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ECONOMIC LINKAGES BETWEEN PASTORALISTS AND FARMERS IN ETHIOPIA: CASE STUDY EVIDENCE FROM DISTRICTS IN AFAR/AMHARA AND OROMIA

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ECONOMIC LINKAGES BETWEEN PASTORALISTS AND FARMERS IN ETHIOPIA: CASE STUDY EVIDENCE FROM DISTRICTS IN AFAR/AMHARA AND OROMIA

*Summary of research conducted through the AKLDP Capacity Building Grant
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EXECUTIVE SUMMARY

This research was conducted in two purposively selected districts in Amhara and Afar regions and in one district of the Borena zone of Oromia region, and is concerned with the integration of lowland and highland economic systems in the vicinity of selected pastoral areas. It tries to find out the economic interactions between pastoralists and smallholder agriculturalists involving agricultural economic consequences. It aims to isolate and quantify the different types of economic linkages and interactions found between the two communities (living in the adjacent areas) and discuss the characteristics of the identified linkages and their importance in advancing the economy and the coexistence of the two systems. The study also tries to find out more about the internal and external factors that undermine the nature and intensity of economic linkages and the interactions between the two livelihood systems.

It is important to note the difference with this study and many others studies that focus on how the processes of incorporation of pastoral livelihoods are intensifying, or how wider economic processes affect pastoral areas and pastoral livelihoods. Such studies deal with the connections between pastoral areas and wider national and regional (and global) processes, whereas this study is centered only on economic linkages and transactions of pastoralists and sedentary farmers residing in their nearby areas. Understanding the various mutual linkages and their interdependence, and the reasons and motives behind these linkages (or the lack of them), is expected to provide a basis for discussion and debates pertaining to future development interventions targeting the interface of the economies of the two communities. This will also help in challenging the long-held perception of pastoralist livelihood systems as being economically isolated and contributing little to economies outside of the lowlands in general, and nearby adjacent areas in particular.

The study used both primary and secondary sources of data and employed a range of data collection methods. These included a desk review of literature, key-informant interviews and focus group discussions (among households, traders, community leaders, youth, elders etc.) and direct observation (of market areas etc.). In terms of data analysis, the study employed descriptive and narrative analysis methods. The study considered three types of economic linkages or transactions. The first category looked at exchange of agricultural products, like food crops and livestock, produced by one of the communities. Secondly, the transactions of factors of production that might include labor, oxen/draft power, farmland etc. supplied by one of the communities and used by the other for production purposes. And a third group consisting of

exchange of services that have economic consequences, for example petty trading (food, drinks, etc.), supply of farm inputs, and marketing of food grains/livestock originating from other communities.

The information gathered from the key informants and FGDs revealed that the two communities—pastoralist and sedentary farmers in adjacent areas—in both study areas have a long history of economic transactions and linkages. The findings revealed very dynamic correlations and interactions between the two communities that are not only dependent on one another for their market transactions, but increasingly collaborate in their system of production to ensure their livelihoods are more resilient. Climate variability and its gradual but persistent impact on the environment, drought conditions, and livelihood structures was highlighted as pushing households to diversify their livelihood sources and in turn enhancing economic interactions between the two communities.

I. BACKGROUND AND CONTEXT

I.1 The pastoralist - farmer interface

Ethiopia is commonly described in terms of its physiography, i.e. recognizing the importance of its highlands (over 1500m above sea level) and its lowlands. This physiographic partition mirrors the two unique livelihoods of Ethiopians. The lowlands are located mainly in the northeast, east, and south, i.e. in the Afar and Somali regions and the Borena area of Oromia, and make up just over half of Ethiopia's land area. The lowlands are arid or semi-arid, and are sparsely populated by pastoral communities pursuing livestock-based migratory or semi-migratory lifestyles (Kurt, 2003), whilst the majority of Ethiopians sustain themselves through mixed rain-fed crop farming and reside in the sub-humid highland areas. Though the highland farming system is oriented toward the production of cereal and pulses, livestock is also an integral part of the system. Livestock provide various services as sources of food, traction, manure, raw materials, investment, cash income, security, foreign exchange earnings, and social and cultural identity.

Ethiopia's mobile pastoral and sedentary agricultural systems mostly take place in different management units, and frequently belong to different ethnic groups (as is the case in the Amhara/Afar study area). The dichotomy is far from absolute however; some pastoralists (especially those in some sub-humid agro-ecological areas) grow crops, and most farmers will keep some animals. The two systems link up via the exchange of goods, services, information and knowledge. Variations in the interactions and linkages struck between the two livelihood systems, and the nature and degree of the interdependency between them, can be viewed as different forms of adaptation to natural (e.g. climate effect and drought) and human (e.g. population growth and institutional arrangements) impacts. The emerging effect of climate change, for instance, via its worsening effect on the vulnerability of pastoralists and smallholder farmer systems in dryland areas (HLPE, 2012), is enhancing the level of conflict over access to and control of resources (such as land and water) and the incentive to diversify livelihoods.

The pressures on pastoral production systems have rarely been greater than they are now. The functionality of customary systems—livestock-keeping being centered on mobility and key resource access being managed through customary institutions—is under threat, with the pressures intensifying (Lind and Barrero, 2014). At the same time, the expansion of road networks and telecommunications deep into the drylands are expected to provide unprecedented opportunities and access to markets, which in turn is expected to intensify and/or change the scope and depth of the interactions and linkages between the

two livelihood systems and beyond. A recent USAID document on Resilience in Action (USAID, 2014), for instance, reported increasing trends in the awareness of pastoralists towards diversifying their livelihoods. Some are adding agricultural activities to pastoralism, while others send their children to school in town in the hope they will one day earn enough to pay back their investment.

I.2 Population pressure and climate change impacts on the two livelihood systems

With an estimated population of close to 100 million, Ethiopia is the second most populous country in Africa. Of the total population, about 83 percent are estimated to live in rural areas. Another important feature of the Ethiopian population is that more than 60 percent are under 25 years old and 70 percent are under 30 (EEA, 2015). Ethiopia's population is projected to grow to 160 million by 2050 (Josephson et al., 2014). In addition to the high growth of population, the skewed distribution of population and natural resources is a critical challenge facing Ethiopia. Ethiopia's population distribution is closely related to altitude, climate and soil, which explain the concentration of the population in the highlands where there are moderate temperatures, rich soils, and adequate rainfall. About 14 percent of the population lives in areas above 2,400 meters (cool climatic zone), about 75 percent between 1,500 and 2,400 meters (temperate zone), and only 11 percent below 1,500 meters (hot climatic zone)—even though the hot climatic zone encompasses more than half of Ethiopia's territory.

Demographic data for pastoralists is not sufficient to analyze or determine the impacts of changes in population density in pastoral areas; but a study by ODI (2010) indicates an increase in the urbanization rate in pastoral areas of Ethiopia (see Figure 1). Another study by Little et al (2010) indicates that as populations and pastoral incomes increase and widen, small towns are likely to play an increasingly important role in promoting development in pastoral areas. Small (> 5,000 population) and medium-size towns (>20,000) can play integral roles in the pastoral economies of the lowland region, even though they represent both opportunities and strong challenges. Despite the growing population pressure in pastoral areas, the challenges of population growth and high population density are largely a phenomenon of highland areas. In these areas, high degradation of natural resources, sub-economic landholdings, and landlessness of smallholder farmers make absorption of the growing labor force a big challenge for the agricultural sector, and the national economy as a whole. From an economic rather than an

I. BACKGROUND AND CONTEXT

agro-ecological perspective¹, whether the lowlands offer significant opportunities for the expansion of smallholder farming is unclear (Headey et al., 2014).

In general, studies indicate that population is one of key factors that will affect the future of pastoralism in Ethiopia (see (ODI, 2010), with the debate over the future of pastoralism often dominated by one or two theses. The first is based on the assumption that the population growth/livestock decrease ratio has permanently disturbed the normal functioning of pastoral livelihoods, ensuring that traditional pastoralism will not survive under the current circumstances. The second thesis is focused on the adaptive capacities and the flexibilities of pastoralist livelihoods that, the argument goes, will enable pastoralists to transform, thereby averting collapse (ODI, 2010).

The impact of climate change on the pastoralist system can be seen in the lowland 'kolla' areas of Ethiopia, where lower annual rainfall in the Belg season (Funk et al. 2012, Yirgu et al, 2013), as well as changes to grazing areas, are forcing changes in pastoral livelihoods (ibid). Development agencies argue that future agricultural development should be 'climate smart', enabling systems that are more resilient and adaptive to climate change. It is also important to be aware of the differential impact of climate change on the different agro-ecologies and livelihood systems. Evidence from a continent-wide study of climate change impacts on agriculture conducted in 11 African countries, covering key farming systems and agro-climatic zones, suggests that specialized mono crop and livestock farming systems (mono systems), particularly in arid and semi-arid regions, are the most vulnerable to

future climate damage compared to the more integrated crop and livestock farming systems. (See Hassan, 2010 and Dinar et al., 2008, as cited by HLPE, 2012). Information and insights generated from studies like the present one will be important in terms of providing inputs for planning and facilitating sustainable transformation to more integrated livelihood systems.

1.3 Pastoralism and the dynamics of the livestock trade

The livestock sub-sector accounts for some 20 percent of Ethiopia's GDP, with the national herd inhabiting Ethiopia's vast lowland periphery covering 60 percent of the total land area. Some 10 million pastoralists rely on animal husbandry as a key source of wealth and subsistence. These groups own half the country's cattle and a quarter of other livestock, contributing to a livestock trade worth at least \$100 million a year (UN-OCHA, 2007 and DFID, 2011, cited in Yirgu, 2009). Without doubt pastoral areas remain the major, and in some cases the sole, supplier for both formal and informal live animal and meat exports. Ethiopia's exports consist of live cattle, sheep, goats and camels, as well as chilled goat meat and mutton, which are mainly sourced from pastoral areas (Aklilu and Catley, 2014). As shown in Figures 2 and 3, over the past decade the export of live animals and chilled meat grew by over 400 percent and 200 percent respectively. All these figures indicate the importance of the pastoral system to the national economy, alongside its role as the main livelihood source for the many communities who depend upon it and its contribution to the local economies of surrounding areas.

