

Challenges Of Livelihood Diversification In Pastoral Lands Of Ethiopia: Evidence From South Omo Pastoralists

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Abstract: The purpose of this study was to explore the challenges of livelihood diversification as a means to ensure food security in the South Omo Zone pastoral groups. Data was collected through household survey questionnaire, focus group discussion, interview and observation. The findings indicate that though pastoralism is the main source of survival farming is found to be the dominant type of diversification. In terms of wealth group the well-off households have more opportunity to diversify income sources than the poor and average households in the study area. The challenges of diversifying livelihood include: communal resource administration system, lack of financial services, lack of access to market, lack of proper extension services. In conclusion, with the right combination of market access, training, infrastructure, services, capital and fair administration the pastoralist population of the study area can undertake successful livelihood diversification.

Key words- Livelihood; livelihood diversification; pastoralism; South Omo; food security

1. Introduction

Pastoralists in Ethiopia are mainly found in four lowland regions, Afar, Oromiya, Somali and the Southern Nations, Nationalities and People's (SNNP) regional states. Pastoral groups are also found in Gambella and Benishangul areas. The main livelihoods systems include pastoralism, farming and ex-pastoralism – those who have dropped out of pastoralism and now survive on petty income-earning activities [1]. Ethiopia's pastoralist community of ten million people occupies 61 percent of the total land mass. Ethiopian pastoralists raise a large portion of the national herd, estimated at 42 percent of the cattle, 7 percent of the goats, 25 percent of the sheep, 20 percent of the equines and all of the camels [2]. The arid and semi-arid areas, inhabited by the pastoral and agro-pastoral communities are the most food insecure environments where drought is the major recurring risk [3]. In such an environment where uncertainty is the major problem, production of both crops and livestock is highly dependent on the ability to be flexible, to adapt to changes as they occur and to spread risks. Their livelihoods strategies have evolved over centuries in response to the local environment and the hot and dry climate in which they live, with low and erratic rainfall typical of the arid and semi-arid lands. Key strategies include accessing and managing natural resources, mainly grazing land and water sources, and maintaining high levels of mobility across large tracts of land to make the most effective use of scarce resources and in response to environmental conditions [4].

Unlike their long history of environmental adaptation and endured survival, the Ethiopian pastoralists in general are facing acute food shortage. According to Helland, the once much admired, proud, self-contained and fiercely independent pastoralists are today conceptualized, particularly in the development lexicon as helpless paupers and perpetual famine relief clients. [5]. Livelihood diversification has been essential to spread the risk of food insecurity and cope with the changing nature of hazards in pastoral areas [6]. Ethiopian pastoralists in general have long been involved in different economic activities and derive a significant portion of their subsistence from activities other than livestock rearing such as farming, migration to towns, wage labor, caravan trade, crafts etc [7]. There are, therefore, a huge variety of non-livestock livelihood strategies practiced by pastoralists in different areas. One positive trend for pastoral development in recent years is that other sources of income, including land cultivation, petty trading, selling of charcoal and fuel wood, and livestock and grain trading are gaining significance. However, the challenges of livelihood diversification process in pastoral areas in general and in the study area in particular have not been given proper attention. This study is meant to fill this gap by answering the following questions:

1. In terms of wealth category which households have a better opportunity to diversify their livelihood?
2. What are the dominant types of livelihood diversification?
3. What are the major challenges of livelihood diversification?

2. Material and Methods

2.1 Description of the Study Area

Southern Nations Nationalities and Peoples Region (SNNPR) is one of the largest regions in Ethiopia, accounting for more than 10 percent of the country's land area. The population is estimated at nearly 15,745,000 [8]. The region is divided into 13 administrative zones, 133 districts [9]. Among these, South Omo zone is one of the most remote parts of Ethiopia. Fifty percent of the population is nomadic population, who depends on

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livestock for their livelihoods and migrates in search of water and grazing land for their animals. As a result they are among the poorest people in Ethiopia [10]. The South Omo zone covers an area of 22,000 square kilometers, which is relatively large. It is regarded as a typical marginalized region, where infrastructure and social services are very poor or non-existent in most areas. The pastoral part of the South Omo zone is one of the most remote and sparsely populated areas in Ethiopia [9]. The study districts of Hamer and Benatsemay have an estimated total population of 62,006 of which 45% are females.

2.2 Sampling techniques

Sample households were selected through a multi-stage stratified random sampling technique. In the first stage, the South Omo zone was purposively selected from among the pastoral and agro pastoral regions of Ethiopia due to its accessibility to Arba Minch University. In the second stage, Hamer and Bena-Tsemay districts were selected representing pastoral and agro-pastoral livelihoods. Then two Pastoral Associations were selected from each district purposively. Finally, households were stratified by wealth rank and 197 households were selected using a proportional random sampling method.

