

**Thesis.**

**“Determinants of Poverty in  
agro-pastoral Household”**

**Name: Abdisamed Abdilahi (MSC)**

# Chapter One

## INTRODUCTION

- **Poverty has registered** as one of the most intractable economic and social problems in the twenty-first century. **Around the Worldwide,** about 20 percent of the population survives on - 1 -less than a dollar a day.
- **With regard to Africa, the problem of poverty** is much deeper and far more widespread than in other major regions. Half of the population of Africa lives in extreme poverty and one-third in hunger.
- Food security has deteriorated in Africa since 1970s. **The proportion of the malnourished population has remained within the 33 to 35 per cent range** in Sub-Saharan Africa countries, with over 70 percent of the food insecure population in the continent living in rural areas (ECA *et al.*, 2015).

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- Like other developing countries, poverty is a major social and economic problem in Somali.
- The country is often reported as one of the poorest countries in the world almost by all dimensions of poverty.
- Poverty remains widespread in Somalia . According to the 2010/11 HICES, the proportion of poor people (poverty head count index) in the country is estimated to be 29.6% in 2010/11 while the proportion of the population below the poverty line stood at 30.4% in rural areas, it is estimated to be 25.7% in urban areas.

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- The poverty gap index is estimated to be 7.8% while it is 8.0% for rural areas and 6.9% for urban areas. Similarly, the national level poverty severity index stood at 0.031 with rural poverty severity index (0.032) being slightly higher than that of urban areas (0.027).
- In addition to this, the food and absolute poverty lines for 2010/11 are determined to be Birr 1985 and 3781, respectively. The 2010/11 rural poverty head count and poverty gap are lower than that of 2004/05 by 23% and 5.5%, respectively, but poverty severity of 2010/11 is higher than of 2004/05 by 17% indicating that inequality in rural started to rise (MOFED, 2012).

## 1.2. Statement of the problem

- Poverty still poses a major problem in most of the developing world, especially in Sub-Saharan Africa.
- In Somalia, poverty and destitution have become major problems.
- Poverty is significantly more widespread and severe in rural areas than in urban ones.
- Major changes in the political climate, upheavals and migration caused by civil conflict, and the increased frequency and severity of drought since recent years have all taken their toll on the Country's poor rural households and continue to affect them.

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- **Somalia has** huge potential for agricultural development.
- At present only about 25 percent of the country's is **cultivated, and agriculture is dominated by subsistence rainfed farming,** using few inputs and characterized by low productivity.
- These farmers are extremely vulnerable to external shocks such as volatile global markets and drought and other natural disasters.

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- **Smallholder farmers** form the largest group of poor people in Somalia.
- Most of smallholder farmers cultivate half plots **of 1 hectare or less** and struggle to produce enough food to feed their families.
- A large number of poor households face a prolonged hunger season during the pre-harvest period. **Herders, like farmers, are vulnerable to increasingly frequent drought,** which can wipe out their livestock and assets and bring on **severe poverty.**

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- The persistent lack of rainfall is a major factor in rural poverty. drought has become more frequent and severe throughout the country, and the trend shows signs of worsening.
- Drought-induced famines destroy the more vulnerable households living in the agro-pastoral areas of lowlands and the high-density parts of highlands.
- Limited managing mechanisms and inadequate planning for drought mitigation make farmers more vulnerable to its devastating effects (IFAD, 2011).

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- Drought and/or crop failures can easily result in widespread food shortages, household food Insecurity and famine.
- In addition to their vulnerability to climatic conditions, poor rural people lack basic social and economic infrastructure such as health and educational facilities, veterinary services and access to safe drinking water.

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- **The intensity of poverty varies** at the household level in relation to the land's size, quality and productivity, climate conditions and production technologies.
- **Households headed by women** are particularly vulnerable. Women are much less likely than men to receive an education or health benefits, or to have a voice in decisions affecting their lives.
- **For women, poverty means** more infant deaths, undernourished families, lack of education for children and other deprivations (UNDP, 2012).

## 1.4. Objectives of the study

- The general objective of the study is to “determinants of poverty in agro-pastoral households of Somalia”.
- **Specific objectives**
- 1. To assess poverty status of agro-pastoral households in the study area;
- 2. To estimate magnitude of poverty in agro-pastoral households in the study area;
- 3. To identify the determinants of poverty in agro-pastoral households in the study district.

## 1.5. Significance of the study

- The study area in particular has been facing poverty problem. Identifying and understanding factors that cause and perpetuate the problem **at the household level deserves rigorous empirical research.**
- This study will not only enrich poverty related information, but also will provide opportunities for households to effectively manage with poverty as well as generating information required for **policy design and intervention development, and implementation.**

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- Proper understanding of the factors affecting poverty is an essential **starting point and a key to the formulation of policies**, designing appropriate strategies and practical steps that the government can take in order to reduce poverty and promote sustainable growth.
- As a result, it is expected that an understanding of the patterns of poverty and the relationship between poverty
- and the socio-economic factors determinant poverty can provide the **necessary basis to develop appropriate policy and formulate intervention strategies**. It also contributes to the knowledge of poverty status of agro-pastoral and rural households.