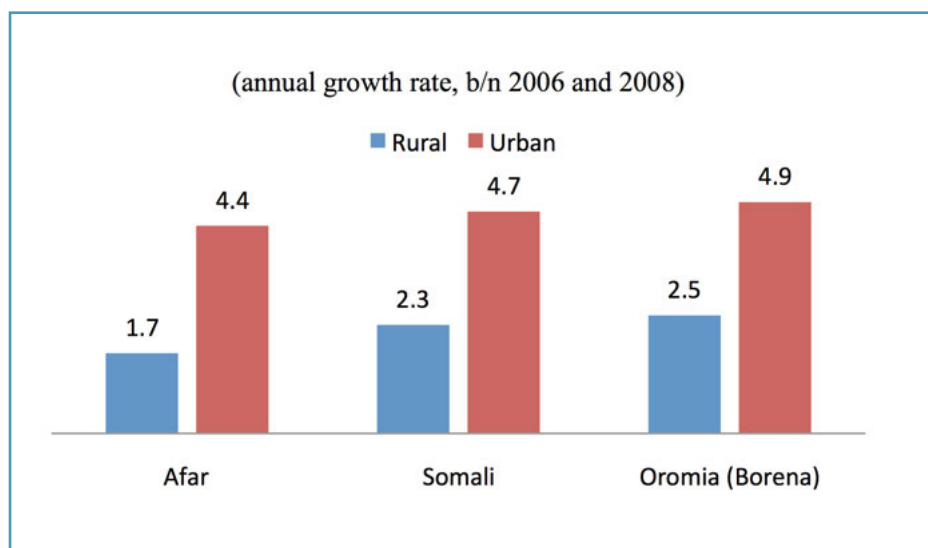


Figure 1. Urban and rural population growth rate in pastoral areas of Ethiopia

Source: ODI (2010).

¹ Ethiopia is still relatively land abundant in purely agro-ecological terms, largely because of the under-populated, high-rainfall western lowlands, as well as some substantial irrigation potential in otherwise arid lowland areas.

In order to bring the real benefit of this growth to the pastoralists themselves, and the local economies where they live, the pastoral system needs a range of support from government and other development actors. Although Ethiopia has seen dramatic increases in formal exports, it has not recognized that pastoralist areas supply most of the animals for export (Aklilu and Catley, 2014). The value of pastoralism has often been undermined, with many factors contributing to the marginalization of the livelihood system.

In recent years pastoralists have become the focus of government attempts at transforming production systems, including shifting to more commercial forms of production associated with greater sedentarization of pastoral communities. The core argument is that changes in livestock production patterns are in part rainfall (and therefore grazing) related; and that because of future

uncertainty over rainfall patterns, pastoral communities are particularly vulnerable (Yurgu, 2009). The role of policies is very important in this regard. Studies have shown that land degradation often occurs where policies undermine the pastoralist system, but where pastoralism has been supported by appropriate policies, biodiversity and ecosystem integrity have usually been enhanced (Hatfield and Davies 2006, cited by Liwenga et al., 2014).

Specific livestock policy support is also needed to maintain or increase the recent surge in supply of livestock and meat to the export market. Any policy should, however, be drafted based on consultation with pastoralists, traders and other private sector actors, along with stronger coordination of the government ministries that oversee different aspects of the production and trade system (Aklilu and Catley, 2014).

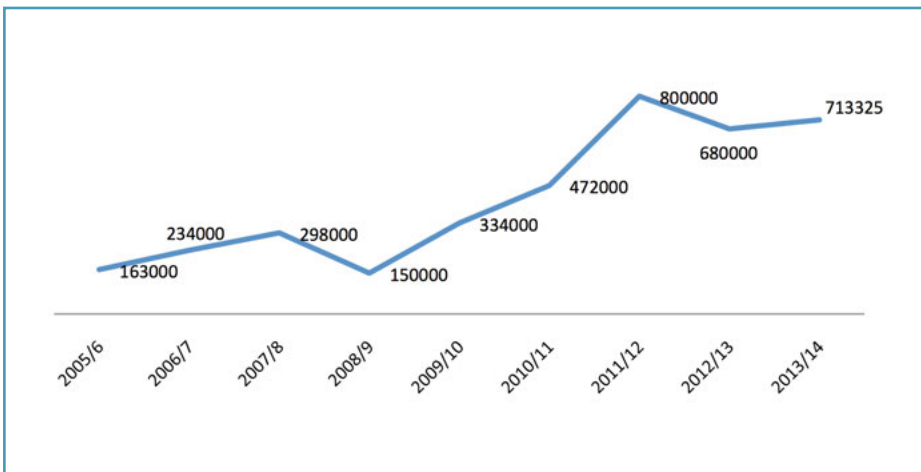


Figure 2: Number of livestock exported over the past decade

Source: computed based on (Aklilu and Catley, 2014).

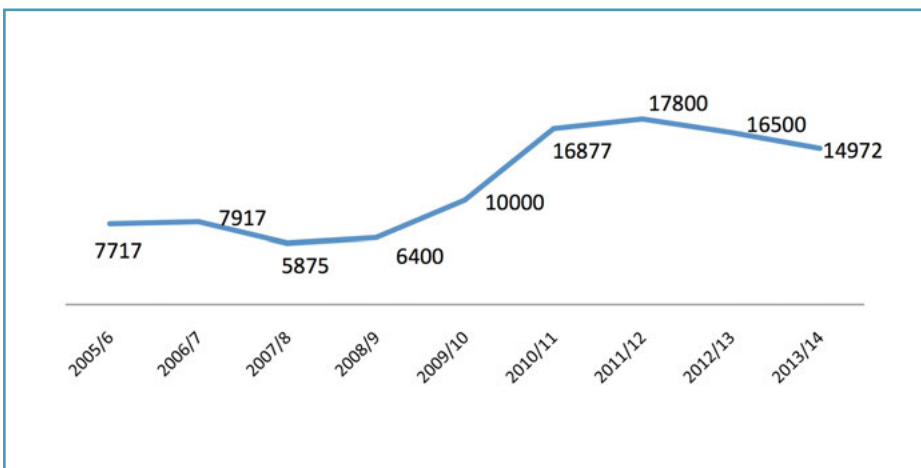


Figure 3: Amount of meat exported over the past decade (in tons)

Source: computed based on (Aklilu and Catley, 2014).

I.4 The value of historical and current evidence

Given the changing horizons in the opportunities and challenges of farmer and pastoralist livelihoods, as well as the linkages between the two systems, research-based empirical evidence is important for a variety of purposes, not least the design of appropriate resilience and development interventions targeting the interface of the two systems. As the linkages and interdependence has evolved for centuries, and have struck different kinds of balance at different points in time, efforts also need to be made to learn about the interactions between the two livelihood systems from a long-term perspective. In the absence of substantial literature, and focusing on the interface between the two livelihood systems in general and the economic aspects of the interface in particular², during this study efforts were made to gather information from knowledgeable community members to understand and substantiate research findings from both historical and dynamic points of view.

² Except for a recent study conducted by Workenh Negatu (2011) on Economic Interactions of Pastoral Lowland and Highland Systems and Implications for Sustainable Livelihoods in Northeastern Ethiopia, most studies either focused on one or the other system. Rare studies that focused on the interface of the two systems were also found to focus primarily on issues related to resource use management, conflicts and conflict management.

2. RESEARCH METHODOLOGY

2.1. Sampling and data collection

The study was conducted in two purposively selected districts in Amhara and Afar regions and in one district of the Borena zone of Oromia region, found in the southern part of Ethiopia bordering Kenya. Two factors were considered in the selection of the study areas. Firstly, as the study aims to assess the economic linkages and interactions between pastoralists and sedentary farmers, the existence of notable market centers where community members from the two livelihood systems engage in exchange of goods and services produced by one or the other community was necessary. And secondly, as the study aims to engage and build the research capacity of young university staff, effort was also made to locate the study areas close to new universities in the regions.

Two relatively large market areas - Fincha and Shoarobit – were selected and consequently the focus was Dugda Dawa district in Borena Zone of Oromia region and Kewet (center for sedentary farmers) and SemuRobiGelea'lo (for pastoralists) districts in Amhara and Afar regions, respectively. Using the selected markets as reference points, two communities (*kebeles*) – one from pastoral and one from sedentary farming communities – were selected purposively, based on their high level of market participation. Participants for key informant interviews and focus group discussions (FGDs) were also selected purposively based on their in depth knowledge about the

study area and the evolution of economic linkages between the two communities (pastoralists and highland farmers).

In terms of composition, effort was made to select key informants with different socio-economic backgrounds (see Table 1). Accordingly, in each of the study areas 30 key informants comprising 6 elders, 6 successful farmers/pastoralists, 4 women, 4 young farmers/pastoralists, 4 middlemen/ traders and 8 district officials/experts were interviewed. The interviews followed a semi-structured format with guiding questions followed by more probing questions to uncover more in-depth information. For the FGDs, three groups each consisting of about 12 persons (i.e. 36 in total), were formed in each of the study districts. The groups represented the farming community, the pastoral community and a mixed group where members of both communities were represented. A range of backgrounds (i.e. elders, youth, women, middlemen and successful farmers/ pastoralists) was also represented in each FGD group.

The FGDs and key informant interviews were complemented with transact walks and observations of the market centers where communities interacted with each other. During observation, field notes were taken and the notes used during FGDs and key informant interviews to get further insight.

Table 1: Sample size and composition for key informants' interview and FGDs in each of the study area

Sample compositions	Key informant interviews		FGD 1	FGD 2	FGD 3
	Pastoralist community	Farming community	Pastoralist community	Farming community	Mixed from both communities
Elders	3	3	3	3	3
Successful farmers/pastoralists	2	2	3	3	3
Young farmers/pastoralists	2	2	2	2	2
Women	2	2	2	2	2
Middlemen/traders	2	2	2	2	2
Professional/district experts	2	2	-	-	-
District official	2	2	-	-	-
total	15	15	12	12	12

Source: Researchers' Fieldwork

Note: Members of FGDs were different from those involved in key informant interview.

The study collected a range of data on economic linkages and transactions between members of the two communities. Data on household demographic characteristics, livelihood structures, as well as asset structures and constraints and the prospects of economic linkages were also collected. The data were analyzed and described through interpreting the opinions after sorting out, grouping and organizing the responses. A narrative analysis was produced after organizing the data under themes.

One of challenges in the study was the limited amount of literature available for understanding the current status and trends in economic linkages between pastoralists and sedentary farmers in the areas, and for analyzing the implications for co-existence and co-development of the two communities. Previous studies focused on either one or the other livelihood system. Studies on pastoralist livelihood systems, for instance, also focused on conflict related issues, or how climate change and other factors (the wider economic processes in the country) affect pastoral areas and pastoral livelihoods. Household surveys such as the Welfare Monitoring Surveys or Agricultural Sample Surveys usually follow regional and district (*woreda*) state structures, in which economic issues on cross-*woreda* or cross-livelihood systems are not surveyed.