2.3 Data collection

The study was based on both quantitative and qualitative data. A formal household survey was carried out on a random sample of 197 households. Detailed information was sought regarding household demographic characteristics, household assets, and income, using structured interview schedule. Wealth ranking, focus group discussions, observation and interview were conducted to collect data on resource administration, marketing, financial services. Document analysis was also used to review policy directives.

2.4 Method of Data Analysis

The data collected through the above techniques were analyzed qualitatively and quantitatively. The qualitative data are analyzed descriptively while the quantitative data gathered through household survey is analyzed using statistical package for social sciences (SPSS) version 16.

3. Result and Discussion

3.1 Socioeconomic characteristics of respondents

3.1.1 Age composition

Mean age of the sample household heads in the area is found to be 39.5 years. The younger age of the household head in this study is 22 whereas the older age is 82. According to the result, poorer households are headed by younger persons compared to the better offs. It appeared that there is a statistically significant difference between the mean ages of the three groups at less than 10 % significance level (Table 4). Comparison across study sites indicates that on average Hamer district has older household heads than Bena Tsemay.

Table 1, age composition across wealth groups

Age category	wealth status of the households			Total
	poor	average	better off	
22-30	31	16	5	52
31-45	43	35	15	93
46-64	15	24	10	49
>64	1	2	1	4
Total	90	76	31	197

All measures of household livestock: human ratios, which may be interpreted as indicators of intra-household resource access, showed an individual owns 5.08 livestock units. The figure for adult equivalents is 6.72 tropical livestock units.

3.1.2 Family size

According to the study, the average household size of the total sample households in adult equivalent (AE) was 3.9 persons, with 1 and 13 being the minimum and the maximum household sizes respectively. When we compare the average household sizes between wealth groups, the study revealed that the better-off households have larger household size than poor households. The mean comparison of household size in AE between the three groups showed that there was a statistically significant difference in the mean household size at 1 percent probability level. The possible explanation for this is that the better off households have better chance for polygamy than the counterparts.

3.1.3 Dependency ratio

The survey result showed that the average dependency ratio for the sample households is 1.161 implying that every 100 person within the economically active population groups supported not only themselves but also additional 116 economically dependent persons with all basic necessities. The mean dependency ratio is 1.0, 1.27, and 1.22 for poor, average and better off households. The data is not statistically significant across the wealth groups.

Table 2, summary of demographic characteristics of respondents

		Mean	SD	F	P value
Age of head	poor	37.53	11.02	3.028	0.051*
	Average	40.84	9.9		
	Better off	41.81	9.4		
Family size	poor	5.91	2.56	0.044	0.957
	Average	5.93	2.57		
	Better off	5.77	2.69		
Adult Equivalent	poor	3.95	1.7	20.303	0.000***
	Average	4.71	1.68		
	Better off	6.4	2.55		

Dependency ratio	poor	1.049	1.042	0.885	0.414
	Average	1.272	1.217		
	Better-off	1.211	0.946		

Table 4, summary of socio economic characteristics of respondents

Education of head	poor	1.46	1.48	3.024	0.051*
	Average	1.51	1.78		
	Better off	0.74	1.03		
	Total	1.37	1.56		
Land size in hectares	poor	1.59	1.41	10.345	0.000***
	Average	1.94	1.23		
	Better off	2.91	1.7		
	Total	1.93	1.46		
Livestock holding (TLU)	poor	6.97	8.56	31.905	0.000***
	Average	31.47	37.16		
	Better off	93.01	116.85		
	Total	29.96	59.36		
Distance to market in Km	poor	15.28	9.52	0.087	0.917
	Average	15.47	8.14		
	Better off	16.06	9.63		
	Total	15.48	8.99		

3.1.4 Sex composition

According to the finding, 34.5 percent of the sample households are headed by females and the rest are headed by male. When we compare by wealth position, out of the 31 better off households only 3 are headed by female. The chi-square test showed that there is strong relationship between sex of the household head and wealth status. The main reason is that most women headed households have lost their husband due to death.

3.1.5 Marital status

Marital status of sample household heads indicated that married, divorced, widowed and single household heads accounted for about 69, 1.5, 27.9 and 1.5 percent respectively. The majority of the sample household heads were married (69.04%) followed by widowed household heads (27.92%). From the total widowed household heads 36.67% were poor. The result showed there is a significant difference ($p > 0.10$) among the wealth groups with respect to their heads marital status (Table 3).