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- Therefore, the outcome of this study would contribute towards perception of the extent of **poverty problems in the society, its distribution and underlying features**
- so as to help as base information in reducing poverty in the study area as well as areas with similar characteristics. Consequently, researchers, local government, non-government organizations and relevant stakeholders may benefit from the **result of the study to direct their efforts of alleviating poverty.**

# CHAPTER TWO

## 2. LITERATURE REVIEW

### □ 2.1. Concepts and Definitions of Poverty

- A glance at relevant literature shows that there is no consensus on any meaningful definition of poverty. **Many evidences suggest that poverty** is a multi-dimensional phenomenon. Poverty never results from the lack of one thing, but from many interlocking factors that cluster in poor people's experience. It encompasses not only low monetary income and consumption **but also low human development, such as** education, health and nutrition (UNDP, 2015).

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- It also goes beyond these dimensions to include vulnerability and powerlessness. Its perception varies by gender, age, culture and other social and economic contexts.
- Men may associate poverty with lack of assets, whereas for women poverty might be defined as lack of economic and physical access to sufficient food to lead a healthy productive life. Younger men consider generating an income as the most important asset, whereas older men cite as most important the status connected to traditional agriculture lifestyle (Aalen, 2015).

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- In general, poverty has a multi-dimensional facet and is not characterized only by income status of households or per capita food production but also by other non-monetary social dimensions.
- It is characterized by inadequate food and calorie intake and lack of access to health, nutrition, education, domestic water supply, and sanitation.
- Thus, poverty in general can be defined as to include all dimensions of the hardship people face in different income and employment categories (World Bank, 2000).

# CHAPTER THREE

## 3. RESEARCH METHODOLOGY

- The farming system in the district is characterized by agro-pastoral system. According to Westpac's identification of Somalia agricultural systems falls into the 4<sup>th</sup> class that can be sub classified into nomadic pastorals and agro-pastorals.
- Land use in this system is both for crop cultivation and grazing.
- The agro-climatic condition of the Somlia is favorable for growing diversified types of crops and different species of animals.

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- **Rainy season (Gu)** Cropping calendar for land preparation and planting comes amid **March** and end **May**.
- Both animal and tractor are used for land preparation also men play the role in land preparation.
- The dry season which locally is called **Jilal (December-March)** is the time for movement in search of pasture
- and water for the livestock and rainy season (**Deyr**) commence from **October up to December**.

## 3.2. The livestock production system

- Livestock plays a significant role in the agro-pastoral farming system of the study area. Livestock types kept by the farmers include camel, cattle, sheep, donkey and goats.
- Oxen are kept to provide draft power, cows to provide farm households with milk and butter for consumption and sale, donkeys for transporting goods, while sheep and goats are mainly kept for sale as well as for their meat.

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- The feed sources commonly used for livestock **include natural grazing and crop residues.**
- The contribution of natural pasture as sources of feed is very limited due to the extensive coverage of the land by crops; livestock rearing **is a source of income,** way of life and their prestige which is closely correlated with the size of their herd.
- They enlarge their herd when they have **surplus money** and convert it to cash when they need money.

### 3.3.Sampling Techniques

- Somalia is selected purposively as representative of the agro-pastoral households, since there exists huge number of agro-pastoral households in the district.
- In the process of selecting the sample, a multi-stage random sampling procedure was employed.
- The agro-pastoral **households in the Somalia** was conducted from sample and representatives sample agro-pastoral Households.

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- These were enable collection of wide range of information **by visiting the areas**, making dialogue with key informants, focus group and community discussions.
- Based on the information obtained and learnt experience from the informal survey, **questionnaire that** were used in the formal survey were drafted and structured.
- Moreover, **the questionnaires** were pre-tested for its appropriateness and further improved before it were use.

## 3.4. Sample size determination

- The existing literature debates on the issue of successful selection and determination of meaningful sample-size.
- Determining sample size varies for various types of research designs and there are several approaches in practice.
- Sample size determination is an important element in any survey research, although it is a difficult one.
- A Simplified formula for Proportions had been developed by Yamane was used to determine the sample size in this study. Accordingly, Yamane (1967:886) provides a simplified formula to calculate sample sizes.