2.2 The study areas and their communities

2.2.1 Dugda Dawa district, Borena Zone - Geography, communities and livelihoods

Dugda Dawa is one of the 13 districts of Borena zone and is located in the central part of the zone between Yaaballo and Bule Hora, about 75 km from Yaaballo and about 495 km south of Addis Ababa. The district is sub-divided in to 15 *kebeles* with an estimated total land area of 4,548.72 km². The total population of the district was estimated at 79,777 in 2010 (DDDFEDO, 2010). The Borana and Guji Oromo clans are the main inhabitants of the district, along with other ethnic groups such as the Burji and Konso.

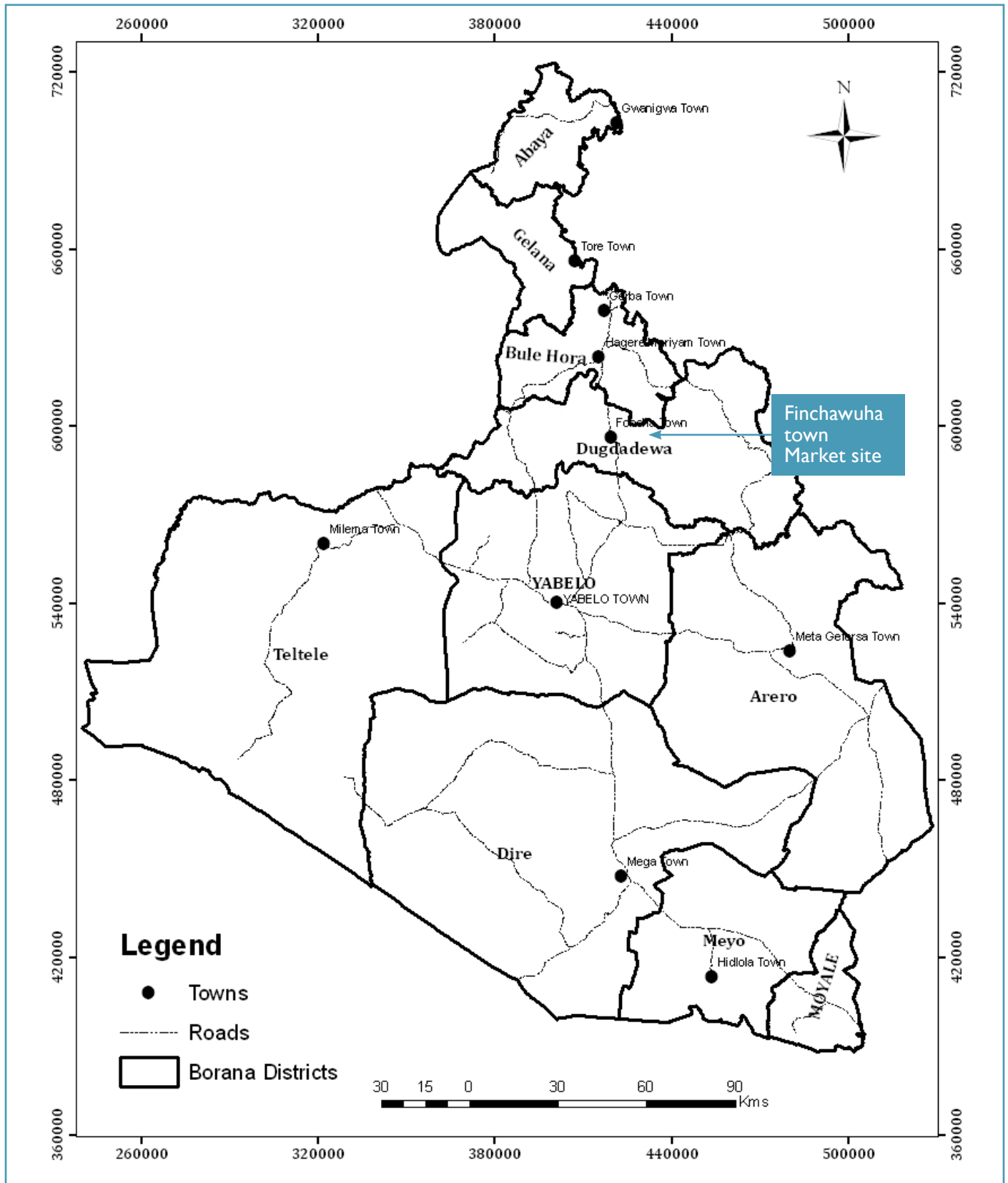
The district has a bimodal rainfall pattern with an average annual rainfall of 450-500mm (DDDPDO, 2010). The main rainy season is from March to May, with the short rainy season from September to November. The average temperature ranges from 16 to 27°C, and altitude varies from 1320m to 2495m above sea level. Most parts of the district belong to the *kola* agro ecology classification (warm semi-arid) except for a few pockets that belong to *weyna dega* (cool sub humid). The major vegetation of the area is bushy shrub, with some forest sites like Bada Magada. Due to the high shrub coverage, charcoal production is common in Dugda Dawa district, particularly Mokkonnisa Magaadaa *kebele* where the study was conducted.

The other study *kebele*, Nageessa Naannessa, has flat topography with scattered thorny bush, *Acacia drerpanolobium* (Whistling Thorn). This *kebele* used to be one of the best rangeland areas in the district, but due to complex interacting factors such as population pressure, inappropriate settlement, high charcoal production and bush encroachment, the *kebele* is now highly degraded. Though livestock remains the major source of livelihoods, literature indicates that pastoral households in Borena are diversifying their livelihood sources into dryland farming and non-farm/non-pastoral activities. In terms of household income sources, a study by Berhanu et al., 2007 (cited by Diress, 2010) classified Borana pastoralists income sources into three categories: pastoralism, dryland farming and non-farm/non-pastoral (NFNP) activities.

Land, together with livestock, is the major livelihood asset of households in both pastoral and farm communities of the district. While highland small farmers occupy most of the farmland in the district, pastoralists also own large tract of agricultural land that mostly serve as communal grazing lands. In terms of production, the production systems of the two communities mirror the differences in the agro-ecological conditions of the area. The livestock production system, which is partly a mobile system in search of grazing land and water, is the dominant livelihood system for pastoralists. The pastoralists in the study area also plant crops like maize and haricot beans, however, largely for their own consumption. This type of crop farming could be considered as opportunistic agriculture, exploiting niches within pastoralist areas that retain moisture after the rains (PFE, IIRR and DF 2010), which happens in good years. On the other hand, farming is the major livelihood system for the sedentary farmers with a range of crops including maize, *enset*, *boloqe*/haricot bean, wheat, coffee, chat, teff, etc. being commonly planted. Despite differences in the production systems of the two communities, there is little difference in their consumption behavior, with most members of the two communities consuming the same crops like *enset* and maize. This might be attributed to historical evolution in the livelihood systems of the two communities.

The literature indicates that pastoralist involvement in crop farming particularly increased after the 1999/2000 droughts. In Borena, land under cultivation has been expanding since that time, mainly as a coping strategy for poorer households who lost their livestock and were unable to rebuild their herds (PFE, IIRR and DF 2010). This adaptation and risk spreading process is not a completely recent phenomenon however: whilst pastoralists today use lowland environments where rainfall is insufficient to support cultivation, this was not always the case. Some highland areas, which today are firmly within the cropping zone of Ethiopia, were originally pastoralist areas that have been progressively settled by highlanders as well as by ex-pastoralists (UNICEF, 2012).

Figure 4 Study Area Borena zone



Source: Dawit Abebe, unpublished article.

2.2.2 Semu Robi Gela'lo and Kewet districts, Afar and Amhara - Geography, communities and livelihoods

In the second study area the sample communities are located in two adjacent districts in Afar and Amhara regional states. Semu Robi Gela'lo district of Afar regional state represented the pastoral community, with respondents representing sedentary farm households selected from the nearby Kewet district in Amhara. Semu Robi Gela'lo district is in Zone 5 of Afar regional state. The district has 12 *kebeles*, of which four, namely Adadilehegaye, Harihamo, Hotemero and Asgefeyn, border the villages of the highland Kewet district, from where sample respondents representing sedentary farm households were selected. The Afar ethnic group predominantly inhabits the district, with a limited presence of people from other ethnic groups.

Semu Robi Gela'lo district is connected to Kewet district and other surrounding highland districts through Shewarobit town and its vicinities. Kumame, the capital town of the Semu Robi Gela'lo district, is about 45 km away from Shewarobit, and about 425 km from Samara, the capital of Afar regional state. The area of Kewet district past Shewarobit to the west are highlands inhabited by farmers from the Amhara ethnic group. The part of the Kewet district towards Kumame is lowland or mid-altitude and is inhabited mainly by members of the Amhara ethnic group mingled with some families of Argoba ethnic origin engaged in agriculture (Workneh, 2011). The pastoral areas in Semu Robi Gela'lo district are characterized by arid and semi-arid climatic conditions, frequently affected by shortages and unreliability of rainfall and continuous climate variability. For the nearby highlanders, the semi-arid to humid climatic conditions enable them to practice a mixed production system, with most households combining crop and livestock production. The roads that connect Shewarobit to the *kebeles* where the sample communities reside are of low quality, but telecommunication services, including mobile phones, are accessible in both the pastoral and sedentary farmer districts.

With a total of 278,000 sq.km of land and a population of 1, 411,092 Afar is one of the major pastoralist groups in Ethiopia (SOS-Sahel, 2008). An estimated 90 percent of the Afar population depends on pastoralism, herding cattle, sheep, goats and camels (Helland, 2015). Each member of this community is reported to own on average 20 to 60 goats/sheep, with average camel ownership varying from zero to 22. Areas of good pasture that are able to support cattle have never been more than 15 percent of the total land area, and are now becoming increasingly fragmented and lost. This is partly due to competition from irrigation agriculture in the Awash River

Valley, and the associated loss of the best dry-season grazing areas. The loss of high quality rangelands has been further exacerbated by bush encroachment, in particular by *Prosopis juliflora*, and long-standing security issues along the borders. One major effect of the loss of rangeland resources seems to have been a shift away from cattle to greater reliance on goats and camels (Helland, 2015). The 2007 population census conducted in Semu Robi Gela'lo district indicates that there were about 32,014 people living in the district, of which 31, 079 people live in the rural areas (CSA, 2008). The dominant economic activity of the community is mobile livestock production. Though most members of the Afar communities in the district depend on livestock-based livelihoods, some support this livelihood with crop production on an average of two hectares farmland.

The dominant economic activity of the community in the Kewet district, location of the sedentary farmers selected for the study, is the cultivation of crops like sorghum and other drought-tolerant crops. The district has an estimated population of 90,999 people, of which 46943 are males and 44048 are females³. Smallholder farmers in Kewet district follow farming-based livelihoods and own mainly farmland and draft power like oxen and donkeys. Each household owns an average of 1.1 ha farmland. There are also some members of the community without their own farmlands, who cultivate on rented farmland, sell their labor or engage in petty trade.