Table 3, marital status of respondents across wealth

Sex	Poor %	Average %	Better off %	Total	χ^2
Male	53.33	69.74	90.32		14.948
Female	46.67	30.26	9.68		
Marital status of head					15.607
Single	2.22	1.32		1.52	
Married	58.89	69.74	96.77	69.04	
Divorced	2.22	1.32	-	1.52	
Widowed	36.67	27.63	3.23	27.92	

3.1.6 Level of education

As indicated in the table below, the average years of schooling for the total respondent household heads is 1.4, which is below the primary level to be able read and write. From the total, 48.2 % have zero years of schooling. Moreover, spouses of all the sample households were found to be illiterate. As a result, the statistical analysis also shows that there is statistically significant (up to 10% significance level) difference between the wealth groups in terms of the education level of the heads. The better off households have the lowest school achievement (< 1 year of schooling) than the poor and average households (Table 4). This might be due to low cultural value for formal education than traditional pastoralism as basic livelihoods.

3.1.7 Livestock ownership

The study showed that out of the total sample households only 4.6% do not own livestock. The mean livestock holding in Tropical Livestock Unit (TLU) for the sample households is 29.96, where the minimum is 0.00 and the maximum is 425.7. Better off households have more livestock than poor households. Accordingly, the mean livestock holding in TLU was 93.01, 31.47, and 6.97 for the better off, average and poor households respectively. This indicates that the better off households own three and thirteen folds of the average and poor households respectively. The mean comparison for the three groups showed that the difference between the groups with regard to livestock holding is statistically significant at 1 percent probability level. Livestock are clearly a form of natural capital in that they provide milk, meat, wool, hides and cash. But in most pastoralist and agro pastoralist production systems they also constitute financial capital in the form of savings, supplies of credit or regular remittances or pensions and which provide them with different livelihood options. Cows are the major source of food and cash (milk) in both pastoral and agro pastoral livelihoods. Livestock of different species act as financial capital in different ways: stereotypically small stock rapidly multiplying and acting as easily divisible spare change for everyday needs and small purchases; and cattle as major items of investment, that in some societies are sold on a regular basis, in others only in emergencies. More challengingly, livestock in many pastoralist societies can be regarded as constituting social capital, or at least embodying or engendering it.

3.1.8 Land ownership

Access to land is a vitally important issue for the many people in Ethiopia who depend on agricultural production for their income and sustenance. Access to land and

natural resources on is as important to pastoralists as to arable farmers. Land tenure issues therefore continue to be of central political and economic importance, as they have been at several crucial junctures in Ethiopia's history. Similarly, land is the most important resource contributing to pastoralism in the study area, and since land use pattern largely determines the pattern of use of other resources, it is taken as a proxy for overall resource use pattern such as grazing and forage lands under the control of a pastoral household. The mean land owned by the sample households was 5.90 with SD of 2.57, where the minimum and maximum land holding was 0.00 and 8.5 hectares per household. The F test showed that there is a significant difference between the groups with regard to land holding size at 1 percent probability level.

3.2 Pastoral livelihood diversification pattern

Two approaches were used to study the livelihood diversification pattern of pastoral communities. The first approach is based on sectarian income share and the second one is based on households' proportion of income share from livestock sector. The first approach is based on the share of income received by the household from the dominant income sources. This will tell us how much of their income dominantly comes from each sector. The theoretical background of livelihood categorization; as most economists often used, is based on income share beyond half. That means a household gaining annual income share greater than 50% from a given sector is assumed as pursuing that strategy as a dominant strategy. The diversity score for the poor, average, and better off households respectively, was found to be 1.52, 1.67, and 3.94. The diversification index summarized in table (5) indicates that out of the total sample households the poor wealth category has the lowest diversity.

3.2.1 Number of income sources

The sampled households reported that they had engaged in null to four income generating activities among livestock, crop, petty trade, remittance, handcrafts and wage. The average number of income generating activities or sources per household for the whole sample was found to be 1.86. The corresponding figure for poor, average and better off households was found to be 1.72, 1.88, and 2.19

