
- Market information is private and non-standardised; thus, brokers facilitate the market transactions for a fixed fee.
- Seasonal production and consumption patterns, the availability of inputs (i.e. feed, water, transportation and veterinary service), market fees and market information determine livestock prices.

5. Broadening Access to Markets and inputs Systems– Collaborative research Support Programs (USAID).

In another report, Little (2001) suggested that 50–60% of the 1.4 million small-stock exported out of Berbera port in Somalia originate from eastern Ethiopia. Maize, sorghum, cattle, camels, charcoal and kerosene cross into Somalia. In return, kerosene, pasta, wheat flour and sugar are imported to Ethiopia. The benefits to eastern Ethiopia is US\$ 12.6 to 15 million as a result of this trade (Little 2001), while Tegegne et al. (1999) put the average benefit for eastern Ethiopia at US\$ 25 million. In another report, Tegegne and Alemayehu (2001) documented the illegal livestock trade (through the eastern border to Djibouti) along with coffee, perishables and Ethiopia's second largest export, chat (a habit forming chewable leaf). Expectedly, all illegal and legal livestock exports have fallen sharply as a result of the import ban (due to Rift Valley fever) in the secondary Middle Eastern markets. The other border areas where illegal trade is occurring are the South-Western Somalia/North-Eastern Kenya/South-Eastern Ethiopia triangle, and the Central Somalia/Ethiopia border. For example, out of the total meat production in Kenya in 1997, an estimated 22% came from animals entering the country through cross-border import (unofficial import). This share increased to 26% in 2000. A large share of these unofficial imports come from Ethiopia (Ministry of Agriculture and Rural Development, Government of Kenya, unpublished data, quoted in Jabbar 2002).

In general, in different cross-border trade outlets, prices do not move in the same direction, indicating some sort of market failure. Thus, there are no established spatial price differences (price ratios) that can be linked to this trade pattern. And there is no market integration, making it difficult to prescribe policy interventions to combat this trade (Tegegne et al. 1999).

Excessive regulation may be a reason why exporters resort to unofficial channels. The only government measure to mitigate livestock export losses has been temporary increases in inspections by 'finance police'. According to the Livestock Marketing Authority (LMA), the following charges apply to livestock or meat exports: a meat inspection fee of ETB 10 per certificate payable to the MOA veterinary service; foreign embassies charged ETB 90 for each of three certificates for importing to their respective countries; the chamber of commerce charges ETB 40 for a 'certificate of origination'; ETB 162 for each of three certificates that goes to the Ministry of Foreign Affairs, ETB 35 to the Maritime and Transit services for

declaration, and if meat is exported by plane, ETB 20 per tonne is due to the Ministry of Health (LMA, unpublished data). Tegege and Alemayehu (2001) found that illegal coffee exports dropped dramatically when the government reduced or eliminated exporting costs including export taxes. Therefore, opportunities exist to reduce the number of tax points and the amount of tax in order to potentially encourage more official livestock and livestock products exports.

4 Policy and project initiatives to improve livestock marketing

The two previous regimes of Ethiopia made at least five formal applications to the IDA/IBRD for developing livestock marketing in the country. The US\$ 18 million loan application by the Imperial Government (LMB 1971) for a four year project on 'the establishment and operation of livestock markets, stock routes and transportation services, the development of specialised stock fattening enterprises, the construction and supervision of slaughter-houses, hides and skins sheds and tanneries and the training and organisation of technical services connected with these developments' indicates the early awareness of the potential for developing livestock and livestock products marketing. The Provisional Military Government made an application for a US\$ 114 million project with similar objectives for a five-year period, which was funded (MOA 1976).

Lack of or asymmetric livestock price information were characteristic of the Kenyan livestock sub-sector. Taking this as an example, Gatere and Dow (1980) studied the possibility of an improved Livestock Market Information System (LMIS). They recommended the use of mobile, vehicle-mounted, weighbridges and VHF radio to collect rural price data based on animal quality. Then such information was envisioned to be broadcasted by national radio, television and newspapers regularly, or diffused by agriculture extension agents. On a macro-scale outlining a 5-year period, FAO (1985b) recommended livestock market planning and development path with livestock sales projections at the various large rural markets until 1992. These projects apparently were not implemented.

The Ministry of Agriculture's Animal Resources Marketing Department (ARMD) initiated a LMIS in 1988 with the assistance of FAO. Together, they developed the computer program CATTLEMARKET with the objectives of:

- improving the transparency of market operations by providing equal access to all participants
- providing a database for the analysis of cattle marketing and
- for making planning decisions on the livestock sub-sector based on empirical data (Zewdu et al. 1988).

Initially, information on throughput, prices, grades, liveweight and other variables were collected from seven markets. Data collection expanded to include an additional 13 markets. Only one of 20 markets was located in the pastoral area. The project was discontinued partly due to lack of funding, and all the weighing scales became non-functional (MOA 1996).

Whether there was any appreciable benefit from these past efforts on livestock marketing is not known, as there is no evidence that ex post evaluation of the impact of these projects have been done. Knowing what was successful and what failed is crucial for the success of future projects.

