Informal Crossborder Livestock Trade Restrictions in Eastern Africa: Is there a case for free flows in Ethiopia-Kenyan Borderlands?

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Abstract

The case of informal cross border livestock trade in Ethiopia-Kenya border areas is examined with the intention to clear some doubts on conventional perceptions and broadly explore the implied effects of restrictive official interventions on the welfare of the peripheral population. The informal channel accounts for an estimated 71% of total value of live animal exports and 78% of consumer goods and productive inputs imported into the area. It is found that cross border livestock trade restrictions could lead to substantial drops in pastoral household welfare. In the case of Ethio-Kenyan borderlands, the informal traded livestock flows rather appear to be mutually beneficial, and should be guided by bilateral cross border co-operation of free flows.

Keywords: Cross border trade, village SAM, pastoralism, Borana, Ethiopia
JEL classification: O13, O17, P45, Z13

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1. Introduction

This paper seeks to broadly explore the effects of informal cross border livestock trade restrictions on the welfare of a peripheral herder community in eastern Africa. Informal cross border trade (ICBT) in the context of this study is generally referred to as unregistered/unregulated transboundary trade in *clean* commodities, which involves multiple actors along an established long distance supply channel, and facilitated by indigenous institutional networks and financing mechanism of exchange operations assisted by informal *foreign exchange* markets in border areas (Little, 2007; Umar & Baulch, 2007). Informal cross border livestock trade operators are dealers in a legitimate product (livestock) in a peripheral economy characterized by longstanding isolation and poor access to centrally provided basic socio-economic services. The participants in the business are either informal small scale operators or recognized dealers trying to fully or partially escape the big cost of inconvenience, less attractive profit margins and the relatively unfair transaction deals of the centrally regulated formal export channel. The system is commonly operated by unlicensed agents or a few recognizable traders motivated to partly circumvent the drudgery of toiling along the formal channel, i.e. individuals who are generally enticed to respond to better market opportunities on certain established routes of unofficial transborder trade operations. An elusive nature of the term ICBT, as evidently argued in Little (2007), is that unofficial cross border livestock trade operations are not necessarily purely tax evasive. Marketed pastoral livestock usually primarily progress through officially known market centres of stringent local government tax collection arrangements before their ultimate diversion into the informal cross border channel of no further official checkpoints (see Little, 2007, for details of definitional issues).

The Horn of Africa is often considered as a region of the largest informal transborder traded livestock movements in the world. This is operated along long distance routes and market corridors leading to transit port destinations of Berbera, Bosaso and Djibouti, which serve the final export markets in Middle East countries (Desta, Berhanu, Sebsibe, & Guerne Bleich, 2011; Umar & Baulch, 2007; Mahmoud, 2010; Majid, 2010). It is very difficult to

convincingly establish the approximate size of informal cross border livestock trade transactions due to the unregulated nature of the operation. However, there is clear evidence that the largest proportion of livestock trade operations in the eastern Africa region is characteristically directed through the unofficial channel (Desta et al., 2011; Little 2007, 2009).The informal trans-border pastoral trading system in this region have resiliently survived and flourished under the region's distressing conditions of political rivalry, armed conflicts, unpredictable border closures, and storms of other restrictive interventions (Desta et al., 2011). The flourishing prevalence of informal cross border livestock trade flows in the peripheral territories of countries in the region is arguably a simple re-establishment of the longstanding indigenous pattern of extensive barter exchange and transboundary population migrations which predate colonial and post-colonial borders (Ogalo, 2010). The key motivational factors are both economic and social in nature, principally including entailed high transaction costs in the formal channel, poor access to formal export markets which are often controlled by the central elite (and often characterized by unfair transaction deals), and the strong prevalence of fraternalism and socio-cultural ties among pastoral communities that transcend artificial national borders. The overwhelmingly large infrastructural and personnel requirements of authorized flows and custom services along these extensive national borders also clearly necessitate *clean* ICBT activities to be conducted without adherence to the procedural requirements of formal institutions in the prevailing dismal conditions of poor infrastructure and inadequate institutional provisions of the centre (Desta et al., 2011; Little, 2009).