In terms of consumption, most of the pastoralists in the study area consume mainly animal products like milk and meat, especially during the rainy season when these are abundantly available. During the dry season they consume maize, wheat, sorghum, and dried "enjera" (*dirqosh*), which, despite some differences in the way it is prepared, is similar to what the sedentary farmers consume. Most of the sedentary farmers in the study area produce maize, wheat, sorghum (*cherekkit*), "Teff" and Mung Bean. These farmers mainly consume "Teff", sorghum, maize and occasionally meat.

³ These population statistics on Kewet district were obtained during the survey from unpublished reports from the district administration office.

3. RESULTS AND DISCUSSION

3.1 Economic linkages from an historical perspective

Contemporary economic linkages between pastoral communities and nearby sedentary farmers are thought to have evolved over a long period; adapting to the changing socio-economic, political and agro-ecological conditions in place in the study areas, as well as other global impacts such as global climate change. The research made a concerted effort to produce an historical account of the economic linkages between the studied communities, with descriptions of how linkages have changed over time and why. The approach undertaken was to produce an historical trajectory of events and periods (the Imperial era, the Derg and the EPRDF⁴ regimes) to ease the recollection of key events and stories on the economic linkages between the two communities.

3.1.1 Imperial and Derg eras

During the Imperial period (prior to 1974) the two communities in both study areas are reported to have undertaken economic transactions even though the weight of economic interdependence was lower compared to the present. The pastoralist and the agriculturalists used common market places, located in Shewarobit town (for Afar pastoralists/farmers) and Fincha town (for pastoralists/farmers in Borana area) during the Imperial period, but the overall market size and level of market participation was reported to be lower. Many factors were reported as being causes for the low economic linkages between the two communities during this period which can be broadly classified as push and pull factors: push factors are constraints largely internal to the two systems and pull factors are opportunities or changes in the two systems that are mostly external in their nature.

During the Imperial period the demand for livestock and livestock products among farmers in adjacent areas, and beyond at national level, was relatively low. Similarly, government policy support to enhance the pastoralist livelihood system, in terms of livestock health and marketing activities, was low during this period. The low level of social interaction and high degree conflicts (actual or perceived) between lowlander pastoralists and highlanders during the Imperial and Derg eras was reported to have affected the degree of economic linkages between the two systems during that period. (This factor remains true to date as one of the major threats to enhancing the economic linkages between pastoralists and farmers, especially in the study areas in the Afar and Amhara regions.)

Following the downfall of the Imperial era in 1974, the Derg (1974-1991) regime took power and introduced a number of fundamental policy and institutional changes in the country. Though these impacted the socio-economic conditions of the country at large and the respective livelihood systems, especially the farming communities, economic linkages and transactions between the two communities reportedly did not show much change during this period in either study area. Some informants claimed that, compared to the Imperial era, there was an incremental increase in the volume of marketed commodities and market participation during the Derg time, but most disagreed. Most informants in fact, especially in Afar/Amhara, claimed that inter-group conflict between pastoralists and farmers increased at this time and had serious undesirable effects on economic transactions and linkages. The weak natural resource management capacity and the need to fight to control and administer different water points, grazing land, and other livelihood resources within their common boundaries, along with low productivity of the respective systems, is reported to have weakened economic linkages and interactions during this period.

Key informants and insights generated from FGDs indicate that historically (during the Imperial and pre-Imperial regimes) the smallholder agriculturalists used to exercise pastoral economic activities but they gradually started to change their livelihood to an agro-pastoralist system during the Derg regime. This change in livelihood system was triggered by a gradual increase in drought and population pressure, which created a shortage of grazing land and led to conflicts with other ethnic groups like the Somali and Konso who have a similar livestock-based livelihood system. In general, respondents indicated that the gradual increase in climatic variability in lowland areas of Borena zone affected their livestock based production system and contributed to increased food insecurity. This then forced part of their community to change their production system to agro pastoralism—whereby they complement livestock keeping with crop production but do not leave livestock altogether. Other external factors have also pushed households to diversify their livelihoods and in turn enhanced the level of economic transactions between the two communities. The expansion of the road network, trade, and increased awareness on the importance of trade/exchange among members of the communities, for example, have all enhanced the integration of the local economies with the national economy.

⁴ The EPRDF period is classified into two sub periods – pre-2005 (1991 – 2005) and post-2005 (2006 – 2015).

3.1.2 The EPRDF regime - since 1991

The numerous administrative and institutional changes introduced by the government that succeeded the Derg regime were expected to have affected the nature and intensity of economic linkages and transactions between pastoralists and sedentary farmers. With the coming of the EPRDF into power (in 1991) the Ethiopian state structure was reconfigured into a new ethnically based federal state. Afar regional state was established as one of the nine newly created regional states, with Semu RobiGela'lo established as one of the 29 districts of Afar regional state. Similarly the Borena area became one of the autonomous zones of the Oromia region, with its own self-administrating status.

The restructuring of the political administration in the study areas could be expected to have enhanced the level of social and economic interactions between the two communities, but many key informants stated that its impact on reducing inter-community conflict was in fact much less than expected. Both conflicts and 'perceived conflicts' remained as one of the main obstacles for enhancing the level of economic linkage and transaction between pastoral and farming communities, continuing even now. A study by Workenh, for instance, indicates that the level of tranquility in Showarobit area has improved due to the deployment of police and militia over recent years, but the recurrent ethnic conflicts that prevail in areas close to Showarobit (which serves as the main animal marketplace for pastoralists in Semu RobiGela'lo district) still limits their access to this major livestock market (Workenh, 2011). The construction of new marketplace in Kumame town (center of Semu RobiGela'lo district) may be a useful measure, creating an alternative market place that will minimize conflicts faced by pastoralists en route to Shewarobit.

3.2 Current economic linkages and interactions

Recent improvement in road access (albeit low quality), transportation, and telecommunications were all reported to have contributed to improved economic linkages during the current regime, although a significant portion of community members in both study areas continue to suffer from lack of access to such facilities. Households with less/poor access to roads, and living far away from markets, are reported to take one or two days to reach the markets. This increases the transaction costs and expenses for shelter for themselves as well as their livestock. Many key informants indicated that access to market, and high cost of market participation, is a particular problem for pastoral households.

Most of the key informants, as well as participants of FGDs, stated that markets where pastoralists and farmers exchange goods and services have grown over the past two decades in general, and since 2005 in particular. Over 70 percent of respondents have seen improvements in market access, which implies either an increase in the number of market centers or/and road expansion (Table 2). Similarly, respondents stated an increase in market participation and numbers of transactions over the past two decades. In addition, improved access to market information (associated with increased use of information technologies/mobile and radio, as well as agricultural extension services), increases in transportation facilities (expansion of motor cycles, for instance in Borena area) and better participation of brokers in major markets, have all contributed to enhancing communities know-how about market based commodities and services.

Policy interventions in terms of expansion of agricultural extension, improved livestock health extension services,

Table 2: Market development over the past two decades: Opinion of community members

Market development	Percent agree on progress in....			
	Afar/Amhara		Borena	
	Pastoralists	Farmers	Pastoralists	Farmers
Market access	71%	87%	73%	81%
Market participation	86%	80%	80%	65%
Market size	57%	93%	66%	87%
N	14	15	15	16

Source: Survey result.

and the provision of selected seed and livestock varieties/breeds during the current regime (relative to the past two regimes), were also reported by a majority of key informants and FGDs as contributing factors to the claimed increase in market participation and size. Moreover, some informants, especially from pastoral communities, credited the relatively improved peace and security conditions (over the past decade) as increasing their ability to choose the market that best suits their interests and demands. Farmers and pastoralist informants in SemuRobiGela'lo and Kwete districts, for instance, reported that they have increasingly taken part in markets like Kumammie, Abayatir, Kuriebert, DebirenaJagol over the past few years.

The current government's aggressive commercialization policy of the pastoral livestock production system is now expected to enhance the liquidity of the pastoral system and their economic linkages with farmers/traders in their adjacent areas. The Growth and Transformation Plan (GTP) is expected to push pastoralists, especially those in Borena where an overwhelming majority (estimated at 95 percent) of livestock for meat and live animal export is sourced (Dawit et al. 2008; see Abdurrahman, 2014). Though foreign exchange earnings from export of livestock and meat and meat products is far lower than the government target⁵, information gathered from the FGDs during the research indicated the positive impact of the new initiative on the monetization of the pastoral livestock production system, especially in Dugda Dawa district of the Borena Zone.

Despite some differences between the two study areas, over 80 percent of the respondents stated that they believed there is progress in economic linkages and transactions between their two communities. In addition to the factors mentioned above, the following factors were reported as the causes for the reported improvements in market access, market size, and market participation over the past decades:

- Increase population reported to be enhancing demand for local products.
- Climate change and recurrent drought that are pushing the pastoral community to look for food crop options (especially those in semi-humid areas of Borena).
- An increase in agricultural production yields as a result of an increase in the knowledge and experiences of using new farm technologies/

inputs—like water harvesting/reservoirs, natural fertilizers/compost and animal manure.

- A new orientation towards commercialization of crops and livestock like Mung Bean (in Afar area) and fattening in both areas.
- Increased market orientation of pastoralists: pastoralists now sell their livestock by themselves (previously it was the poor farming community members who went to pastoral villages to buy from pastoralists and sell to members of agricultural communities or others).
- Government efforts in awareness creation to diversify pastoralists' livelihoods, opening the way for other additional alternative livelihoods like fattening and trade.
- An increase in the demand of commercial agricultural crops like Mung Bean (in Afar) and Kocho and maize (among the pastoral community in Borena area).
- A relatively better chance opened up by government policies to support new entrants by offering start up financial capital/micro-credit schemes.

3.2.1 Participation and motivation for economic linkages

The study showed relatively strong and growing economic linkages, which extended beyond the usually anticipated exchange of farm products. In Afar area, for example, Afar and Amhara/Oromo ethnic groups (the former representing the pastoral/agro pastoral community, while the later are agriculturalists) are farming together in Hadaldehinggieg *kebele* (which is 7 km east of Shewarobit) with the Afar pastoralists renting farmland to cultivate sorghum and maize. Similarly, at SemuKedebura *kebele* the two communities share water for irrigation. In Asgefien *kebele* a crop sharing practice was also observed. Trade between the two communities happens at three markets namely Shewarobit (the biggest market), Kumami and Abayatir⁶.