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- Accordingly, Yamane (1967:886) provides a simplified formula to calculate sample sizes.
- $n = N / (1 + (N * e^2))$
- 
- Where:
- **N**= sample population
- **n**= sample size
- Where **e**= error of margins
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- Then according to the Yamane (1967) formula the sample size of 160 agro-pastoral households were selected randomly from the selected three agro-pastoral sample Somalia.
- **This sample size assumed** to enable us to gather richer data with regard to demographic, socio-economic behaviours, livelihood styles, environmental factors, traditional institutional setup and others. After having the total number of households in sample agro-pastoral Somalia.

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- Accordingly, the selected 160 sample households have been interviewed by used structured survey questionnaires, developed for the purpose.

### 3.3. Sources and Methods of Data Collection

- This survey was conducted primary data which collected by used questionnaires.
- This structured questionnaire were used to gather information on household income, expenditure, access to public services, farm and non-farm income, and household assets alongside a host of other information related to production and sale of agricultural products.

## 3.4. Method of Data analysis

- Data were analyzed Spss.
- Descriptive statistics like percentages mean values, frequencies, and chi-square were used.
- Research measures of poverty index and logistic regression model were used to achieve objective.

## 3.4.. Poverty index analytical model

- To attain the second objective, the FGT poverty measure that was introduced by (Foster, Greer, and Thorbecke, 1984).
- The first step was distinguishing **the poor and non poor**.
- In order to classify into two groups, demarcation points or line is required to be drawn to have single measuring standard **in poverty analysis**.

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- Based on this, **headcount index; the poverty gap index; and severity index** of Foster-Greer- Thorbecke (FGT) has been employed in this study.
- **Head Count Index (HCI):** This reflects the proportion of the poor in total population measuring the rate of poverty in the whole population.
- It is insensitive to the **depth or severity of poverty** and hence, not good to assess the impact of a policy measures. Head Count Index (HC) is defined as the proportion of the population **whose measured standard of living is less than the poverty line.**

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- The headcount index does not tell us whether the poor are **only slightly below the poverty line** or whether their consumption falls considerably short of the poverty line.
- **Poverty Gap Index (PGI)**: This estimates the average distance separating the poor from the poverty line.
- **The poverty gap** is understood as the amount of income transfer needed to close up the gap.
- This is sensitive to the depth of poverty but not to its severity.

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- **Severity of poverty:** This depicts the severity of poverty by assigning each individual a weight equal to his/her distance from the poverty line.
- Hence, this takes into account not only the distance separating the poor from the poverty line, but also the inequality among the poor. Therefore, as Sen (1976) stated to make PGI sensitive to the income inequality among the poor, the severity poverty index is specified.
- This poverty index, FGT gives greater emphasis to the poorest of the poor by weighting each poor person by the square of his/her proportionate shortfall below the poverty line.

## 3.5. Econometric model

- In order to address the third objective of this study the logistic regression model was employed to examine the influence of each factor on poverty.
- the logistic regression is best suited for the current study because the dependent variable is binary in nature, poor and non-poor.

## CHAPTER FOUR

### RESULT AND DISCUSSION

#### □ 4.1. Introduction

- In this chapter the survey data was analyzed by both **descriptive statistic and econometrics analysis techniques** to give empirical evidences for the basic research questions of this report and presents the results and findings of the research.

## 4.1. Poverty Line and Indices.

- The food poverty line used in this study was then calculated from the collected data taking and is found 450 dolar (Table 1).
- The non-food expenditure component is also calculated using the average food share of the lowest quartile households.
- The food share of the lowest quartile is found to be 59% percent. This figure is used to estimate an allowance of non-food expenditure and was found to be 200 and, therefore, gives a total poverty line of 450/yr/AE which is is 650 dollar per adult

# Food Consumption of the house hold and Value of Food Poverty Line.

Food Item	Mean Kcal /Kg/lt	Kg consumed/ day/AE	Kcal/ day/AE	Kcal Share(% ).	Kcal/day/AE needed(Brr)	Average price (Brr)	Price per kcall (Brr)	Food poverty line	Expenditure Share %
Sorghum	3805	0.109	416.047	0.265	584.924	8	0.00210	648.877	15.94
Maize	3751	0.08577	321.734	0.2056	452.329	9	0.00239	509.135	14.067
Rice	3923	0.02365	92.788	0.0592	130.452	18	0.04588	418.474	7.758
Wheat	3623	0.0385	139.778	0.0893	196.515	10	0.00276	300.979	7.0304
Meat	1148	0.00198	2.276	0.0145	3.20036	70	0.06097	1000	2.529
Milk	737	0.0321	23.692	0.0151	33.309	10	0.0135	164.966	5.858
Sugar	3850	0.1008	388.37	0.248	546..023	18	0.0046	1000.785	33.088
Salt	1780	0.0211	37.714	0.024	53.023	8	0.0044	86.982	3.088
Oil	8964	0.0158	141.85	0.0906	199.44	30	0.0033	243.62	8.6514
Egg	61	0.00909	0.5547	0.00035	0.7799	12	0.196	100.0021	1.988
<b>Total</b>			<b>1564.8</b>					<b>450</b>	<b>100.00</b>

## 4.3. Poverty and the Household Characteristics

- **4.3.1. Household family size in AE**
- The average family size of the study area With respect to the specific characteristics of poor and non-poor households as Table 3 shows the mean **family size of household head of the poor was found 3.8** with standard deviation of 0.098 and that of the **non-poor was found 7.11 accordingly** non poor households were more family members compared to the poor ones and statistically significant at 1%.

