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Topic

Poverty Determinants in Chivi District, Masvingo Province, Zimbabwe – An Application of Econometric Modeling Techniques on Household Data

by

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DECLARATION

I Phillip Chitsika National - ID- 12-064007- A- 12, of 17680 Budiriro 4, Zimbabwe, student ID R979467I do hereby solely declare that this work is result of my own effort without any plagiarising some other people ‘s work. I also unequivocally state that this work was never submitted partially or fully at any other academic institution for any other purpose. This work was done professionally in fulfillment of the requirements of University of Zimbabwe Masters in Economics Programme.

Signed at **Harare this day of 9 May 2015**

Student: Phillip Chitsika

Signature _____

Supervisor: Dr Clever Mumbengegwi

Signature _____

DEDICATION

This study is dedicated my late father Joramu Shandukurai Musiiwa and my mom Lucia, I will keep the promise.

ACKNOWLEDGEMENTS

I am greatly indebted to my Supervisor (Dr Clever Mumbengegwi) for his invaluable advice and guidance in writing this dissertation. I would also like to thank my wife Beatrice and my great friend Jameson Jabangwe for their helpful comments. I would like to thank all those who assisted with data collection Amon Muganda, Artwell Madhura and Munyaradzi Majange. The cooperation of all the villagers who participated in this survey is greatly appreciated. Amos Muganda and Lucky Alisa who assisted with data entry are also greatly appreciated. Above all I give all glory and honour to our Lord Jesus Christ.

ABSTRACT

There has been lack of consensus on the determinants of poverty at household level and previous studies in Chivi utilised descriptive statistics in analysing poverty which is not very useful in determining the probability of being poor of households. This study sought to establish the major demographic determinants of poverty, human capital determinants of poverty and agricultural assets that determine poverty utilising appropriate econometric modelling techniques.

This was a quasi-experimental research that utilises both qualitative and quantitative techniques to understand the major determinants of poverty at household level utilising the logit model. A questionnaire was the major research instrument that was used in the collection of data. The study followed the Basic Needs approach to poverty analysis and utilised the poverty lines to classify households into poverty categories.

The major demographic determinants of poverty were: household size that was positively associated with the probability of being poor; and age of household head that was negatively correlated with the probability of being poor. Education as measured by average years of schooling was the major human capital factor that was negatively associated with the probability of being poor. Cattle ownership was negatively associated with the probability of being poor as the major agricultural asset that determines poverty. Religion and geography were found to be significant determinants of poverty in Chivi.

The study recommends renewed focus on rural development with urgency and efficacy to increase labour productivity. It recommended that provision of draught power to the poor households in Chivi might help in increasing agricultural productivity. Maintenance of high levels of education is essential for effective transmission of agricultural technology to increase productivity in Chivi. This study suggested a multi-pronged approach to the fight against poverty that includes religious leaders. The study also suggested a livestock financing scheme for the poor to be championed by Banks and supported by Government. Government should seriously consider embarking community area re-orientation programme which has been on the cards for long.

Abbreviations

AIDS: Acquired Immune Deficiency Syndrome

CART: Classification and Regression Tree

DHSA: Demographic and Health Survey Data

EGPS: Expert Group on Poverty Statistics

ESAF: Enhanced Structural Adjustment Facility

FAO: Food Agricultural Organisation

FGT: Foster Greer Class of Poverty Measures

GDP: Gross Domestic Product

HDI: Human Development Index

HDI: Human Development Indices

HDR: Human Development Report

HIV: Human Immune Virus

HPI: Human Poverty Index

IDS: Institute of Development Studies

IMF: International Monetary Fund

MARS: Multiple Adaptive Regression Splines

MDG: Millennium Development Goal

MNEC: Malawi National Economic Council

NGO: Non-Governmental Organisation

NPSS: National Poverty Survey Study

PASS: Poverty Assessment Study Survey

PIH: Permanent Income Hypothesis

PRB: Population Reference Bureau

SAP: Structural Adjustment Programme

SLF: Sustainable Livelihood Framework

UNDP: United Nation Development Programme

UNICEF: United Nations Children Fund

UNMP: United Nations Millennium Project

WHO: World Health Organisation

ZEPARU: Zimbabwe Economic Policy Analysis and Research Unit

ZIMASSET: Zimbabwe Agenda for Sustainable Socio-Economic Transformation

ZIMSTATS: Zimbabwe National Statistics Agency

ZPAS: Zimbabwe Poverty Assessment Study

Chapter 1: Introduction and Background

1.0 Introduction

Chivi District is widely known anecdotally as the *home of poverty* and this has become a stylized fact in Zimbabwe. From time immemorial poverty has camped in the district and the situation has not improved from generation to generation. The district is well known for high poverty levels with 74% of the population classified as poor in 2003 and an unusually high Gini coefficient of 62% (Poverty Assessment Study Survey, 2003).