In Dugda Dawa district of Borena Zone, the two communities have similarly strong economic linkages. The elders and community leaders of Borena pastoralists say this linkage is a relatively recent phenomenon however, following the gradual transformation of some pastoralists into agro-pastoralists, or to a sedentary farming livelihood system, over the past few decades, whereas previously they

⁵ The 2013/14 annual report of the National Bank of Ethiopia, for instance, indicates that the country revenue from export of livestock and meat and meat products in 2913/14 was only 261 million USD (which is about 26% of the target).

⁶ Kumami is found is 45km far east of Shewarobit in Afar regional state whereas Shewarobit and Abayatir are in Amhara regional state.

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used to be pure pastoralists. Consequently, the economic linkage between the highlanders and lowlanders in this area is a more recent phenomenon⁷. Other research studies also indicate that significant portions of the Borana rangelands have been significantly reduced in size and have become the source of conflicts among neighboring clans such as the Gebra, Garri, Digodi and Merehan (PFE, IIRR and DF, 2010) over recent periods. This, along with declining livestock productivity, is reported to make cultivation the major livelihood diversification strategy. Cultivation is reaching a peak in the Borena area because of diminishing livestock productivity and the need to supplement household subsistence (PFE, IIRR and DF, 2010).

The gradual transformation process of the Borena pastoralists in the study area also needs to be seen within the wider perspective of external and internal factors that threaten the resilience of the system. Food insecurity—because of drought, shortage of farmland and grazing land, and policy and development interventions by successive regimes—are the main factors behind this change in livelihood structure among the Borena pastoralists, and the consequent emergence and consolidation of economic linkages and transactions between the two communities. Currently, due to differences in their production systems but high similarity in their consumption pattern as well as ethnic backgrounds, the two communities have strong economic linkages not only in the exchange of agricultural products, but also in other areas like exchange of factors of production, services as well as knowledge and experience exchange (Table 3).

As indicated in Table 3 below, the majority of farmers and pastoralists engage in one or other type of economic

transaction with members of the other community. The participation is relatively higher among sedentary farmers, who tend to be located relatively closer to the transaction places for reported exchanges. The exchange of grain and other horticultural crops, and livestock and livestock products, dominate most of the economic linkages between the two communities. This is followed by exchange in petty trades and service provision. The lowest transaction is reported for exchange of factors of production like land, labor and the trade of locally processed foods and drinks.

The growing economic linkages between the two communities remains focused on basic necessities. Consumption needs, or push factors such as shortage/lack of farmland, were found to be the basic motivation for most of the reported economic exchanges. As shown in Table 4 below, only about 25 per cent of key informants reported that business reasons, or incentives such as profit/income, were the motivation for the economic transactions between the studied communities. The low commercial motivation of farmers and pastoralists might be linked to the high transaction costs and low marketable surplus of their respective production systems; but it also indicates either the low attention community members give to their market participation or the low economic incentives for farmers and pastoralists to engage with market. The implication of this finding is that interventions to enhance the economic linkages between the two communities should not be limited to enhancing greater market access and production capacity, but also to finding ways on how to improve the terms in which communities participate in markets—crucial for making their market linkages economically viable.

Table 3: Existing Economic linkages between the two communities: Opinion of community members.

Market development	Respondents 'yes' for reported economic linkages			
	Afar/Amhara		Borena	
	Pastoralists	Farmers	Pastoralists	Farmers
• Economically linked	80%	100%	75%	93%
• Type of linkage/transactions				
o Exchange of crop and/or livestock	64%	93%	75%	90%
o Exchange of factors of production	58%	60%	60%	76%
o Petty trade - goods and services	64%	80%	54%	75%
o Processed foods & drinks trade	36%	80%	42%	75%
o Services – transport, broker etc.	76%	63%	70%	55%
N	14	15	15	16

Source: Survey results.

⁷ One informant indicated however that it is close 5 to 6 decades old.

Table 4. Motivation for market participation –percent of respondents

Motivation for market participation/transaction	Respondents 'yes' for reported economic linkages			
	Afar/Amhara		Borena	
	Pastoralists	Farmers	Pastoralists	Farmers
• Basic necessity –consumption needs ...	78%	65%	80%	72%
o Business reason/income generation/profit	72%	35%	20%	28%
N	14	15	15	16

Source: Survey result.

3.2.2 Type and intensity of existing economic exchanges

The majority of key informants and FGDs discussants noticed gradual but dynamic changes in market size (type and volume of commodities/services exchanged between the two communities) over the past decade. Many factors were reported for this improvement (in both of the study areas), including increases in population size (which increase production supply and consumption demand); as well as improved access to roads and transportation services and the consequent integration of different village markets, sometimes with secondary markets at distant places. Climate variability and its gradual but persistent impact on the environment, drought conditions, and livelihood structures was also highlighted as a factor pushing households to diversify their livelihood sources and which in turn enhance economic interactions between the two communities. More specific details are explored below.

Exchange of agricultural products

A variety of crops, livestock and livestock products dominate the transactions of farmers and pastoralists in the two study areas. In Dugda Dawa district of Borena Zone, maize, *kocholenset* and *boloqe* are the major farm products supplied by sedentary farmers for members of the

pastoral or semi pastoral communities. In turn, livestock such as cows, bulls and sheep, and livestock products like milk and butter, are marketed by the pastoralists mainly to purchase food crops from the highlanders in their nearby areas. Fincha town, the capital town of Dugda Dawa district, is the main market center for pastoral and farming communities. Similarly, in the Afar/Amhara area the exchange of agricultural products dominates the economic transactions between the pastoral and farming communities: The Afar pastoralists mostly purchase maize and sorghum (*cherekit*) plus to a small extent, wheat (which they get mostly in the form of aid). Mung Bean (MASHO) is also purchased in small amounts, as it is expensive from the highlanders. The Afar pastoralists, especially the female members of the community, engage in the trade of tobacco and dried enjera (*dirqosh*). They also engage in petty trades like packed water and soft drinks, clothes, shoes and palm oil. In general however, the major goods produced and marketed by pastoralists are livestock and livestock products. Markets and towns located largely in highland areas and the lowland-highland interface areas serve as the point of transactions and exchanges for the commodities. Showarobit, Zuti, Abayatir and Kummamie are the common market places for the Afar pastoralists and sedentary farmers of the nearby Amhara areas.

Table 5. Size of Agricultural Market in Afar/Amhara area of SemuRobiGela'lo and Kwete districts

Product type	Major market actors		Estimated value of products marketed per household over the past year (Birr/annum/participant)	Number of sellers
	As seller/supplier	As buyer/consumer		
	Maize	Farmers		
Sorghum	Farmers	Pastoralists	2,002	6 (40%)
Goats	Pastoralists	Farmers	550	12 (80%)
Bulls	Pastoralists	Farmers	7,235	4 (26%)
Oxen	Pastoralists	Farmers	3,430	3 (20%)

Source: Field survey: 2015. Figures on estimated value of commodities exchanged indicate estimated value of the respective commodity exchanged among the two communities during last year – (Birr/participant household/year) as reported by sellers, who are very few as their number (and percentage) indicates in the last column.

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As indicated in Tables 5 and 6, the economic linkage in terms of exchange of agricultural products between the pastoral and highland farmers of both study areas is much higher than might be expected⁸. Table 5 shows that an average market participant pastoral household in Afar area of SemuRobiGela'lo bought crops (mainly sorghum and maize) worth between 11 and 12 thousand Birr over the one year period prior to the survey; A similar level of cash expenditure was made by farmers for purchases of livestock and livestock products, largely from members of the pastoral community. The most common crops supplied by farming communities (maize and sorghum) were reported to have been sold by 60 percent and 40 percent of the farmers participating in the focus group discussions (FGDs). On the pastoral side, goats were reported as most marketable goods. About 80 per cent of the pastoralists participating in the FGDs reported that they sold one or more goats to the farming communities in the nearby areas over the past year.

The size of the agricultural market was found to be relatively large in Borena, but there was similarity in the consumption patterns of the pastoral and farming

communities. The average pastoral household in Dugda Dawa district of Borena Zone spent over 25,000 Birr on a range of food crops like maize, *boloke* and *enset* and stimulant cash crops like coffee and chat (Table 6). In relative terms, the pastoralists in Dugda Dawa have stronger linkages with sedentary farmers both in terms of selling and buying agricultural products, reflecting the fact that the livelihoods of both pastoralists and farmers were historically interdependent as a result of a high degree social interaction (because of their similarity in ethnic background) and similar consumption patterns. Cultural factors could also explain the differences in market integration in the Afar area: According to the Afar culture, milk is not to be sold, as it is their best favorite food. During the rainy season most of the Afar people consume milk from their cattle, camels and goats and their market participation is particularly low during this season. In contrast, during the dry season in general and drought periods in particular, the market participation of Afar pastoralists increases as they supply and sell their livestock to the farmers and purchase food crops for their consumption. This pattern is also reported in Borena area, but is more marked in the Afar area.

Table 6. Size of Agricultural markets in Dugda Dawa district of Borena Zone

Product type	Major market actors		Estimated value of products marketed per household over the past year (Birr/annum/participant)	Number of sellers
	As seller/supplier	As buyer/consumer		
Maize	Farmers	Pastoralists	11,640	10 (67%)
Boloke	Farmers	Pastoralists	193	5 (33%)
Enset/Kocho	Farmers	Pastoralists	7,677	6 (40%)
Coffee	Farmers	Pastoralists	6,133	6 (40%)
Chat	Farmers	Pastoralists	4,793	3 (20%)
Oxen	Pastoralists	Farmers/pastoralists	6,020	3 (20%)
Cow	Pastoralists	Farmers/pastoralists	7,540	1 (7%)
Camel	Pastoralists	Farmers/pastoralists	3,533	1 (7%)
Bull	Pastoralists	Farmers/pastoralists	7,078	5 (33%)
Sheep	Pastoralists/farmers	Farmers/pastoralists	125	4 (27%)
Goat	Pastoralists	Farmers/pastoralists	220	7 (47%)
Hens	Pastoralists/farmers	Farmers/pastoralists	1,200	5 (33%)
Butter	Pastoralists	Farmers/pastoralists	2,888	4 (27%)
Milk	Pastoralists	Farmers/pastoralists	1,641	6 (40%)

Source: Field survey: 2015. Figures on estimated value of commodities exchanged indicate estimated value of the respective commodity exchanged among the two communities during last year – (Birr/participant household/year) as reported by sellers who are very few as their number (and percentage) indicates in the last column.

⁸ It is important to note the fact that most of the data and information generated in this study came from key informant interviews and FGDs, which were conducted with purposely-selected members of the two communities. Normally a household survey is expected to give more representative/reliable data.