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Family size AE.	Poor(69)		Non poor(91)		Total(160)	
	No	Percent	No	Percent	No	Percent
<2.5	0	0	20	22	20	12.5
2.6-4.5	27	39.1	42	46.2	69	43.1
4.6-6.5	28	40.6	28	30.8	56	35
6.6-8.5	12	17.4	5	1.1	13	8.5
>8.6	2	2.9	0	0	2	1.2
Over all	69	100	91	100	160	100
Mean	3.8		7.11		2.42	
Std	0.89		0.79		0.858	
Test of Significance			t-value = 5.802		P-value =.000	

## 4.4. Age of the household head and poverty

- The age of the household head is among the important determinant factors of poverty.
- The mean age of the sample household heads was found to be 44 years, The young household head in this study was 20 whereas the old age was 60, The age of household head group ranging from 36–45 and 46-60 are dominant age of household head with 38.1% and 25% respectively.

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- With respect to the specific characteristics of poor and non-poor households as shown tables the mean age of household head of the poor was found 43.32 years with standard deviation of 10.66 and that of the non-poor was found 39.58 years with the standard deviation 13.297 accordingly non poorer households are headed by elderly persons compared to the poor ones and statistically significant at 5% probability level.

## Cont...

Age group	Poor(69)		Non poor(91)		Total(160)	
	No	Percent	No	Percent	No	Percent
15_25	8	11.6	11	11	18	11.2
26_35	12	17.4	14	15.4	26	16.2
36_45	20	29	41	45.1	61	38.1
46_60	20	29	21	23.1	41	25.6
>61	9	13	5	5.5	14	8.8
Over all	69	100	91	100	160	100
Mean	22.32		39.58		44.1	
Std	10.663		13.297		12.195	
	t-value = 1.451		P-value =0.0895			

## 4.5. Education level of household heads and poverty

- Regarding the Educational status of the household heads, the study result shows that most of the sample household heads are found to be illiterate, Almost 70.6% and only 26.2% sample households able to read and write. and it statistical significant shows at 5%.
- **As shown in the below Table moreover,** as there is no big gap between the poor and non-poor the Difference was that 69.6% and 71.4% of the poor and non-poor were illiterate respectively, showing that the poor are more illiterate than non-poor.
- Poverty and education are the wrong way round related while only 23.1 and 26.3 of the poor and non-poor are able to read and write respectively.

## Cont...

Educational level of household head	Poor (69)		Non poor(91)		Total (160)	
	No	Percent	No	Percent	No	Percent
Illiterate	48	65.6	65	71.4	113	70.6
read and write	18	23.1	24	26.3	42	26.2
Completedelementary school	3	4.3	2	2.2	5	3.1
Over all	69	100	91	100	160	100
Test of Significance	Chi2 = 4.764			Pr = 0.025		

## 4.6. Livestock Holding of the Household

- The average livestock holding of the sample household was found to be 4.71 per family.
- the mean ownership of the poor households was found to be 3.22 TLU whereas for the non poor the mean TLU ownership was found to be 5.47 TLU.
- And the standard deviation was 2.793, 6.989 for the poor of the households and non-poor respectively, There is a mean difference in TLU between the two groups
- and as expected the poor households have less TLU compared to non poor households and found statistically significant at less than 1% probability level.
- This indicates that poor households have less livestock number compared to the non-poor households in the study area.

## Cont...

TLU	Poor(69)		Non poor(91)		Total(160)	
	No	Percent	No	Percent	No	Percent
<1	9	13	7	7.7	37	29.60
1-2.49	6	8.7	6	6.6	20	16.00
2.5-3.99	10	14.5	6	6.6	16	12.80
4- 5.49	11	15.9	13	14.3	14	11.20
5.5- 7	10	14.5	19	20.9	16	12.80
7.5-10	4	5.8	12	13.2	22	17.60
>10	19	27.5	28	30.8		
Over all	69	100	91	100	161	100
Mean	3.22		5.47		4.71	
STD	2.793		6.989		2.011	

## 4.7. Sex of the Households

- As can be seen in table 8, 60.9% of the households are between poor and another side of the non-poor households are 53.8%. Similarly, the poor household of female are 36.1
- and non-poor of the households new 46.2 out of 160 counts of the household heads, 91 (56.9%) households are led by male and 69(43.1%) households by female.
- With respect to poverty status, 42 male-headed households are categorized under poor and only 49 female headed households are belong to non-poor category. And statistical analysis it is significant at 5%.