Informal cross border trade, officially considered as an illicit pursuit practiced in peripheral territories, is the least recognized vital economic activity of indigenously institutionalized longstanding tradition of informal regional integration in border areas of eastern African countries. The types of products traded in the ICBT operation of the eastern African region are quite diverse, but they generally include non-processed agricultural commodities, manufactured food and non-food stuffs, re-exports of low quality assorted goods of Asian origin, and other miscellaneous goods such as fuels and pharmaceutical products (Jean-Guy & Ajumbo, 2012). A distinctive element of the ICBT business in this region, as compared to conditions in many border

areas in the African continent, is the essential prevalence of live animal *outflows*. The informal cross border livestock flows in the pastoralist territories of the region, as typically explained by the transcontinental nature of movements of the traded products, is essentially intertwined with food and non-food basic commodity flows. Therefore, an important feature of the informal pastoral livestock export trading system is its corresponding import account of basic consumer goods *inflows*, a system which Umar and Baulch (2007) describe as a "set of parallel conveyer belts that take out livestock exports and bring in consumer goods"(p. 7).

ICBT activities are usually carried out under grave conditions of negative external interference often expressed in terms of army clampdowns, confiscations, harassments and various forms of abuse. However, ICBT is a vital source of income and employment for millions of actors. It is rather a coping mechanism and critical means of escaping poverty in the prevailing marginal conditions of scarce formal employment and income generating opportunities in the periphery. All the same, ICBT is considered by government officials as an illegal activity detrimental to national development goals. The peripheral herder societies, on the other hand, regard it as a normal system of transboundary exchange transactions vitally required for viable survival. The criminalization of ICBT operations as an illicit undertaking,especially in peripheral areas of Ethiopia, is historically defined by political and economic factors. It is partly associated with the tacit longstanding security concerns and scepticism of the centre over isolated pastoralist societies freely crossing national frontiers, an unfortunate unease which recently even more likely to have been heightened by threats of global terrorism and regional insurgents(Desta et al., 2011). Rather more obvious and a strong argument is the profoundly entrenched conventional belief of lost foreign exchange and central government revenues implied by the ICBT business. However, there are exceptions and the strict relevance of this conviction in the context of *our survey area* is quite questionable. The lack of methodologically robust systematic focus on adverse effects of the commonly observed surge of negative external interventions on the welfare of the peripheral poor is an important gap in the ICBT literature. Therefore, using an alternative methodological approach, this paper seeks to make a fresh contribution by trying to look at the issue of informal cross border trade from a

different perspective. It aims to cast some doubts on conventional perceptions that underlie hostile official interventions, especially by exploring the implied impacts of restrictive interference on the welfare of pastoral households based on our survey data of prevailing conditions in southern Ethiopian rangelands. It is believed that such a study will significantly contribute to the relatively understudied subject of informal cross border trade in Africa.

The remainder of the paper is structured as follows. We continue first to provide a general picture and critical account of the nature of informal livestock trade movements in border areas of southern Ethiopia. We then, in section 3, describe the basic model and data source with a further detailed discussion of the features of the pastoral village economy based on the estimated pastoral village social accounting matrix (SAM). The results of model simulation are discussed in section 4 and concluding remarks are given at the end.

2. A brief account of the nature of cross border pastoral livestock trading system

The arid and semi-arid Ethiopia-Kenya border areas are inhabited by mobile herder societies where seasonal cross border livestock movement as a rule is an integral part of the pastoralist production and trading systems. The organization of the pastoral trading system in peripheral areas is often characterized by i) a complex chain of several stages, ii) a set of market corridors and trading routes, iii) multiple actors and iv) elaborate indigenous networks of various informal support institutions. Detailed accounts of this magnificent traditional cross border trading arrangement are found in some illustrative studies of the vibrant transboundary traded animal movements in Ethiopia-Somalia borderlands in the Horn of Africa (for example, see Umar & Baulch, 2007; Mahmoud, 2010; Majid, 2010).The meeting points of market actors right on the doorsteps of pastoralist village encampments in the complex processes of price formations in the pastoral livestock trading system are the so called *bush markets* where traded animals are offered by pastoral households for sell to small traders or collectors. The next points of convergence are the *primary markets*, which are supplied by small traders

collecting animals from bush (village) markets scattered in the rangelands, and primary producers themselves, for sale to livestock traders, local butchers and breeders. A very important transit point in the supply chain is the *secondary market*. Secondary markets often serve as filtering points for classes of livestock of certain required characteristics which are either funnelled to *terminal markets* on the formal channel operated by big traders or to the *informal* routes which feed the cross border supply chain (see Appendix 1).