Exchange of factors of production

Pastoral and farming communities are also engaged in the exchange of factors of production. Key informants reported that in *normal circumstances* (a situation where there is no immediate conflict between the two communities), there is regular exchange of factors of production between the two communities, namely land, labor and capital. Although over 80 percent of key informants in Afar/Amhara believe that the two communities are engaged in factor markets where they exchange land, oxen for plowing and labor, only about 20 percent of FGDs participants actually reported their participation in land or labor market (Table 7).

Smallholders in Kewet district usually rent land from the pastoralists through crop sharing agreements. This is conducted in two ways: One is equal (*Gemis*) crop sharing, where the farmer and the owner of the land (pastoralist) share the crop product equally; the other is a *Siso* arrangement, which allows the pastoralist/the owner of the land to get a third of production while two thirds is taken by the producer (farmer). These crop-sharing arrangements are based on the fertility and suitability of the land for plowing. If the land is fertile then the agreement is based on *Gemis* but if the land for rent is not fertile and requires more effort and labor for plowing, the agreement would be based on *Siso*. The *Gemis* arrangement provides an incentive for the tenant (farmers) to invest more and increase their production and hence their share,

whilst the *Siso* tries to commensurate the effort the farmer is expected to invest on poor/less fertile farmland.

As a result of their crop sharing experience, pastoralists in the study area have acquired more knowledge of farming and have started farming their own land, especially in three neighboring *kebeles* of SemuRobiGela'lo district. *Gemis* and *Siso* land sharing arrangements have thus been decreasing over time to time as pastoralists start farming their own land to produce maize, sorghum and to some extent Mung Bean (MASHO)—solely produced for market to generate cash. This illustrates the long-term impacts of the economic linkages between the two communities.

Economic linkages between pastoralists and sedentary farmers in the Dugda Dawa district of Borena Zone also illustrated the exchange of factors of production, such as land and labor. Unlike in the Afar area, the size of the land market is relatively large in Dugda Dawa where farmers own on average close to 1.5 ha of land. Here, in most cases, farmers act as the landlord in the land rental market, with pastoralists or agro-pastoralists taking part mostly as tenants. The land market in this study area is largely an informal one, and based on local rules and regulations exercised by the communities. The practice of exchange of factors of production, such as land and labor, is especially significant during dry periods.

Table 7: Participation in factors of production markets over the year (data obtained from FGDs)

	Afar/Amhara		Borena	
	Pastoralists	Farmers	Pastoralists	Farmers
o Land				
• Number of persons rented/shared-in (from member of the other community)	2 (13%)	3 (21%)	6 (38%)	3 (20%)
• Average size rented-in/out	0.5 ha	0.75 ha	0.50 ha	0.33 ha
o Labor				
• Number of persons employed (by the other community)	2 (13%)	3 (20%)	1 (6%)	5 (33%)
• Average number of days worked	30	15	7	21
o Finance/credit or oxen (capital)				
• Number of persons get finance/credit (from member of the other community)	0	0	2 (13%)	2 (13%)
N	14	15	15	16

Source: field survey 2015

Causes and implications of the exchange of land and labor between the two systems

Though the land market is very small in both study areas, it has a lot of meaning for the co-existence and future cooperation of the two livelihood systems. Many factors are reported for the emergence of the factors of production market in the study areas: The major one is drought, which is now more common in both study areas, but which affects the two communities in slightly different ways. Usually the severity and effect of any drought is expected to be higher among pastoral communities, forcing some community members to migrate in search of other livelihood resources like grazing, farmland, water or employment.

During drought, farmers in Dugda Dawa district are reported to cultivate only a portion of their farmland, both to minimize risks (i.e. the expenditures for farming) in case of crop failure, or/and they use their remaining land for alternative uses such as renting out it to pastoralists from nearby areas for grazing or other purposes. In general, as drought begins to affect pastoral areas, many drought-affected lowland pastoral communities reportedly engage in land rental markets either in the form of sharing or fixed-rental arrangements which helps them to overcome the impact of drought on their livelihood and food consumption. Some key informants also indicated that some highland farmers engage in the land rental market when they experience labor or oxen shortages, or are unable to finance or purchase farm inputs (like fertilizers and pesticides etc.) so as to engage properly in their farming activity.

In addition to exchanging farming or grazing land, farmers and pastoralists in the study areas engage in exchange of labor and knowledge/skills. Members of pastoral communities in Dugda Dawa district of Borena Zone, for instance, are hired by labor-scarce farm households to work as farm laborers and engage in different farming activities—especially during harvesting periods of crops like maize, *enset/kocho*, coffee and *chat*. Though there are occasions when pastoralists employ members of farming communities, results from the FGDs indicate that relatively more sedentary farmers employ members of pastoralist communities than the other way round (Table 7). In terms of knowledge and experience transferred from one community to the other, FGDs especially in Borena Zone indicated that the two communities have been exchanging indigenous knowledge on livestock and farm management. Knowledge transfer is also reported in Afar/Amhara area though it is relatively higher in Borena area where the two communities have largely the same ethnic background.

These linkages bring in some unintended benefits in terms of creating opportunities to learn and simulate the production system of the neighborhood. Pastoralists in the Afar area are developing crop production as an alternative livelihood strategy, though it is constrained by various problems; whilst farmers living near pastoralist *kebeles* have also started livestock production including camel-raising. Farmers near *Semurobie* district of the Afar region, for instance, are also reported to purchase goats, sheep and cows from the pastoralists and are involved in raising these animals in addition to plowing their farms⁹. These farmers then sell their livestock at *Zuti* market or even to other members of the pastoral community. In Borena, the relatively fair seasonal marginal return of crop production during a good year has encouraged pastoral households to seasonally transfer their labor into dryland crop farming, although the yield per hectare is still very low compared to other potential areas.

Exchange of services and goods – Urban-rural linkages

The exchange of services and goods between members of pastoral communities and residents of nearby towns illustrate the increase in urban-rural linkages. A number of studies indicate the growing importance of such linkages, associated with growing population and infrastructure such as roads and mobile networks. A study by Little et al (2010), for instance, shows how pastoralism in Ethiopia is changing towards a model of a fixed base camp/settlement and a mobile satellite camp—animals migrate with mainly young males but part of the family remains sedentary allowing these family members to trade, work, and/or seek services in small towns and settlements on a part or full-time basis. This model is opening up new access by pastoralists to small towns in all pastoral regions, but is most advanced in Somali Region and Borena Zone of Oromia Region.

The survey data also illustrated economic transactions and greater urban linkages, with the exchange of new kind of goods and services such as transportation, petty trade and market facilitation/brokers. This was reported particularly among farmers and pastoralists of the Dugda Dawa district of Borena Zone. Petty trade in processed drinking products (*arake, tella, farso*) and food is common in Dugda Dawa district: Members of the farming community produce and sell these products to members of both communities (pastoralists and sedentary farmers) especially during market days. In addition, other drinks like tea and coffee and locally prepared foods are marketed between members of the two communities. It is usually households living near the market centers that take part in such petty trades.

⁹ Though livestock production for farmers in this area is not thought to be new, the two-way economic linkage via production and marketing of livestock between the two communities could be new and part of the gradual adjustment (to emerging internal and external constraints) in the respective livelihood systems.

There is also a market facilitation service (exchange/broker/*dalalla* services) between members of the two communities. Most of the time highland sedentary farmers are major players in the provision of this service as they are more knowledgeable about the market. Physically, they are also closer to market centers, relatively better educated or have educated children. Firewood collection and charcoal production is also reported as an income sources for some of the pastoralist community, especially in the Afar area. However, unlike petty trades and small businesses where members of both communities engage in the economic transaction, pastoralists conduct these activities largely with urban residents in the nearest areas. These activities are off-farm/non-farm activities and provide alternative livelihood sources especially for poorer households without productive assets.

Members of both communities reported a range of constraints in augmenting their livelihood with alternative economic activities. As shown in Table 8 below, the major constraints, especially for pastoral communities in Borena and Afar areas, are a lack of interest to engage in such activities because of cultural factors, lack of skills or entrepreneurship, inaccessibility of market centers, and low demand for non-farm products and services. Lack of capital/credit and inaccessibility to market centers/towns emerge as the two biggest constraints for sedentary farmers interested in engaging in off/non-farm activities. These differences in the type and the relative importance of constraints to strengthen non-farm activities in the pastoral and farming communities have important implications for development actors interested in expanding or designing potential intervention strategies to enhance off-farm and non-farm activities in these areas.

Table 8: Major constraints to non/off-farm income activities at the interface of the two economic systems

	Afar/Amhara		Borena	
	Pastoralists	Farmers	Pastoralists	Farmers
o Lack of capital/credit	4(29%)	9(60%)	7(47%)	10(63%)
o Lack of demand/market for non-farm products/services (income/cash problem)	8(57%)	5(33%)	9(60%)	9(56%)
o Lack of skill or entrepreneurship	9(64%)	5(33%)	8(53%)	6(38%)
o Inaccessibility of markets/town	8(57%)	8(53%)	9(60%)	10(63%)
o Security and peace	7(50%)	9(60%)	8(53%)	7(44%)
o Lack of employment (to be hired)	6(43%)	8(53%)	5(33%)	8(50%)
o Others (cultural factors, lack of interest etc.)	10(71%)	9(60%)	11(73%)	12(75%)
N	14	15	15	16

Source: Survey result.

A way to prosperity: How a farmer became a merchant at Abayatir kebele

Ergite Shewaye was born at Abayatir *kebele* and is now 48 years old. He was the son of a poor family and when he completed grade 4 his father did not allow him to continue to go to school so he began to participate in agriculture with his father. One time his father sent him to the market to sell maize and after he sold it he had some money in his hand. He then observed that there were many goats supplied by the pastoralists. With the money he bought two goats at a low price from a pastoralist and took them home. After one week he took them back to the market and sold them at a better price. He was motivated with the profit and continued to sell maize to the pastoralists and buy their goats, cows and oxen. Now, in addition to the 3 hectares he plows, he has rented 6 hectares of land from the pastoralists and he stores the crops to sell to the pastoralists or to any other customer. He has also a mill, so he sells the crops to the pastoralists and the pastoralists then crush the crops at his mill. He also purchases cows and goats for fattening from the pastoralists and sells the meat to the farmers in his surrounding area. Now Ergite is one of the richest farmers in his district and has got recognition from the government as a successful farmer and merchant. He believes that both communities can benefit from economic linkages.

Rural-urban linkages are expected to grow even faster in the future, but at least three important challenges are likely to constrain the beneficial linkages between rural pastoral areas and urban centers. Firstly, are the environmental and infrastructural considerations: Mobile herders avoid staying near towns too long because the grazing and water conditions are not favorable in populated areas. Overgrazing around towns is one of the major environmental problems in East Africa's rangelands, and thus herders cannot access town-based services like education; and nor can they wait around for market prices to improve without jeopardizing their herds and lands (see Getachew, 2001; Mahmoud 2003; Fratkin and Roth 2004, quoted by Little et al, 2010).