## 4.7. Sale of milk and poverty

- Milk was one of the **income sources** that these agro pastoralist get additional income to support their live as shown in the table most of sample households sale milk.
- these shows milk is important source of income. Out of total 160 samples 57.5% sale the milk, while 42.5% do between milk for various reason.
- Accordingly 43.5% of the poor household and 58.2% of the non poor household sale milk or get additional milk from sale of milk while 56.5% of the poor household and 41.8% of the non poor household do not sale milk.

## Cont...

Status of selling milk	poor (69)		non poor(91)		Total(160)	
	No	Percent	No	Percent	No	Percent
<b>Selling</b>	<b>39</b>	<b>43.5</b>	<b>53</b>	<b>58.2</b>	<b>92</b>	<b>57.5</b>
<b>not selling</b>	<b>30</b>	<b>56.5</b>	<b>38</b>	<b>41.8</b>	<b>33</b>	<b>42.5</b>
<b>Over all</b>	<b>69</b>	<b>100</b>	<b>91</b>	<b>100</b>	<b>160</b>	<b>100</b>
<b>Test of Significance</b>			<b>Chi2 = 1.516</b>		<b>p=0.892</b>	

## 4.8. Farm Land holding size Per Household

- Although the new land policy of the country, land is still owned by the households in these agro pastoral households' Land is sold, inherited and transferable as any other personal possessions.
- The size of farm is so vital for the betterment of the household's welfare. Farm is for productive asset for the farmers.
- A farmer without a farm is thus no more a farmer. The mean average of farm size is 2.50 Therefore; farm size is among the important factors that easily distinguishes the poor from the non-poor.

## Cont...

- On average 1.90 the poor households has 2.33 ha of the land and non-poor households respectively. Own this is line with the findings by Dercon, et al; (1996).
- The study confirmed that the poor cultivate less land and that poverty and land ownership is closely linked and it is statistically significant at 5% probability level.

## Cont...

Farm size per household	Poor(69)		Non poor(91)		Total (169)	
	No	Percent	No	Percent	No	Percent
0-1	31	44.9	24	26.4	55	34.4
1.1-2	27	39.1	41	45.1	68	42.5
2.1-3	4	5.8	11	12.1	15	9.4
3.1-4	3	4.3	7	7.7	10	6.2
4.1-5	2	2.9	3	3.3	5	3.1
>5.1	2	2.9	5	5.5	7	4.4
Over all	69	100	91	100	160	100
Mean	1.90		2.33		2.50	
Std	1.48		1.785		1.288	
Test of Significance		t-value = 2.014		pr= 0.046		

## 4.8. Grazing land of the sample households

- Grazing land is still owned by the households in these agro pastoral households' Land is sold, inherited and transferable as any other personal possessions. **the mean average of grazing size is 2.92.**
- Therefore, grazing land is among the important factors that easily distinguishes between poor and non poor while the some of the **grazing land they can be change in the cultivate land productive.**
- On average 2.67 the poor households has 2.85 ha of the land and non poor households respectively.
- While the Std is 1.31 and 1.42 for the poor and non poor respectively.

## 4.8. Grazing land of the sample households

Grazing land	Poor(69)		Non poor(91)		Total(160)	
	No	Percent	No	Percent	No	Percent
<1.5	13	18.5	20	22.2	33	20.6
2.6-4.5	27	38.6	23	25.6	50	31.2
4.6-6.5	8	11.5	12	13.5	20	12.5
6.6-8.5	15	21.4	21	22.2	35	21.9
>8.6	6	8.6	15	16.5	21	13.1
Over all	69	100	91	100	160	100
Mean	2.67		2.85		2.92	
Std	1.31		1.42		1.95	
Test of Significance		t-value = 0.235		P-value =.0403		

## 4.9. Dependency ratio and poverty

- Dependency ratio was hypothesized to be positively or directly related with poverty. So, households with large dependency ratio tend to be poor than those with small ratio.
- As it was hypothesized accordingly, but this turned that non poor households has larger Dependency Ratio compared to poor households with small ratio with mean of 1.90 and 3 of poor and non- poor and standard deviation is 0.805 and 0.973 of the poor and non-poor households respectively and shows statistically significant at 5%.