The present government has drafted a livestock development policy in 1992 as part of an overall agricultural policy. A more specific livestock policy and programme was outlined by the ARMD to develop the livestock sub-sector. Along the same lines, the African Development Fund (ADF 1998) Appraisal Report outlines a US\$ 40 million, 5-year project, the National Livestock Development Project (NLDP), which began in January 1999 with the aim of livestock health and

breed improvement.

The government's livestock policy objectives, and the NLDP's aims are to increase livestock productivity through increases in animal health and forage production. There is no mention of livestock market development in the NLDP or livestock policy outlined by the ARMD. Yet markets and market structures/mechanisms must be vertically and concurrently created or enhanced to serve as an outlet for existing and increased livestock numbers. In spite of many efforts, basic marketing infrastructure for livestock, e.g. physical market facilities in the domestic market such as holding grounds and quarantine facilities, export routes and port facilities, disease diagnosis, screening and certification facilities and market information flow from the producer to the consumer at home and in the importing countries remain very poor.

The mandate of the newly created Livestock Marketing Authority (LMA) is livestock market development to complement national livestock policy. Four subject areas have been recently identified by the LMA, in the process of developing and understanding livestock marketing in Ethiopia, i.e.:

- livestock resource census
- livestock marketing studies (assessment of the livestock market; review of previous livestock information service and design of a Livestock Market Information System, LMIS)
- hides and skins market assessment and
- investigation on contraband livestock trade.

Implementation of these studies and activities are progressing slowly. Apart from financial resources, lack of trained manpower is a constraint for implementation of these activities.

5 Information gaps and conclusion

The available research results for livestock marketing in Ethiopia are outdated. Current knowledge on livestock market structure, performance and prices is poor and inadequate for designing policies and institutions to overcome perceived problems in the domestic and export marketing systems. Import ban by importing countries due to the incidence of Rift Valley fever triggered the recent loss of the export market. However, regaining the export market may require a much wider range of sanitary and phytosanitary (SPS) conditions and quality requirements. Understanding importers' perspectives and requirements, competitiveness of Ethiopia in relation to alternative suppliers to the same market and the benefits of required investment to re-enter market need to be assessed. In the domestic market, knowledge on how marketing routes and systems contribute to spread of diseases and the implications of these for national and international trade in livestock is also highly insufficient to design any policy or institutional innovation to improve domestic and export marketing for the benefit of the poor. An interventionist research approach to increase the level of marketing efficiency requires current information on how markets operate. In particular, information is required on the incentive structure, spatial and temporal bottlenecks and price and information structure throughout the marketing chain including the export market.

From existing data and research there is some knowledge on the number of livestock; number of livestock markets, locations and concentrations; and the number of livestock being traded. Recent information on location specific marketing constraints, livestock sources, prices, margins, stock marketing routes and market information endowments are unknown. How prices and margin volatility are affected by other variables (e.g. season, climate variation, crop prices) is also unknown for any tier of the livestock marketing chain.

Available time series (livestock number and price) data are valuable because they can be useful to relate and model the effects of external shocks (e.g. policy changes, livestock development projects, climatic variations, regulations and taxes) to the marketing system. For example, temporally varied analysis could relate weather data to understand how climate affects margins for every level of the four tier marketing chain. The change in incentives from seasonal variations in demand and supply could also be modelled in this type of analysis.

Similarly, livestock price that is spatially conditional could be analysed to relate market characteristics with geographically varying physical and information infrastructure for all levels of the marketing chain including the export market. The formulation of future livestock marketing policy that aims to improve the current system can benefit from historical data, but will also require current market information. If Ethiopia's livestock is to compete successfully in the export market, particularly in its traditional outlets, e.g. the Arabian peninsula, minimising inefficiency in the domestic market and understanding the opportunities in the export market will be critical.

The livelihood of the smallholders is highly dependent on the cash income derived from livestock and livestock products. Alleviating constraints to marketing, improving market information and upgrading marketing infrastructures will potentially increase the welfare of smallholder producers and urban consumers and improve the national balance of payments. The more farmers are aware of the market demand and price, the higher will be their bargaining power that could improve their income through getting a larger share of the consumer spending.

Market infrastructural and institutional set-ups will improve the access of producers to potential markets whereby they could supply more volumes with higher share of the end market price. These improvement measures will raise the household income and purchasing power of producers and local traders, which in turn will create positive impacts on the local economy. On the other hand, when income of the producers increases through better access to information, market and infrastructure, they could improve production, both in terms of quantity and quality, thereby benefiting consumers.

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Appendix A

Designated stock routes proposed by the Livestock Marketing Authority (LMA)

In accordance with the proposed regulations, the following stock routes are to be designated and established. The locations of major markets are shown in the map at the end of the list.

1. Wellega route

- Commencing at Shambu and connecting with the Nekemte–Addis Ababa main road at either Bako or Gedo, running via Guder and including the staging points at Metti, Beroda, Legebatu and Chiri up to Addis Ababa.
- Commencing at Mendi and via Nejo and Gimbi to Nekemte and then connecting with the Shambu route at either Bako or Gedo up to Addis Ababa.