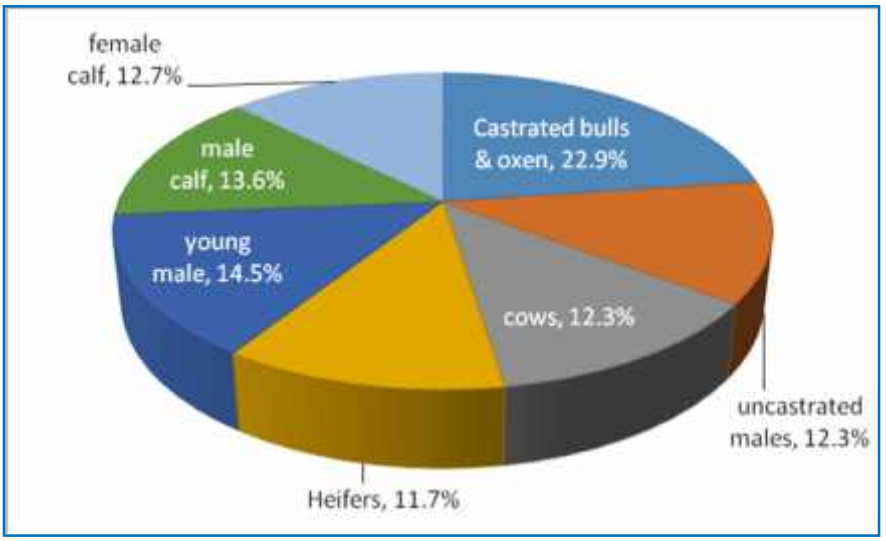
The major actors in the pastoral livestock informal cross border supply chain are producers, traders, brokers and trekkers. Hired trekkers, in particular, help in moving traded animals between rangeland livestock markets and across the national frontier in border areas. They especially play crucial roles in the often required special arrangements of trans-clan territorial border crossings in Ethiopia-Somalia border areas where the indigenous clan based institutional network is fairly directed to facilitate the entire conduct of the livestock trading operations in the area. This mechanism of clan based institutional networking of ICBT operations is less prevalent in Ethiopia-Kenya border areas where the indigenous social organization is typically different from that of Ethiopia-Somalia borderlands. Typically, the ICBT business is largely financed by informal credit institutions and financial transfer networks of kinships and related local affiliations (Gor, 2012), and is often crucially facilitated by vibrant *informal* foreign exchange markets in border areas. Incidentally, the fairly flexible parallel market exchange rate prevalent in Ethiopia-Kenya border areas, in addition to local demand and supply conditions, is fundamentally determined by movements in the formal market rates in Nairobi.

The ICBT subsector, which forms a significantly recognizable constituent element of the informal economy conventionally ignored in national accounts, is an important area of women involvement in Sub-Saharan Africa. Some reports indicate that the largest participants (70-75%) of the ICBT business, especially in western and southern Africa regions, are women (Masinjila, 2009; Njikam &Tchouassi, 2011).The level of involvement of women traders in cross border livestock operations in border areas of eastern Africa region is, however, greatly restricted by entry barriers chiefly associated with a

relatively large capital requirement of livestock trading. This has characteristically entailed the evidently observed condition of a more specialized involvement of women traders mainly as dealers in small stock species and cross border dairy marketing. All the same, the participation of women in informal cross border trade in livestock and livestock products is much more prevalent in Ethiopia-Somalia borderlands, where Somali women are very active in small stock marketing, than the virtually male dominated operational feature of cross border livestock marketing in Ethiopia-Kenya border areas.

The percentage composition of classes of cattle species supplied to the largest secondary market in Borana rangelands in 2012 is shown in Figure 2. The formal central export market can only absorb uncastrated males, which is quite below 15% of the total volume supplied by pastoral herders. The rest, except for the small percentage entering local abattoirs and young stock added back to pastoral herds, are castrated bulls, old cows, heifers and young animals (which account for more than 70%) would end up crossing the national border for ultimate destinations in cross border Kenyan markets. As depicted in Appendix 1, transboundary traded animal movements in Ethiopia-Kenya border areas are rather found to happen in both directions than a plain case of flows from Ethiopia to Kenya alone. Traded animal flows into Kenya are of the nature of unwanted classes of *cattle* species unattractive to the formal central Ethiopian export markets, and include castrated male, young male, old cows and young breeding stock. These animals are demanded in Kenya for direct slaughters, traction power, fattening and replacement stock in the subsistence dairy sector. The single most important cattle species demanded in the formal export channel are uncastrated bulls required for export to Middle East countries. Traditional pastoralists may often be compelled to adopt the practice of castrating male cattle, if not culled out early as marketed young stock, as part of their animal husbandry routines. However, there is no market outlet for this nonessential stock in pastoral herds except for the relatively attractive informal cross border export channel into Kenya.