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Dependency ratio	Poor		Non poor		Total	
	NO	Percent	NO	Percent	NO	Percent
<1	31	44.9	34	37.4	65	40.6
1_2	24	34.8	27	29.7	51	31.5
>2	14	20.3	27	29.9	41	25.6
Over all	69	100	91	100	160	100
Mean	1.90		3		2	
Std	.805		.973		0.890	

Test of Significance

t-value = 1.842

Pr= 0.08

## 4.10. Non-farm income of the households

- Non-farm income represents the amount of **income received from** various income sources (in cash or in kind) by the head of the rural household or any of the household members **in the year in dollar**.
- Income generating activities and **opportunities** that bring various **income sources** are common practices of most households.
- In this regard, households who are engaged in such activities or receiving from remittances, renting of pack animals and other informal businesses would be better endowed with **additional income to meet their food** and non-food requirements. Hence, such income generating activities determines the poverty status of the household.

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- As a result, it is expected to have a negative impact on poverty. the mean amount of non-farm income of the poor household and non poor household found 492.61 and 734.05 respectively.
- Statistical also shown that there was mean income difference between the two groups as 5% probability level.

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Non-farm income (dolar/yr)	Poor(69)		Non poor (91)		Total(160)	
	No	Percent	NO	Percent	NO	Percent
Lessthan 500	34	49.3	51	56	85	53.1
5001-1000	20	29	26	28.6	46	28.8
1001-2000	11	15.9	10	11	21	23.1
Above 2000	4	5.8	4	4.4	8	5
Over all	69	100	91	100.00	160	100
Mean	492.61		734.05		629.93	
Std	459.883		945.469		781.55	
Test of Significance						
		t-value =	1.952	Pr=	0.053	

## 4.12. Access to credit services

Status of credit	poor (69)		non poor(91)		Total(160)	
	No	Percent	No	Percent	No	Percent
<b>Credit access</b>	37	53.6	56	61.5	93	58.1
<b>Credit not access</b>	32	46.4	35	38.5	67	41.9
<b>Over all</b>	69	100	91	100	160	100
<b>Test of Significance</b>	<b>Chi2 = 1.300</b>		<b>p=0.384</b>			

## Cont...

- As can be seen in the table 14, the credit available are 53.6% and 61.5% of the poor and non-poor of the households respectively, the households that are not available of the credit is 46.4% and 38.5% of the poor and non-poor households respectively.

## 4.13. Agricultural Input use and poverty

- Access to information or extension messages as well as various extension services was one of the determinant factors hypothesized to influence households' wellbeing. Extension is supposed to have a direct influence on the condition of the agro pastoralist community.
- When there is contact with extension agent, the greater is the possibilities of farmer being influenced to adopt agricultural innovations.

## Cont...

- Information sources available for farmers in the study area is only Development Agents (DA) Sample Respondents were interviewed to give their opinion how they got extension services and input such as use of fertilizers and improved seed and trainings Out of 160 respondents 64.4% are non users or are not able to obtain the various extension services while 24.4%, 8.8% and 1.9% are able to use and obtain fertilizers and improved seed and Herbicide and insecticide respectively.

## Cont...

Extension Services status	Poor(69)		Non -poor (91)		Total(160)	
	No	Percent	No	Percent	No	Percent
non users	44	68.8	59	64.8	103	64.4
Fertilizer	19	27.5	20	22	39	24.4
improved seeds	6	8.7	8	8.8	14	8.8
Herbicide	0	0	3	3.3	3	1.9
Insecticide	0	0	1	1.1	1	6
Over all	69		91	100	160	100

## Cont...

- As Table above shows Out of 160 , 27.5% and 8.7%, the sample groups obtain or use extension service such as fertilizers and improved seed respectively: 22 % , 8.8% and 3.3% and 1.1 of the non-poor obtain or use extension service such as fertilizers and improved seed and herbicide and insecticide respectively , while 68.8 and 64.8% of the poor and non-poor respectively.

## 4.14. Determinants of Poverty

- In this section, the selected explanatory variables were used to estimate the logistic regression model and to examine the determinants of household poverty.
- A logit model was fitted to estimate the effects of the hypothesized explanatory variables on the probabilities of being non poor or not.
- Data was subjected to STATA.10 to undertake the econometrics analysis.

## Cont...

- Prior to the estimation of **the model parameters**, it is crucial to look into the problem of multicollinearity or association among the potential candidate variables and heteroscedasticity (**variance of the dependent variable varies across the data**) to overcome the problem of heteroscedasticity. The remedial solution taken was regressing the variables with robust.
- The variance inflation factor (VIF) was used to test the degree of multicollinearity among the continuous variables.
- And contingency coefficients were computed to check for the degree of association among the **dummy variables**.

Cont...

Variable		VIF
DEPCY		1.01
TLUAE		1.02
FAMSIZE		1.03
HHFRSZE		1.02
HHAGE		1.03

## Cont...

- The values of VIF for continuous variables were found to be small (i.e. VIF values less than 10).
- To avoid serious problem of multicollinearity, it is quite essential to omit the variable with value 10 and more from the logit analysis. Based on the VIF result, the data have no problem of multicollinearity.
- As a result, all the 6 explanatory variables were retained and entered into logistic regression analysis.