A second challenge to strengthening rural-urban linkages for pastoral development is that urban-based jobs and businesses, even in pastoral regions, are often dominated by non-pastoralists. This is especially the case in Afar Region where more than 50 percent of the town population, and most of the enterprises, are non-Afar. Because of their mobile lifestyle and the poor availability of education facilities in pastoral zones, herders lack the skills to acquire the salaried positions, which then go to outsiders (Little, 2010). In addition, with the very important exception of Somalis, most herders historically did not invest in town-based businesses or trading enterprises. 'Ethnic strangers', in turn, have come to dominate the urban business sector, in part because they have better access to investment capital. Thus, in Afar, with the exception of a very small (22) minority of wealthy herders, most pastoralists found in towns only have access to low paying occupations or petty-trading activities.

Lastly, major deficiencies in electricity, water systems, roads, telecommunications and finance systems constrain investment in pastoral towns and the growth of beneficial rural-urban linkages. Entrepreneurs are unlikely to invest in towns with minimal infrastructure and traders often avoid rural markets that have poor roads, and thus high marketing costs (Little, 2010).

3.3 Non-economic benefits of enhanced economic linkages

The study showed that pastoral and farming communities in the study areas have a range of economic linkages and transactions that are growing slowly but consistently over time. These economic linkages are also expected to have some externalities in terms of non-economic benefits, especially in terms of their positive impact on conflict management and natural resource use between the two communities. The implication here is that economic linkages and trade exercised between the two communities could have an indirect effect on the likelihood of conflicts.

Conflict between farmers and pastoralists is mainly due to resource shortages, but also inefficiency in the use and management of available resources like land, pasture and water. Key informants in SemuRobiGela'lo and Kewet districts, for instance, reported the high incidence of conflicts in times of drought and high food insecurity. Though conflicts between pastoral and farming communities usually have ethnic and cultural dimensions, economic interest could play a significant role in reducing conflict. Improved economic linkages between the two communities could be expected to enhance or expand the production frontier of one community to the other, which ultimately can be expected to contribute to more efficient use and management of natural resources. Any economic interdependence and transactions is also expected to strengthen their social and cultural relationships, which in turn could have a role in reduction of ethnic-based conflict.

Increased economic linkages between the two communities could also have a positive impact on their attitudes to their production or consumption behaviors. Key informants in Dugda Dawa district of Borena Zone, for example, indicated that the expansion of trade and economic linkages with economies outside their production system have exerted pressure on their quantity-focused production system. Though numerous challenges still prevail, some key informants reported gradual but consistent change in terms of reorienting their production system into a market and quality-oriented production system, especially a few members of the pastoral community.

Most members of both surveyed communities believed that the existing economic linkages have contributed to their improved awareness of the importance of economic interactions, and the role of the market in promoting the mutual benefits of the respective communities. Pastoralists have taken a lesson from the farmers that if they engage in crop production and trade, in addition to livestock production, they can be better off economically. Similarly, farmers in nearby areas have learnt the importance of raising livestock and engaging in trade, in addition to farming small pieces of land.

3.4 The role of wealth and gender in economic linkages and transactions

The study showed that although access to market and the degree of market transactions between the two communities have improved over the past decade, different households do not engage and benefit equally from the growing opportunities of trade and transactions. Discussion with community members and key informants in both study areas indicated that household level variables like wealth, age and gender affect the degree and intensity of economic linkage between pastoralists and sedentary farmers in both study areas¹⁰. Poor farmers who undertake

¹⁰ These are in addition to other community level factors like conflict and other institutional factors discussed in the next section.

market transactions with pastoralists (in the Afar/Amhara study area for instance) are unable to take part as frequently as their wish. They are usually unable to take part in well known local markets where competition is high, and instead mostly go directly to market centers deep in pastoralist areas in order to buy goats at a relatively cheaper price to then sell for better profit to their agricultural community.

As shown in Table 9, participation in markets is relatively higher among members of the wealthier groups of both communities in both study areas. High disposable products/income, and better financial capacity, help wealthier households to take part more frequently and/or more intensively. Households with good financial capacity (including what is obtained from relatives or children as remittances) are also reported to be able to exploit existing market opportunities better as they are able to take advantages associated with the seasonality of markets: They are able to hold off selling their products until the market prices increase towards the end of the agricultural season, and also have the financial capacity to purchase products when the market price is low. The significance of wealth in affecting the degree and intensity of market transaction indicates that economic linkages and integration between pastoral and sedentary farmers will improve as households become better off, or when their crop/livestock productivity improves.

Though poorer households are reported to participate in markets significantly less than their relatively better-off counterparts, in some cases they jointly participate in economic transactions/linkages with the wealthier

households. Some poor farmers in Kewet district for instance, obtain a loan or collaborate financially with better off households and travel to pastoralist areas to buy livestock (like oxen, bulls or goats) and then sell them to their lenders at a lower profit. Most of the benefit from this type of trade arrangement is passed onto the lenders, and illustrates the importance of being able to access micro-credit to enhance economic linkage and transactions. Improved access to finance creates new livelihood opportunities for poor farmers to supplement their livelihood by engaging in livestock trading with members of the pastoral community in their area.

The study also indicated the importance of gender in household participation in markets. In both study areas female-headed households have far lower economic transactions than their male counterparts, even if this has been increasing over time. On average, only a third of women members are engaged in markets that involve members of the other community (Table 9). Age was found to have a mixed role in the two communities: Among the farming communities young people engaged relatively more in economic transactions, but by contrast, older people were found to be more active in pastoral communities. Some key informants suggested that older people participate more in pastoral communities because they have more livestock, more knowledge, more experience and better relationships (with the other community) than the young people. On the other hand, lack of opportunity in the farming sector might also be a push factor for the youth to be forced to look for alternative livelihoods in trade or other service provision activities. Young people are also thought to have more

Table 9 Extent of market participation among different members of community

Variables		SemuRobiGela'lo/Qwet (Afar/Amhara)		Dugda Dawa (Borena)	
		(% of community members reported to take part in economic transaction with members of the other community)			
		Farmers	Pastoralists	Farmers	Pastoralists
Wealth	Wealthier	83%	90%	100%	76%
	Poor	47%	32%	60%	44%
Age	Old/experienced	45%	75%	24%	69%
	Young	70%	52%	76%	45%
Gender	Male	86%	75%	76%	66%
	Female	46%	36%	30%	25%
Location	People near market/road	90%	76%	90%	65%
	People far from market	27%	33%	27%	50%
N		14	15	15	16

Source: field survey, 2015.

3. RESULTS AND DISCUSSION

labor skills and the awareness that is essential for engaging in trade or other new activities. The impact of gender and age is also relevant to the motive for reported participation. The survey data indicates that women members of the two communities engage in markets because of basic necessity (see Table 10), but in contrast the youth are reported to have business motives for their economic transactions with members of the other community.

3.5 Perceptions of future economic linkages by farming and pastoral communities

Despite the general view that economic interactions and linkages between the pastoral and farming communities has improved significantly over the past decade in both study areas, opinions and views of community members about the future differ in the two study areas. In SemuRobiGela'lo/Kewet areas, over 90 percent of key informants are optimistic about the future of economic linkages and transactions between the pastoral and farming communities. In Dugda Dawa district of Borena Zone, however, only half of key informants expected to see growing and dynamic economic linkages and interactions

between the two communities. The optimism among the pastoral and farming communities in the study areas in the Afar and Amhara regions is associated with a range of factors, including improved awareness on the role of market and transactions, access to roads and transportation facilities, as well as recent expansion in market places (like *Zuti*, *Kumami*, *Abayatir*, *Kureberet* and *Senbetie* markets) and days of operation at these markets. Similarly, the expansion of education as well as the numerous peace conferences conducted were reported to have facilitated knowledge sharing between the two communities, reduced conflicts and built trust among members of the two communities. These factors were all expected to contribute to the future of economic linkages and transactions.

Those few in this region who were pessimistic also had strong arguments, believing that conflict is strongly associated with the absence of rainfall/climatic variability which is natural phenomenon, and that competition for scarce resource use will intensify, triggering more conflict, and will threaten the future economic linkages between the two communities. They believe that the expansion of

Table 10. Role of gender and age on motivation for market participation (perspective of community members)

Motivation		SemuRobiGela'lo/Qwet (Afar/Amhara)		Dugda Dawa (Borena)	
		Farmers	Pastoralists	Farmers	Pastoralists
Basic necessity – consumption needs.	Young	40%	65%	45%	70%
	Women	75%	90%	88%	60%
Business reason/income generation/profit.	Young	60%	35%	55%	30%
	Women	25%	10%	12%	40%
N		14	15	15	16

Source: Field survey: 2015.

Note: Figures generated from FGDs that include women and youth members of the respective communities.

Table 11. Opinion of respondent on future economic linkage between studied communities

Variables	SemuRobiGela'lo/Qwet (Afar/Amhara)		Dugda Dawa (Borena)	
	Farmers	Pastoralists	Farmers	Pastoralists
Optimistic	98%	88%	45%	55%
Pessimistic/negative	2%	5%	32%	25%
No change	--	7%	23%	20%

Source: field survey, 2015.

road, market places and other infrastructure will not help unless conflict is avoided permanently, recommending a strong administration and a strong judiciary system to keep away conflicts or manage them better.

The pessimistic expectations about future economic linkage between the two communities in Borena area of Dugda Dawa district was far higher than in Afar/Amhara. Key informants reported declining momentum in economic transactions between the two communities in recent years. Even though the economic linkages have been growing and strengthening over the past two decades, there has been a gradual decline in market demand and market value, and poor integration of their market with secondary (regional) or tertiary markets (national and cross border market linkage). Pastoralists and livestock traders have witnessed a growing trend of credit sale/purchase of livestock (and the decline of cash based transactions) in recent periods, and fear the associated high risk of default (in full or in part) or a breakdown of any terms in credit transactions.

3.6 Problems and constraints that hold back economic linkages and transactions

Reported constraints that are perceived to hold back economic transactions can be broadly classified into two groups: external and internal problems. External factors are mainly related to problems triggered by drought and climate change, while internal problems cover a wide range of socio-economic, security/peace, institutional/policy and culture-related barriers or issues. Drought and climate change affects crop and livestock production systems in both communities. Climate change is challenging the adaptive capacities of both pastoralists and smallholder farmers practicing rain-fed agriculture in the study areas. In addition to exacerbating existing problems of food insecurity and water scarcity, such natural effects are also expected to impact the future economic linkages of the two communities. The central issue is the dependence of the two livelihood systems on rainfall and the increasingly unpredictable nature of rainfall, as well as the marginal nature of the agro-ecology particularly in the pastoral parts of the study areas.