Figure 2: Percentage composition of cattle supplied to Dubluk Livestock market (September-June, 2011/12)



Source: Dire district trade office

The corresponding informal cross border traded livestock inflows into Ethiopia, on the other hand, are camels and small stock species, which might ultimately form an important component of Ethiopia's livestock export supply to other countries. The pastoral areas in Kenya generally appear to have become an important source of required species for the previously less known but recently flourishing camel export trade in Ethiopia. Therefore, informal traded livestock flows in both directions are found to be quite beneficial for the two neighbouring countries. For Ethiopia, the attractiveness of the informal cross border market is quite unbeatable due to its demonstrated less fluctuating and relatively larger demand for different classes of cattle species. In contrast, the official central market channel is often characterized by its very selective quality standards, more susceptibility to demand fluctuations, and its branded features of massive credit-based transactions, periodic defaults and delayed payments for local traders.

3. Modelling the Pastoral Village Economy

3.1 The basic model

We consider a rural economy-wide model which in essence incorporates individual pastoral household response behaviour into a general equilibrium modelling framework of the rural economy (Taylor & Adelman, 1996; Taylor, Dyer & Nez-Naud, 2005). The starting point of this integrated modelling framework is the conventional notion of rural household utility maximization. Here individual pastoral households are assumed to maximize utility from the consumption of home-produced pastoral commodity (G^b), purchased goods (G^m) and leisure (G^l):

$$U = U(G^b, G^m, G^l, \Upsilon^h) \quad \textbf{(1)}$$

where U is a standard quasi-concave utility function and γ^h is a vector of parameters of identifiable household characteristics. The utility function is maximized subject to (i) a budget constraint, (ii) production technology, and (iii) a time constraint, respectively:

$$\sum_i P_i^m G_i^m = P^b(Q - G^b) - w(L - F) + y_{tr} \quad \textbf{(2)}$$

$$Q = Q(L, \overline{K}) \quad \textbf{(3)}$$

$$T = F + G^l, \quad \textbf{(4)}$$

where Q is total output, w is local wage rate, L is labour used in pastoral production, F is total family labour supply to pastoral and non-pastoral activities, P^b is price of own pastoral output, P^m is price of purchased commodity, and y_{tr} is transfer income, which is from government, other pastoral households and external remittances. The budget constraint equates the value of marketed purchases to household cash income available from

marketable surplus proceeds ($Q\text{-}G^b$) plus net income from other sources. Labour (L) is assumed to be the main variable input applied to fixed capital ($\overline{K}$) inputs in production activities. The total time (T) available to the pastoral household is allocated to all labour activities (F) and leisure (G^l). The first-order conditions of this constrained optimization problem yields the well-known set of individual consumption and input demand functions.

Household behavioural decisions in the integrated local economy-wide modelling framework are assumed to yield rural general equilibrium solutions which are constrained by a set of conditions. The construction of village economy-wide models, which is intended to show heterogeneous rural households integrated into the local economy, is directed to merge the conventional farm household models with general equilibrium constraints (Holden, Taylor & Hampton, 1999). This is achieved by adding a set of constraints. The first of these rural general equilibrium constraints is the 'material-balance' equation of output market equilibrium:

$$Q_P = C_D + XM_D, \qquad \textbf{(5)}$$

Where, Q_p = total output supply by pastoral households, C_D = household consumption demand, XM_D = local exports (X) minus imports (M) divided into sub-components of flows through formal and informal channels.

The second general equilibrium condition in the model is related to the required balance in the external accounts represented by the village trade balance of aggregate sum of formal and informal channel flows:

$$\sum_i p_{we} X_i + \sum T_{row} + S_f = \sum_i p_{wm} M_i, \qquad \textbf{(6)}$$

Where, P_{we} = price of village exports, P_{wm} = price of imported goods, T_{row} = transfers from rest of the world, X_i = village exports, M_i = village imports, and S_f = village current account balance. The empirical analysis of the adopted village computable general equilibrium (CGE) modelling exercise is

essentially based on the structurally more elaborate model developed by Lögfren, Harris & Robinson (2002). The pastoral village social accounting matrix (SAM) presented in Table 1 is used as a database to calibrate the model in order to obtain results of base run equilibrium.

3.2 The data

The estimated village Social Accounting Matrix (SAM) data framework used in this study was generated by a household level survey conducted in the Borana pastoral area of southern Ethiopia. The Borana pastoral area of southern Ethiopia is an important peripheral territory which form an extensive part of Ethiopia-Kenyan borderlands of a total border length of 861 kilometres. The survey area is inhabited by one of the well-known east African pastoral groups, Borana pastoralists, who also populate the arid areas of northern Kenya across the national frontier. The adopted method of data collection included pastoral household interviews, village business survey and key informant interviews.