## Cont...

- Also, the contingency coefficients, which show the association between various dummy variables, were computed in order to check the degree of association among the discrete variables.
- The values of contingency coefficient ranges between 0 and 1, with zero indicating no association **between the variables and values close to 1 indicating a high degree of association.**
- Accordingly, the results of the computation reveal there was no serious problem of association among dummy explanatory variables as the **contingency coefficients did not exceed 0.75, which is mostly taken as a cut-off point** hence all the 5 dummy variables were entered into logistic analysis.

**Table 18: Contingency Coefficients for Dummy Explanatory Variables**

<b>Variables</b>	<b>Milk</b>	<b>Non-farm</b>	<b>CRedit</b>
<b>HHsex</b>	<b>0.0738</b>	<b>0.0188</b>	<b>0.0740</b>
<b>HHED</b>	<b>0.0938</b>	<b>0.0391</b>	<b>0.0185</b>

## Cont...

- The variable POVSTAT (Household Poverty Status) was used as a dichotomous dependent variable, with an expected mean value of 1 indicating the probability of being poor and, 0 if non-poor.
- Eventually, a set of 11 explanatory variables (7 continuous variables and while 4 dummy) were included in the model and used in the logistic regression analysis.

## Cont...

- These variables were selected on the basis on theoretical explanations and the results of various empirical studies.
- To determine the best subset of the explanatory variables that are good predictors of the dependent variable, the logistic regression were estimated using the statistical software program (in this case STATA version 10).

## Table 20: Classification table

Observed		Predicted				
Poverty status		Poverty status		Percentage correct		
Poor	Non poor	Poor	Non poor	Poor	Non poor	Over all %
69	91	67	80	69.6	79.1	75.0

## Cont...

- This classification is the result of cross-classifying the outcome variable with a dichotomous variable whose values are derived from the estimated logistic probabilities. In this approach, estimated probabilities are used to predict group membership.
- Most probably, if the model predicts group membership accurately according to some criterion, then this is thought to provide evidence that the model fits.
- The model results show that the logistic regression model correctly predicted 75.5% of the total sample agro pastoralists to be 79.1% of non-poor and 69.6% poor groups.

# Result of Binary Logit Model Estimates

Variable	Coefficient	Robust Std. Err	Marginal effect	Wald static	p-value
FAMSIZE	1.863	0.351	-0.483548	28.197	0.000
HHLVTOCK	-0.201	0.104	-0.0545913	3.764	0.052
DEPCY	0.661	0.250	0.0752176	7.003	0.08
HHEDU	0.365	0.386	-0.362622	0.894	0.344
HHAGE	0.408	0.189	-0.0144856	4.644	0.031
HHSEX	-1.023	0.447	0.1393738	5.242	0.022
DSTMRK	-0.034	0.150	-0.0120237	0.053	0.819
HHFRSIZE	-0.587	0.201	-0.0445149	8.496	0.004
SALEMILK	0.055	0.418	-0.0274281	0.018	0.895
NON-FARMINC	-0.426	0.240	-0.0002135	3.151	0.076
CREDIT	0.509	0.413	-0.0015792	1.520	0.218
Constant	-2.647	1.523		2.998	0.083

## Cont...

- Among the 11 Variables considered in the model, 7 variables were found to be the determining factors of the level of poverty with up to different of probability level with their expected sign.
- **These variables include** family size ,number of livestock owned per adult equivalent , the hectars of farm owned per household, Non-farm income , Ages , Dependence ration,Sex ,Whereas, the remaining 4 explanatory variables) were found to have Statistically influence on poverty status of the households.

## Cont...

- **Family size (HHSZE):** This variable appeared highly significant in determining household's poverty in 1% probability level and has positive association with the household poverty.
- The positive relationship indicates that the odds ratio in favor of the probability of being non poor decreases or the probability of being poor increases with an increase in the family size.

## Cont...

- **Livestock owned (TLU):** herd size is negatively and significantly (at 1% significance level) related to the probability of being poor in the area.
- **The negative relationship** is explained by the fact that herd size being agro pastoralist's resource endowment, those sample agro pastoralists with large herd size have better chance to earn more income from livestock production.

## Cont...

- **Farm size (FRMSIZE):** Farm size was significantly in determining the **poverty status of the sample agro pastoral households**. As the findings suggests as the more hectares to cultivate the possibility that the Households being out of poverty at 5% significance level.
- **DEPENDENCY RATIO (DPDCERATIO):** it is hypothesized that the family with relatively large number of dependent family members (high dependency ratio) has a direct relation with household poverty status.
- A household with large economically non-active family members tend to be poorer than those households with small family size, because of high dependency load and As the findings suggests the possibility that the Households being out of poverty at 5% significance level.