The second major problem that is a barrier to enhanced economic and market linkages between pastoral and farming communities is insecurity, especially in the Afar area. Although peace and security has improved over the past few years, there is still limited trust between the two communities, which affects economic linkages in many ways—including restricting their freedom to choose the best market place. Most pastoralists in SemuRobiGela'lo district of Afar region, for instance, reported that they sell their livestock at *Zuti* market and carry out petty trade at Shewarobit market, which is 35 km away from *Kumami*. Abayatir, which is located within sedentary farming

communities, is not only closer to them but also reportedly provides better market opportunities; however there are times when farmers of Abayatir and Kureberet *kebeles*, only 17 km from *Kumami*, are forced to travel to *Zuti* market to purchase goats, sheep, camel and oxen from the pastoralists. This leads them to incur high transportation cost, wastes their time and consumes their energy, reducing the incentive for more transactions.

Trust is an essential ingredient for sustainable and vibrant economic transactions and linkages between communities in rural areas. Even in times of peace and security, there is fear of conflict in the minds of most of the community members. This 'perceived' conflict, along with historical factors and high poverty, affects the level of trust, and hence the level of economic transactions and linkages between the two communities. Without trust livestock markets cannot operate on a credit basis. When pastoralists sell certain livestock—mostly camel, cows and bulls—informal credit transactions are often conducted verbally between members of the pastoralist community and their buyers, who could be nearby farmers or other traders from nearby towns or distant places. Without trust there is a fear that credit payments could be delayed or broken altogether.

The activity of 'illegal' brokers is another problem reported to effect market transactions among members of the two communities. Brokers smooth or free up the operation of markets and increase the power and interest of farmers and pastoralists to negotiate with other traders. Brokers usually set market prices on their own, especially in Dugda Dawa district of Borena, but such prices are sometimes very high or far above the equilibrium price. The problem is not the participation of brokers as such, but their absolute power or interests that put off pastoralists from making any meaningful decisions as sellers. Brokers and traders exploit, or use to their advantage, the language barriers or differences between pastoral and farming communities in the Afar study area where market transactions are either conducted between individuals who speak both languages or are done via brokers.

Many informants also suggest that poor livestock extension services (lack of access to livestock drugs etc.) and lack of sufficient drinking water impact livestock production and productivity among pastoralist communities in both study areas, and hence their engagement in livestock markets and economic linkages with the wider community in the future. As enhanced economic linkages between the two communities have many roles in terms of poverty reduction and peace and security building, such trans-community issues deserve a place in the local development arena and attention of policy makers and relevant authorities.

4. CONCLUSIONS AND RECOMMENDATIONS

It was stated at the outset that natural and human pressures frequently lead to a negative narrative about pastoralism, based on an assumption that the population growth/livestock decrease ratio has permanently disturbed the normal functioning of pastoral livelihoods, and that traditional pastoralism will not survive under the current circumstances. Such views lead to calls for pastoralists to transition into other livelihoods, ignoring the major role they play in the national and international trade of live livestock and chilled meat. By undertaking research at a local 'case-study' level the intention was to help challenge the long-held perception of pastoralist livelihood systems as being economically isolated and contributing little to economies outside of the lowlands in general, and nearby adjacent areas in particular.

Dynamic correlations

By looking in particular at the local interface between pastoralist communities and farming communities living in adjacent locations, it has been possible to reveal how closely they are intertwined and the heavy interdependency of their systems of production. There are many pathways to integration and the study focused specifically on how the exchange of agricultural products (crops/livestock), exchange in the factors of production (labor, land and capital) as well as petty trading and rural-urban linkages are allowing the two livelihood systems to become increasingly resilient. Finding the best means of supporting this integration might offer a more viable long-term development strategy for both livelihoods, rather than arguing for an alternative to pastoralism.

Through FGD and key informant interviews the small but focused study identified the different types of economic linkages and transactions conducted among members of the pastoral and farming communities, as well as with urban residents in the study areas. Looking firstly at the exchange of agricultural products – crops and livestock products – the value of the goods traded was found to be higher than anticipated. Seasonality was also found to be a significant issue – for example during the rainy season in Afar the pastoralists consume their plentiful supply of milk and buy less crops, selling their small stock during the dry season when their need for grain increases. The pattern was similar but less marked in Borena.

Less frequently revealed in the literature is the extensive exchange of factors of production – labor, land and capital – between pastoralists and farmers. The study revealed how smallholders in Kewet district (Afar/Amhara) rent land from pastoralists through crop sharing agreements, and how pastoralists have now acquired more knowledge of farming and have started farming their own land. In Dugda Dawa (Borena) in most cases the farmers act as the landlord in the land rental market with pastoralists or agro-pastoralists taking

part mostly as tenants. The practice of exchange of factors of production is especially significant during dry periods when farmers are reported to cultivate only a portion of their farmland to minimize risks, preferring to rent land to pastoralists for either grazing or cultivation. Labor-scarce farm households also hire pastoralists to work as farm laborers, and in the Borena area, where the two communities largely have the same ethnic background, there is considerable knowledge exchange creating yet more 'blurring' of the two systems of production.

Increased road infrastructure, and the expansion in the number of small towns, was found to be promoting increased economic transactions through urban linkages, and the exchange of new kinds of goods and services such as transportation, petty trading and market facilitation/brokers. Neighboring farming communities benefit most from these opportunities, but increasingly members of pastoralist households who do not migrate with the herd are turning towards the petty trading opportunities. The research also revealed the different constraints being faced by the two communities in terms of their ability to transition into more entrepreneurial off-farm activities. Farmers often lack the capital/credit required, whilst pastoralists are more likely to lack the skills or knowledge needed.

Strengthening capacity

The study made a particular effort to determine how the economic linkages of the two production systems have changed over time, revealing that they have been growing particularly over the past two decades with improved government and development partner support, even if the basic motivation for economic transactions remains largely the same—their consumption needs. Commercial motives of profit maximization or income generation are not particularly common in the two sets of communities studied. The historical research was particularly important in revealing the impact of insecurity of the level of market transactions, and the impacts that increasingly frequent droughts have in encouraging greater integration of the two production systems. Likewise population pressure was confirmed as being significant, both in terms of the need to increase productivity but also in creating an expanding demand for products.

Social and cultural factors are highly significant to market exchange. The similar ethnic background of the communities in Borena creates similar consumption patterns, but also the ability to exchange services such as knowledge and experience. Both set of communities were found to be optimistic about the future economic linkages between their communities with improved access to infrastructure (road and telecommunications), as well as education, expected to enhance existing

economic linkage and market transactions. Wealth, gender and location (related to markets/transportation) were reported as the factors that contribute most to enhanced market participation and transactions. Poorer members have to travel to more remote markets where prices are lower, and are also unable to hold off selling their products until the prices rise. Interestingly, the study also revealed collaborations occur between poorer and wealthier members. The overall implication though is that efforts need to be made to make markets work better for poor households and/or to improve access to markets especially for female-headed households and households found very far from market places.

Based on the findings of the study, the following specific policy recommendations and development interventions are put forward for consideration. In view of the significance of this study on the one hand, and the limitation of the study in terms of its coverage (only two purposively selected sites and few samples) and methodological challenges (lack of household survey in the present study), it might also be helpful to conduct the study again over a larger sample area, using a more extended methodology and with a diverse team of professionals.

- **Building peace, security and trust**

Building peace, security and trust is important not only to strengthen economic linkages but also for the co-existence of the two communities and livelihood systems. This is especially important for pastoralists and farmers in the Afar and Amhara study areas where, unlike Dugda Dawa district of Borena, the two communities have different ethnic backgrounds with a long history of recurrent conflicts and poor social interactions. Pastoralism is a mobile livelihood system with multiple risks associated with moving livestock in search of grazing rangeland and water: It is important to manage risks associated with this mobility that involve conflicts with sedentary farmers in nearby areas. It is vital to strengthen efficiency and access to government bureaucracy, including the justice system, and the confidence of community members in these structures. Raising awareness of how the two communities can economically benefit from increased transactions should be discussed during peace conferences. Successful economies in remote locations depend on trust existing between all producers.

- **Agricultural development and diversification of livelihood systems**

Market participation and economic linkages depend, among other factors, on the size of marketable surplus that farmers/pastoralists produce and the types of crop/livestock they produce. If they are supported better in terms their agricultural production, greater commercialization of their production system through expansion of cash crops, fattening activities etc., becomes possible. Interventions that can enhance access and increase knowledge on the efficient and shared use of scarce resources, like water and farmland (i.e. use of natural fertilizers/compost and animal manure, water

harvesting technologies) need to be expanded—building on the sort of collaboration that has already been shown to be in existence through this study.

Development strategies that are focused on diversification of livelihood strategies should engage realistically with the risk-management strategies currently in place, helping to optimize the existing usage of resources like water, land and labor, and further integrate the two livelihood systems. In this regard, it is also important to revisit the existing agricultural extension system to encompass pastoralists who have started cultivation, and farmers who have added or expanded into animal production. Development interventions need to target the interface of the two economies.

Similarly, institutional arrangements could be promoted between the two neighboring district administrations (pastoral and farming districts) for the purpose of enhancing joint efforts to strengthen cooperation, experience sharing, and sharing of expertise and resources.

- **Market development**

Strong and sustainable economic linkages benefit from accessible, efficient and fair markets. It is important to look in-depth at the specific constraints and opportunities for market development in individual areas and then to support and create better conditions to improve access to markets and the terms in which farmers and pastoralists participate in markets. In this regard, further development of roads, access to information and access to market facilities will be important. If market places are made convenient with all the required services—such as water for livestock, shade for people, a grain marketing quarter, roads and a means of transportation, inspection and strong policing of marketing practices—then existing interaction and linkages between farming and pastoral communities can be reinforced and expanded.

The efficiency of markets in generating wealth for poor farmers and pastoralists (not just middle men or brokers) is equally important. Competition and transparency in the operation of markets should be created through public or NGO interventions, providing support to new local entrants as brokers and traders with start up financial capital/micro-credit schemes, and the control of illegal marketing activities. Their low understanding of markets, limited business and negotiating skills, and lack of a backing organization to provide better bargaining power, all need to be revisited.

Likewise, access to credit that could enhance economic linkages between the two communities should be made available on the terms and at the time that suits the conditions and interests of both farmers and pastoralists; the seasonal nature of market exchanges being particularly significant in this regard. Furthermore, livestock product cooperatives, such as for the marketing of milk and milk products could be explored at the district level.

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