The survey was conducted in 2013, in which a total of 141 randomly selected pastoral households were interviewed using structured tabular and verbatim questionnaires. These sample households were drawn from 4 survey sites of varied locations of arid and semi-arid areas of Borana rangelands, including a peri-urban site where crop cultivation has been fairly well adopted by pastoral households, in order to gain the required diversity in the selected sample. The randomly selected pastoral households, which were chosen by taking into account wealth status differentials, uniquely form a sub-sample of selected households in our designed periodic follow-up Borana pastoral livelihood research surveys of 2002 and 2012. In addition to pastoral household interviews, the present survey additionally embraced 25 village business entities, which included merchandize retailers and various sorts of food selling. The structured interview questionnaires were appropriately designed to generate annual data required for the estimation of the pastoral village SAM. Our key informant interviews, in addition to asking informed individuals about the cross border trade business, mainly focused on livestock traders, some of whom were carefully identified and approached to generate detailed information on the nature of informal cross border livestock trade flows.

3.3 The pastoral village Social Accounting Matrix (SAM)

This study uses a constructed SAM database for the Computable General Equilibrium (CGE) framework used to explore the implied adverse impacts of informal cross border livestock trade restrictions on pastoral household welfare in the selected peripheral region. A seminal work by Asmarom Legesse (Legesse, 1973, 2000) and subsequent investigations have brilliantly portrayed the exceptionally complex socio-cultural and traditional political structure of the pastoralist community in our survey area. We rather present a simple peripheral village economy partially integrated into the market mechanism. A consolidated pastoral village SAM is estimated based on data generated from survey of sampled sites in the study area. The rural village Social Accounting Matrix (SAM) is schematically designed to capture the flows and inter-linkages among village production activities, village institutions and the *outside world* (see Taylor & Adelman, 1996). The main structural features of the Borana pastoral village economy are presented in Table 1. The data on resource flows among village economic agents are assembled within a SAM framework which contains six categories of accounts (Activities, Commodities, Factors, Institutions, Saving-Investment and Rest of the World). The estimated data assembled within this SAM framework form the basis for exploring the implications of informal cross border trade shocks on the welfare of the peripheral poor. Disaggregated relevant interpretations of the estimated pastoral village SAM data in Table 1 are briefly presented below.

Table 1: Borana Pastoral Village Social Accounting Matrix (SAM) [Values in '000 Eth. Birr]

Activities	Activities		Commodities						Factors		Institutions				S-I	Rest of the World			Total
	1	2	1	2	3	4	5	6	1	2	1	2	3	4		ICBT	RowT	RoB	
1. Pastoralism			324.7	658.5							940.9	1128.3	1651.8						4,704.2
2. Dry land Farming		4.5			136.2						88.1	78.6	112.3						419.7
Commodities																			
1. Milk																146.1		178.6	324.7
2. Meat																433.9	178.8	45.8	658.5
3. Food & non-food											255.0	173.0	170.0					136.2	734.2
4. Tea and sugar											99.5	58.7	51.0						209.2
5. Furniture & utensils											9.1	6.7	12.7						28.5
6. Prod & capital input	106.2	2.8													241.0				350.0
Factors																			
1. Capital	1010	81.2																	1091.2
2. Labour	3588	331.2																	3919.2
Institutions																			
1. Poor households									205.2	776.2	10.6	28	355.7	34.3		11.2			1,421.2
2. Middle households									283	1005	3.4	9.8	171.5	24.1		15.3			1,512.1
3. Rich households									603	2138	1.6	4	24.6	1.3		26.7			2,799.2
4. Government					10.1	1.6	1.4				3.4	4	39.2						59.7
Capital account (S-I)											9.6	21.0	210.4						241.0
Rest of the world																			
1. INF cross border T					480.6	80.4	27.1	45.1											633.2
2. Formal ROW T					35.2	127.2		16.4											178.8
3. Rest of Borana					72.1			288.5											360.6
Total	4704.2	419.7	324.7	658.5	734.2	209.2	28.5	350.0	1091.2	3919.2	1421.2	1512.1	2799.2	59.7	241.0	633.2	178.8	360.6	

Village production activities and value-added

The consolidated village SAM (Table 1) shows two major activities (*pastoralism* and *dryland farming*) currently practiced by the herder community in the survey area. An estimated 92% of production value-added in the village economy is contributed by traditional pastoralism. Pastoralism is the core economic activity practiced by traditional livestock herders on communal pasturelands in this dryland environment where sustainable crop-based livelihoods are infeasible due to aridity and erratic natural conditions. The traditional Borana pastoralists in the study area raise cattle, sheep, goats and camels mainly for subsistence milk production, and beef off-take for supplementary procurement of non-pastoral commodities. The cattle enterprise is the most favoured one of complete social function in the Borana pastoralist herd species portfolios (see Behanu, Colman, & Fayissa, 2007). The village SAM is constructed with an important consideration that the pastoral household economy is characterized by production for home consumption and sale. Past internationally financed rangeland development programs had their core aims focused on livestock commercialization with a view to increase pastoralist market integration. Data in the consolidated village SAM rather reveals that only about 21% of the pastoral output passes through the market. Beef off-take accounts for the largest proportion (67%) of marketed livestock products supplied by the pastoral village economy. It is consistent with the 'milk-subsistent' feature of Borana pastoralist production system in which the estimated expenditure share of meat is only about 4% of pastoral household budgets (Behanu, 2011a).