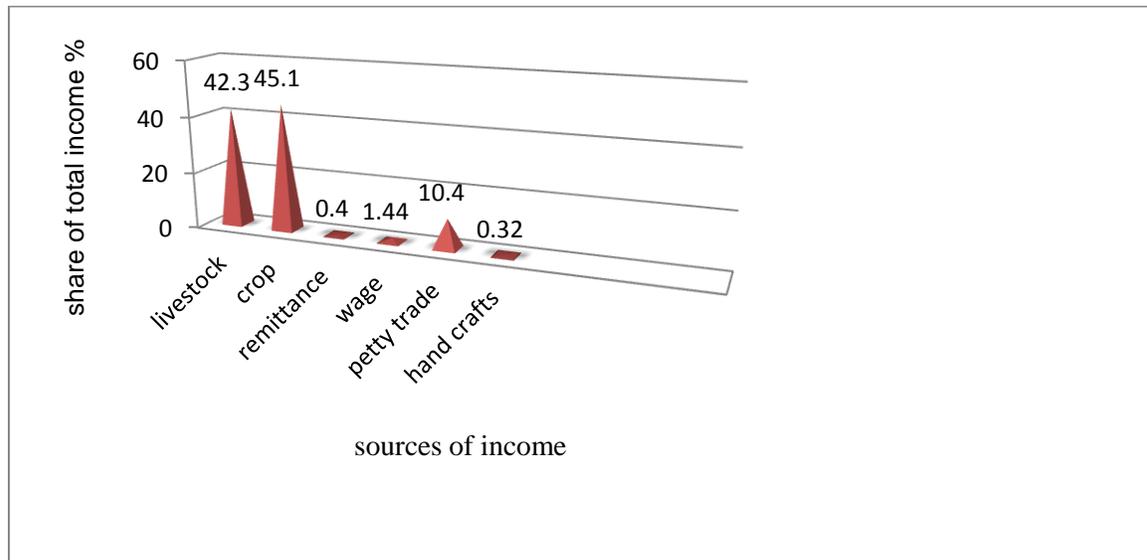
respectively (table 5). The mean value is statistically different at less than 10% probability level. This implies that the well-off households have more opportunity to diversify income sources than the poor and average households in the study area, while diversifying income source is important to reduce risk in pastoral areas especially for poor households.

Table 5, Household well-being status by number of income source

	Mean	SD	Min.	Max.	F	P value
Poor	1.72	0.98	0	4	2.737332	0.067*
Average	1.88	0.94	0	4		
Better off	2.19	1.01	1	4		
Total	1.86	0.98	0	4		

3.2.2 Composition of household income shares

This study considered income shares of each livelihood activity as a means to conceptualize pastoral livelihoods diversification. Employment in off farm income is highly scarce. From the total about 69.5 households were not employed in any of the off farm sectors. In general the poor received more mean income from off farm sources than the average and better of households. For the three groups petty trade is the dominant off farm sector. Accordingly, the share of livestock and crop cultivation accounts for 87.4%, and off/nonfarm sectors accounts for about and 12.6% respectively. Petty trade (10.4%) on local drinks, beauty utensils and shoforo which were mainly performed by women accounts the larger share of off-farm income sources (figure 1). This result indicates that the largest share of households' income is dependent on environmental resources. This makes them vulnerable to environmental shocks and risks.

Figure 1, Share of income by sources

3.3 Challenges of livelihood diversification

The success and failure of livelihood diversification as a way out of food insecurity is dependent on the socio economic and institutional context that plays a dominant role. Livelihood diversification in the study area is found to be mainly driven by push factors. Drought was found to be the major factor that forced the people to engage in non-pastoral activities. Though the area has naturally been exposed to erratic and uncertain rain fall pattern, the information obtained from focus group discussion and key informant interview shows that starting from the past two decades the occurrence of drought has become more frequent. It has become the major challenge that risked the centuries old pastoral livelihood system. Therefore, livelihood diversification in the study areas of Hamar and Bana-tsemay districts has been undertaken as a response to failure of pastoralism to withstand the stresses and shocks attributed to recurrence of drought. Furthermore, weak livestock market linkage exacerbated the food security situation. The cumulative effect has made the people dependent on food aid. From personal observation and discussion with informants and household survey it is identified that crop cultivation is the dominant type of diversification undertaken by the peoples of the study area. Both rain fed and irrigated farming has been practiced. Except with some parts of Bena-tsemay district which is found along Woito River, rain fed cultivation is dominant. The major type of crops produced in the area includes; Maize, sorghum, Haricot beans etc. The cultivation practice has been suffering from: lack of enough rain falls, lack of modern farming techniques, and supply of agricultural inputs. The farming practices in most of rain fed areas are characterized by shifting cultivation in which the people plough different areas from season to season. This is basically due to disruption of seasonal rain. This type of cultivation has been reinforcing food insecurity by reducing the size of grazing areas.