2. Illubabor route

- Commencing at Jimma, via Asendabo and Weliso to Addis Ababa.
- Commencing at Mizan Teferi, via Bonga and Shebe to Jimma.
- Commencing at Metu up to Bedelle; then via Agaro to Jimma.

3. North Omo route

- Commencing at Soddo (Damota), via Boditi and Kolito to Shashemene, connecting there with the Sidamo route and then to Addis Ababa.
- Commencing at Bekawele (Konso) via Arbaminch up to Soddo.

4. Borana/Sidamo route

- Commencing at Moyale, via Yabello, Agere Mariam, Wenago, Dila and connecting with the Negele route at Wara Plain.
- Commencing at Dolo, via Filtu, Negele, Kibre Mengist, Aleta Wondo and connecting with the Moyale route at Wara Plain.
- The joint Moyale and Dolo routes connecting at Wara Plain continue via Awasa, Shashemene and Ziway and, including the staging points at Alem Tena and Ejersa Lafto (Koka) connecting at Mojo on Nazareth to Addis Ababa road, continues to Addis Ababa.

5. Bale/Arsi route

- Commencing at Kere (Serer, Ogaden), via Ginir and Gasera, crossing the Wabi River and continuing via Sedika, Robie, Diksis and Sire to Dera; then running via Nazareth and Mojo, including the staging points at Denkaka and Dukem, up to Addis Ababa.

6. Ogaden/Hararge route

- Commencing at Gode and connecting with the Jijiga road at Kebri Dehar and alongside it to Dire Dawa via Degehabur, Jijiga, Harar and Alemaya.

Several stock routes connect with this main route within the lowlands of the Ogaden.

- From Warder to Kebri Dehar.
- From Segeg east to Degehabur.
- From Segeg north to Babile.
- From Aware to Degehabur.
- From Harshin to Kebri Beyah.
- From Togochole to Jijiga.

Stock routes within the highlands of West Hararge;

- Commencing at Mechara, via Gelemso, Bedesa, Hirna, Chelenko and Kersa to Dire Dawa and also to Alemaya.

7. Wello route

- Commencing at Dessie, via Were Illu, Alem Ketema, Muketuri and Chancho to Addis Ababa.
- Commencing at Dessie, via Kombolcha, Karakore, Senbete, Robi, Debre Sina and Debre Birhan to Addis Ababa.
- Commencing at Mekane Salam south via Were Illu and Alem Ketema to Addis Ababa.

Several stock routes in North and South Wello lead to the Kombolcha Meat Factory:

- From Elwuha via Bati to Kombolcha.
- From Korem via Woldia to Kombolcha and also to Dessie.
- From Arabati via Chifra and Hayk to Kombolcha.
- From Mekiet and from Dawnt via Wegel Tena and Dessie to Kombolcha.
- From Mekane Selam east via Kegehida and Dessie to Kombolcha.
- From Senbete north via Karakore and Kemisse to Kombolcha.

8. Gonder/Gojam route

- Commencing at Debre Markos via Dejen, crossing the Nile and running along the main highway to Addis Ababa.
- Commencing at Mota via Bichena and Dejen to Addis Ababa.
- Commencing at Mota north to Bahir Dar.
- Commencing at Chagne to Bahir Dar.
- Commencing at Addis Zemen south to Bahir Dar.
- From Addis Zemen north to Gonder.
- From Nefas Mewcha via Debre Tabor and Addis Zemen to Gonder.
- From Chuahit via Kola Diba to Gonder.
- From Debark via Kola Diba to Gonder.
- From Humera and from Abderafi via Tikil Dingay to Gonder.
- From Metema via Aykel to Gonder.

9. Tigray route

- Three routes in Tigray



Figure A. Major livestock markets and main roads in Ethiopia.

Appendix B

CSA price reporting zones and special weredas in rural areas

SNNPS

Gurage

Hadiya

Kembata (Alaba Tembaro)

Sidama

Gedeo

N. Omo

S. Omo

Keficho Shekicho

Bench Maji

Yem Special Wereda

Amaro Special Wereda

Burji Special Wereda

Konso Special Wereda

Derashe Special Wereda

SNNPS average

Gambella

Zones 1, 2, 4

Gambella average

Benishangul Gumuz

Metekel

Assosa

Kamashi

Amhara

N. Gonder

S. Gonder

N. Wello

S. Wello

N. Shewa

E. Gojam

W. Gojam

Wag Hemra

Awi

Oromiya

Amhara average

Tigray

W. Tigray

Central Tigray

E. Tigray

S. Tigray

Tigray average

Dire Dawa

Dire Dawa average

Afar

Zones 1, 3, 5

Afar average

National average

Oromiya

W. Wellega

E. Wellega

Illubabor

Jimma

W. Shewa

N. Shewa

E. Shewa

Arssi

W. Hararge

N. Shewa

Bale

Borana

Oromiya average

Addis Ababa

Zones 3 and 6

Addis Ababa average

Harari

Harari average

Somali

Shinile

Jijiga

Liben