Household income and expenditure

The flow of income from factor services and transfer payments to pastoral households is recorded in the institutional account of the pastoral village SAM in Table 1, which includes household institutions and government. The institutional accounts, in addition to distribution of value-added among pastoral household groups and inter-household transfers, further summarize household receipts from government transfers and remittances from rest of the world. The percentage breakdown of total institutional income by source is summarized in Table 2. The distribution of value-added in the village

economy is such that the rich group of household (18% in the sample) received 55% of total factor income flows from village production activities. The overall average annual institutional income receipt per capita was birr 6550.5, with a range of birr 3525 per capita for the poor and birr 11899.1 for the rich.

Table 2: Percentage distribution of institutional income by source of origin and household group

Source of Income	Percentage share in institutional income sources		
	poor	**Middle**	**Rich**
Village production value-added	19.6	25.7	54.7
Inter-household transfers	64.7	30.3	5.0
Government transfers	57.4	40.4	2.2
Remittance	21.0	28.8	50.2
	Income per capita by household group		
Annual Income per capita (Birr/person)	3525	6396.6	11899.1

Source: computed from survey data

The observed inequality in the distribution of factor incomes, fundamentally driven by individual household level of *capital* factor endowments, is to some extent partly smoothed out by the indigenous institution of income (asset) transfers. Table 2 shows that about 65% of inter-household transfers are received by poor households, which include cash and in-kind transfers. The pastoral community in the survey is typically characterized by the existence of a fairly robust system of indigenous welfare and social support mechanisms. The rich, by the traditional constitution, have the obligation to restock the needy through regular asset contributions to the prevailing wealth redistribution schemes of the system (Behanu, 2011b). Here it is quite instructive to compare the percentage distributions of government and local inter-household transfers among social groups. The relevant entries in the estimated village SAM reveal that institutionalized indigenous inter-household transfers are almost 9 times more than the recorded government transfers implemented through currently on-going safety net social protection programs. Government transfers, perhaps with the potential

to crowed out the indigenous institutionalized transfers, are operationally often of intermittent flows and inevitably of unsustainable nature. The comparatively high share of middle wealth group in government transfers indicates the general tendency of the possibility of some level of poor targeting in government social protection programs. Furthermore, the share of inter-household transfer receipts by middle and rich households indicated in Table 2 usually predominantly refer to gifts offered by all household groups during ceremonial occasions.

The expenditure side of the pastoral village SAM in Table 1 presents the flow of household income into spending on village and imported products consumption, payments for indigenous social welfare obligations and local government direct taxation. The aggregate household consumption demand in the village economy is satisfied through home production and commodity imports. Table 3 presents the percentage distribution of imported consumption shares in pastoral household budgets. The overall share of imported consumption in total pastoral household expenditure is estimated to be 15%. Imported consumption spending constitutes the largest part of the *cash* component of pastoral household budget, and the indicated percentage shares for item number 1in the fourth row of Table 3 essentially reflect the very significantly larger predominance of in-kind consumption shares of subsistence production. In percentage terms, the cash component of pastoral household consumption expenditure is inversely related with wealth status among our traditional pastoralist society, in that the largest component of in-kind consumption of own produced food (milk and meat) was observed for the rich group. High milk deficit poor households are often forced to generate cash income through non-pastoral activity participation such as petty trade, charcoal making and fuel wood selling in order to procure cereal grain and the basic survival items of sugar and tea required for the preparation of white tea as their regular essential diet.