## Cont...

- **Household non-farm income (HHnonfincm):** It represents the amount of various income received (in cash or in kind) by the head of the rural household or any of the household members in the year in dollar.
- Income generating activities and opportunities that bring various income sources are common practices of most households.

## Cont...

- **Sex of household head (Hhsex):** This refers to the role played by the male or female of the household head in generating income from different sources. It takes a value of 1 if the household head is male and 0 otherwise. **Male headed households are in a better position to pull more labour force together than the female headed ones.**
- **Age of Household Head:** This is a continuous explanatory variable designating age of the household head. The likelihood of being immersed into poverty **is inversely related to age.**
- As the age of the household head increases, the person is expected to acquire more experience and endowed with more assets.
- However, there also be an argument that as the age of the household heads increases there **is a probability of having large number of children which contribute to large family size.**

## CHAPTER FIVE

### 5.SUMMERY,CONCLUSION AND RECOMMENDATION

#### □ 5.1. **SUMMERY**

- The study made use of both **primary and secondary data**. Primary data was collected from sample heads of agro-pastoral households in Somalia from which information on demographic, economic and institutional aspects was obtained **through semi-structured survey questionnaires**.
- simple random sampling technique Somalia selected. the number of households in each would be different, 160 respondents (household heads) **were selected using probability proportionate to size**.

## Cont...

- In measuring poverty, consumption expenditure approach was used.
- After setting the poverty line by using cost of basic needs method, factors determining food poverty status were analyzed using descriptive statistics and econometric model.
- In the analysis of the data, the FGT poverty index (index developed by Foster, Greer, and Thorbecke) was used to attain the objective which is related intensity of agro-pastoral food poverty while to capture and identify determinants of food poverty in the study area logit binary model was employed.

□

## Cont...

- Accordingly, out of the total sampled agro-pastoral households 69 were poor, the remaining 91 were non-poor.
- The food poverty line was 450 per adult person per year.
- The three common poverty indices were found to be 0.431, 0.068 and 0.025 for head count, poverty gap and poverty severity, respectively

## 5.2. Conclusions

- **Cost of basic need** approach was used to calculate the poverty line .
- Accordingly the food poverty line was found to be 450 (59%) dolar per year per adult equivalent and an allowance for non food expenditure was found to be 200 dolar per year per adult equivalent **together made the total poverty line for the area to be 750 dolar per year per adult equivalent.**

## Cont...

- Following the identification of poverty line for the area, the FGT indices of poverty was used to identify the severity of poverty.
- The shows indices result shows that: head count ratio is 0.43125 implying that 43.125 .
- also the poverty gap index shows 0.068 implying that 68 percent of total consumption needed to bring the entire population to the poverty line and the poverty severity was found to be 0.025 which implies that 2.5 percent of the poor fall below the poverty line indicting the magnitude of the equality among the poor in the area.

## Cont...

- To identify the continuous and discrete potential candidate variables capable of affecting the poverty status in the Study area , logistic regression model was used.
- The model results reveal that among 11 explanatory variables included in the logistic model, 7 were found to be significant at different probability level in the Study area.

## Cont...

- The results from logit model reveal that TLU (LIVESTOCK) is important determinants affecting the state poverty and has shown negative impact and at 1% significant level which implies that the third most important factor was family size (HHFSZE) and has shown positive relation to poverty at 1% significant level, Farm size per adult equivalent (FRMSZE) was also shown at 1% significant level and has negative relation with poverty.

## 5.3. Recommendation.

- By looking critically for both approaches on **assessing poverty status and for identifying of determinants of poverty status of a HH in study areas**, the following are recommendations based on the research findings.
- Livestock rearing are dual in purpose, **for income** and food **sources**.
- These alternative potentials of the husbandry have found great importance (1% significance level) for a family from getting poor.
- **Projects like dairy cow credits**, sheep and goat credits, and fattening need to be supported with the husbandry skill and knowledge training for expansion on depth concepts livestock managements to increase family income.
- Managements of herds (stocking and restocking) and utilization of improved feed and fodders need to be given due attention.

## Cont...

- **Size of land of the household and food poverty** is negatively related indicating large farm size improves the well-being of farm households.
- **Even though land size** is one of the determinant factors of food poverty status, because of its limitedness of that there is no room for area expansion in most parts of the study area.
- **Improved agricultural technologies** that enhance the productivity of land per unit area should be developed and training of farmers on land management should be given a due emphasis.

## Cont...

- **As the result showed, off-farm income generating activities** also play an important supplementary role to enhance self-provisioning of agro-pastoral households.
- **In this regard, interventions like** capacity building, agricultural research, agricultural marketing and credit as well as infrastructures that enhance off farm activities in sustainable manner need to be designed.



**THE END**  
**THANK YOU**