3.3.1 Resource administration and use systems

The underlying feature of the pastoral system is the existence of communal system of land ownership. The

philosophy of collective, clan based or lineage property right of land-be it natural resources or livestock are expressions of the culture of modalities governing the land tenure system and resources management that should be pursued by each member of the pastoral community. In the Hamar and Bena-Tsemay pastoralists, like other pastoralists the grazing land and watering sites are communally owned. Members of the respective communities have an open access as per the decision of the community elders where to graze the livestock. Any acts on natural resources are under the strict scrutiny of elders. However, crop cultivation violates this land use system. As farm land belongs to individuals it is passed from father to son. There are no traditions of reserved farm areas rather the size and location of farm land is determined by the individual choice and capacity. To minimize risks of rain failure people cultivate land at different places at a time. Though live stocks are owned by individuals or families they are considered as the collective property of the community. The community regulates the bulk sale of animals. This is justified by the community as a measure to tackle the destitution of community members. However, this regulation discourages livestock marketing. As a result people lose their livestock during drought or when there is livestock disease outbreak.

3.3.2 Access to market

Marketing as the flow of commodities and services from production to consumption is identified as the major bottle neck of the pastoral productivity in the study area. Access to market may create opportunities of more income by easing livestock marketing. The absence of developed markets has been identified as one of the constraints for trading activities. The pastoralists and agro-pastoralists produce live animals skin and hides, milk and milk products, eggs chicken, honey and other animal products. But due to lack of infrastructure and the absence of well-organized marketing system it has been very difficult to introduce markets with wider proximity that would also supply consumer goods to the livestock producing community. The existence of poor road infrastructure (only dry-weather

roads, even though now the main road is on construction), combined with limited transport services, resulted in extreme seasonal fluctuations of prices. They often arrive in market towns after long treks and are vulnerable to low prices. Therefore, their selling options are limited as they do not want to take animals back with them and forage is usually expensive. Particularly during the drought season, the communities are forced to pay high prices for cereals and obtain low prices for their livestock and livestock products. Improved market access can be expected to stimulate participation of the household in business activities than otherwise.

3.3.3 Access to finance

There has no microfinance service accessible to the pastoral community except a new start for urban dwellers and government officials at administrative towns. Lack of microfinance particularly disadvantages women and the poor households. The differential access to resources could be tackled by facilitating alternative source of income for women and the poor. Credit program that insure appropriate benefit should be designed in accordance with the life style of the community. As some ex-pastoralists gain experience in processing, more and more are eager for greater access to credit in order to establish their own enterprises.

3.3.4 Skills and vocational training services

Crop production in the study area faces problem both because of natural factor (lack of rain) and lack of knowhow. Apart from natural factors lack of appropriate skills exacerbated the situation. Frequent contact between the pastoralists and development agents in the form of dissemination of different extension services and trainings will assist the pastoralist to improve their production systems. Therefore, a household who has a frequent contact with extension personnel and service has a potential to diversify successfully and improve productivity. But this is not the case in the study area mainly due to lack of enough extension workers both in skill and number, lack of communication, lack of necessary inputs to provide the service. Appropriate skills and vocational training prove critical to the success of certain processing areas. Investor-friendly policies and new infrastructure help draw private investment.

4. Conclusion

Livelihood diversification in the study area has been undertaken as a response to failure of pastoralist production to withstand the stresses and shocks attributed to recurrent drought. Crop cultivation is the dominant type of diversification undertaken by the peoples of the study area. The major type of crops produced in the area includes; Maize, sorghum, Haricot beans etc. The cultivation practice has been suffering from: lack of enough rain falls, lack of modern farming techniques, and supply of agricultural inputs. The farming practice is dominantly characterized by shifting cultivation in which the people cultivate different areas from season to season. This is basically due to disruption of seasonal rain. Crop farming is encroaching into the dry lands. The diversification process in the study area reflects the missing links between the policy rhetoric and the realities on the ground. Livelihood

diversification has not been guided by proper institution of land distribution suitable to the changing circumstances. The emergence of crop production has changed the land tenure system. The centuries old common property regime which allows pastoralists to sustainably manage vast areas of land is being undermined by the expansion of private farming practices. As a result, dry-season grazing reserves have been lost, pastoral mobility have has been curtailed, and land degradation has increased. The absence of a comprehensive land use policy is encouraging unsustainable production at odds with the pastoralist system. With limited market access pastoral areas experience high costs in doing business. Lack of private and government investments hinder opportunities for income diversification and face unemployment and stagnant incomes. Therefore, policy makers and advocates of diversification should exert their maximum effort in promoting investments in the development of pastoral areas and designing land use policy that maximizes the benefits of crop production and pastoral livelihood. With the right combination of market access, training, infrastructure, services, capital and fair administration, this scenario avoids excessive risk and gives a proportion of the pastoralist population viable choices in the value added sector that also benefit the wider Ethiopian economy

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