Table 3: Percentage distribution of imported consumption share by household and commodity group

Item	% distribution of imported consumption			
	Poor households	Middle households	Rich households	Total
1. Share in total consumption budget	26.1	16.5	12.0	15.0
2. Share by commodity group				
Food & non-food basics	42.6	28.9	28.5	100
Tea & sugar	47.5	28.0	24.5	100
Furniture & utensils	31.9	23.5	44.6	100

Source: computed from survey data

The village external accounts

The pastoral village economy, though heavily reliant on livestock rearing with limited level of economic diversification, is fairly an open system increasingly exposed to the pressures of change in the external environment. The external trade transactions of the pastoral village economy is recorded in the *Rest of the World* account of the village SAM, here divided into three sub-accounts of Informal Cross border Trade (ICBT), Formal Rest of the World (RowT) and Rest of Borana (RoB). Pastoralists produce a tradable commodity (livestock) of complex composition of considerably promising international and domestic market demands. Here, a computed average of 77.2% of the estimated *marketed* component of village production (milk and meat) is exported to other countries both through the formal and informal channels. An important result of our village SAM estimation is that about 71% of the total value of live animal export from the region is traded though the *informal*cross border trade channel. Quite notably, for the fairly "borderless" mobile pastoral community, making use of either the formal or informal channel is a matter of absolute convenience and comparative economic attractiveness rather than one of legality or legitimacy. The estimated value of imported commodity demand is 23% of the gross annual value of village production, and an estimated 78% of consumer goods and basic productive input inflows from outside the region were found to take place through the *informal*cross border trade channel. The observed large percentage shares of informal cross border flows show that the peripheral pastoral economy is more integrated into the cross border Kenyan markets rather than the central Ethiopian market.

3. Simulation Results

We set up three experimental scenarios in order to generate broadly indicative simulation results intended to help us explore the implied impacts of informal cross border livestock trade bans on pastoral household welfare. These are experimental scenarios which basically signify the level of pastoral livestock export reduction associated with the degree of shocks required to prevent outflows through both the formal and informal channels. The first of these scenarios refers to an extreme case of 70% reduction, which is roughly an equivalent of a complete blockage of informal cross border outflows. This is in accordance with our estimated minimum of the size exported from the region through the informal cross bordertrade. The second experimental scenario (30% reduction) represents a plausible case of a complete import ban by formally importing counties in the Middle East but free informal cross border flows. Transnational formally traded live animal movements are typically subject to rigorous safety regulations necessitated by sensitive international health concerns. These health related restrictions in live animal exports appear to have increasingly become even more stringent in the major importing countries of the Middle East due to rising international tourism and growing transnational business interests in the region (Majid, 2010). Formal livestock import bans often come from Saudi Arabia, which is the biggest market for live animal exports from the Horn of Africa. The effects of these shocks, fundamentally transmitted through widespread abysmal declines in livestock prices, on the purchasing power and food security of pastoralist societies in the Horn region could be very damaging, which has become evident from the previously observed case of some instances where traditional herders were forced to resort to alternative sources of income such as charcoal making and food aid (FEWS NET, 2010). A greatly more damaging similar effect is also expected from severely restrictive regular government interference in the informal cross border channel. The last fairly plausible medium level scenario is represented by a complete ban of formal export outflows plus a 25% reduction in the informal cross border trade. These alternative scenarios generally imply reductions in the total value of animal exports from the region, which principally imply substantial drops in pastoral household income and imported consumption.

Table 4: Impacts of cross border livestock trader restrictions on pastoral household income

Household group	Base (income) ('000birr)	Experimental Scenario 1 (70% reduction)		Experimental Scenario 2 (30% reduction)		Experimental Scenario 3 (55% reduction)	
		Change ('000 birr)	%	Change ('000 birr)	%	Change ('000 birr)	%
Poor households	1020.4	748.1	-26.7	877.5	-14.0	798.5	-21.7
Middle households	1318.7	961.5	-27.1	1131.4	-14.2	1027.7	-22.1
Rich households	2750.3	1988.0	-27.7	2350.6	-14.5	2129.3	-22.6

Source: results of model simulation based on survey data

Simulation results reported in Table 4 indicate the negative impacts of cross border livestock trade restrictions on pastoral household income. As expected, a complete loss of informal cross border livestock trade revenues would imply a negative impact on pastoral household income twice the size of implied welfare loss inflicted by a total ban suffered in the formal live animal export channel. Formal live animal export bans typically result in considerable drops in livestock price levels and significant deterioration in pastoral terms of trade due to significant decline in demand. The adverse impact of severely restrictive government interference in the informal cross border channel is rather significantly harsher due to the sheer volume of trans-boundary traded animal movements and lack of alternative outlets. The results in Table 4 show that, though it is slightly higher for wealthy stock owners, the effect is generally similar for all groups of pastoral households. Results reported in Table 5 indicate that the impact of informal cross border livestock trade restrictions is considerably higher in terms of simulated drops in household imported consumption. The resulting impact is more than 50% larger (than that of simulated drop in household income), and is generally bigger for wealthier households.

Table 5: Impacts of livestock trader restrictions in term of changes in imported consumption

Household group	Base (income) ('000birr)	Experimental Scenario 1 (70% reduction)		Experimental Scenario 2 (30% reduction)		Experimental Scenario 3 (55% reduction)	
		Change ('000 birr)	%	Change ('000 birr)	%	Change ('000 birr)	%
Poor households	329.7	196.3	-40.5	254.2	-22.9	217.7	-34.0
Middle households	285.9	170.2	-40.5	220.5	-22.9	188.8	-34.0
Rich households	434.5	232.2	-46.6	320.8	-26.2	265.2	-39.0

Source: results of model simulation based on survey data

Overall, results of the established simulation scenarios generally portray a broad picture of the expected adverse impacts of livestock trade bans on pastoral household welfare, with equally considerable negative effects on poor and wealthy households. This signifies a case of possible significant welfare gains at the household level that can be achieved from free informal cross border flows and improved production and marketing conditions directed to obtain better returns from the formal livestock trade channel. It is quite evident that Borana pastoralists, under the prevailing conditions of their animal husbandry practice and culling calculations, if forced, may prefer the choice of a complete loss of the formal channel in favour of the informal crossborder option. In the case of the formal central market export channel, conventional wisdom and associated program designs generally tend to focus on issues of marketing and infrastructural bottlenecks. All the same, the formal livestock export channel is not only limited by problems of infrastructural services and key marketing constraints, but it also requires an additional venture of a search for the possibility of fine tuning efforts in market oriented animal production and culling practices of pastoralist producers.

4. Concluding Remarks

Informal cross border livestock trade is an integral part of indigenous institutions of trans-boundary socio-economic relationships among pastoralist societies in eastern Africa. Its trading routes and international outlets have ultimately developed into an export-import channel of trans-continental trade embracing parts of Asia. ICBT is a normal economic activity of immediate resort and source of livelihood for millions of inhabitants in peripheral territories of many countries in Africa. Nevertheless, despite its sheer size and enormous contributions, the complex case of trans-boundary informal economic interactions is not a serious concern of affirmative action by national governments, most notably because of lack of positive recognition. It is a serious subject which should be positively considered in national strategies and formal discussions concerned with the long-term goal of regional economic integration in Africa. The features of this trade, in terms of the type and direction of commodity flows as well as the character of indigenous institutional support mechanisms, are generally quite diverse both within individual countries and across the continent. This paper is rather set out to examine the case of informal cross border traded livestock movements in Ethiopia-Kenyan borderlands with a view to clear some doubts on conventional perceptions that underlie hostile official interventions, and broadly explore the implied impact of these restrictive actions on the welfare of the peripheral population.

The conflicting aims of household level food security and general welfare of the peripheral poor as against the official claim of loss of foreign exchange and national revenues are central to core arguments surrounding the micro versus macro policy quandary of informal cross border livestock trade restrictions in frontier regions of Ethiopia. However, this should rather be examined case by case and, from the prevailing circumstances of the study area, it is quite difficult to uphold the familiar case of conventional narrative about foreign exchange loss as a strong justification for hostile interference in the cross border traded livestock movements of the region. The ICBT in the study area rather appears to be equally beneficial to the two neighbouring countries both as a source of income and local food security for the peripheral populations as well as foreign exchange earnings at the national level.

In the context of the study area, while the justifications for heavy-handed government interference in the ICBT channel to a large extent appear to be trivial, the burden of impact of this effort on the welfare of the peripheral population is inevitably quite tremendous. Our simulated model results of alternative scenarios of reduction of live animal export from the region consistently indicate that cross border livestock trade restrictions would predictably imply substantial drops in pastoral household welfare. The adverse effect of severe ICBT restrictions is apparently more painful for the peripheral population than that of the formal trade ban occasionally imposed by importing countries in the Middle East. Therefore, it does not seem worthwhile of making an effort to block the ICBT channel, which is generally characterized by a fairly established demand for classes of livestock species discarded by the formal channel and broadly less stringent in its required quality standards. Government efforts directed to maximise foreign exchange and internal revenues generated from traded livestock from the region should rather focus on provision of effective pastoral extension, improved husbandry practices, enhanced veterinary and infrastructural services, and removing key marketing bottlenecks that constrain effective operations of the formal channel. The cross border livestock trade operation in Ethiopia-Kenyan border areas should, therefore, unfailingly be based on the principle of free flows fundamentally lubricated by transboundary mutual cooperation between governments of the two countries in areas of relevant marketing infrastructure provision and effective animal health services.

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Appendix 1: A sketch of direction of marketed livestock flows in southern Ethiopian rangelands