In the context of this study, poverty is defined as inability of households to meet minimum basic needs requirements both food and non-food (World Bank, 1990). To identify the poor a certain level of consumption expenditure referred to as a poverty line is used below which households are classified as poor (World Bank, 1990 and Ravallion, 1998). Poverty by its very nature is a dehumanizing and unacceptable condition of human race and is associated with lack of food and necessary income to meet other basic needs. It is a multidimensional condition in which one is in a state of perpetual want. It is often defined as deprivation of basic necessities and directly linked to inability to command requisite income for one to be able to meet the basic minimum requirements (World Bank, 1990 and Sen 2000).

This study utilized a poverty line derived from household consumption expenditures to classify households either as poor or non poor. The study took the view that poverty is time and space specific. While the concept of relative poverty is conceptually appealing, in the context of Chivi, the major concern is about absolute poverty. Most poverty theorists also argue that the concept of absolute poverty is more relevant to the problem of developing economies than relative poverty (Lanjouw, 1998; Mok, 2009; and Ravallion, 1998). Even though, this study utilised the concept of absolute poverty, the views of people of Chivi about poverty and how they defined and identified the poor was taken into account to further understand the determinants of poverty.

Interestingly, many views on poverty in Chivi were centered on geography as the main cause of poverty (Cavendish, 1999; and Bird & Shephard, 2003). Most of the families that resettled in present day Chivi were displaced from better places as a result of Land Apportionment Act. It is therefore not surprising that Chivi, as with most communal areas is known as the area of low natural capital, with two thirds of the land lying in natural region V and the rest lying in natural

region IV. Chivi often suffers from persistent droughts, with erratic rainfall patterns often punctuated with severe mid-season dry spells characteristic of the ecological region in which it lies.

Since this study focused on Chivi, the geographical factor as the main determinant of poverty was controlled, and the focus was to establish the other determinants of poverty at household level. The major question that sought to be addressed by this study was whether there were any other household level factors that determined poverty in Chivi district. There are people in some parts of Zimbabwe in worse geographical situations than Chivi, like flood prone Muzarabani in Mount Darwin which had a poverty incidence of 45% in 2003 and Tsetse infested Kariba which had poverty incidence of 69% but their situation are better off as compared to Chivi which had had a poverty incidence of 74% in 2003 (PASS, 2003).

This research is of benefit to those who would want to address poverty in such areas as Chivi. The contention of this study was that the scourge of poverty cannot be fully addressed unless the underlying determinants were understood. It further contended that full appreciation and understanding of the poverty determinants in Chivi gives useful policy insights for poverty reduction strategies. Most studies that were done on Chivi poverty situation were comparative and they failed to capture the household level determinants of poverty.

Poverty phenomenon is complex, therefore no one methodology would have been sufficient to fully understand the phenomenon, therefore a hybrid of methodology to identify and analyse the poor was more appropriate. The study utilized the quantitative techniques in analysing the household consumption levels and utilized qualitative methods to understand the subjective issues regarding poverty determinants. The study also contributed to existing body of knowledge on poverty measurement, analysis and econometric modeling of poverty.

1.1 Background to the Study

Chivi is a rural district in Masvingo province in Zimbabwe located in one of the semi-arid regions with sandy and sandy loam soils. Studies on poverty profiling have established that it is a high poverty district whose economic system is configured in the mold of Rostow (1960) traditional society where household rely on dry land agriculture, gardening, livestock production

woodlands activities and remittances/ gifts (Zimstat, 2003a, Campbell, Luckert and Mutamba, 2003).

Moreover, studies have shown that the district usually suffer from a five year drought cycle increasing the vulnerability of households to poverty and hunger (Bird and Shephard, 2003).

Population growth in Zimbabwe has exerted pressure on public infrastructure leading to increasing homelessness, food shortages and lack of portable water that culminated into cholera outbreak leading to 98 592 infected and 4288 deaths between August 2008 and July 2009 (WHO,2009). The Population of Chivi is reported to have reached 166 049 in 2012 which is in line with the national trend in population increase representing a 7% intercensal population increase from 155 442 in 2002 (Zimstat, 2002 and 2012).

Some of the people in Chivi were settled through the Land Apportionment Act (1930) and Land Tenure Act (1969) which were segregation pieces of legislation instituted by the white colonial regime to maintain white minority interests. Therefore, poverty in present day Chivi can possibly be traced to colonial segregation land policies and is not as a result of misfortune but a systematic alienation a view shared by the proponents of dependency theory (Frank, 1969 and Baran, 1957). However, this study takes the view that history alone cannot possibly explain the all the root causes of poverty, hence the need to entangle the household level determinants.

Poverty in Chivi district increased from 25% in 1995 to 74% in 2003 becoming one of the high poverty districts in Masvingo province (Poverty Assessment Study Survey (PASS), 2003). Zimstats (2013a) showed that Zimbabwe continued to have high poverty with poverty studies showing that in 2012, 72.3% of population was deemed poor, 70.9%- in 2001 and 55% in 1995 as shown in Table 1.1. Levels of extreme poverty rose from 29% among the population in 1995 to a peak of 58% in 2003 at the onset of Zimbabwe's economic crisis as shown in Table 1.1.

Table 1.1: Poverty Situation in Zimbabwe, 1995, 2001, 2003, 2011/12, (Zimstats, PASS I and PASS II)

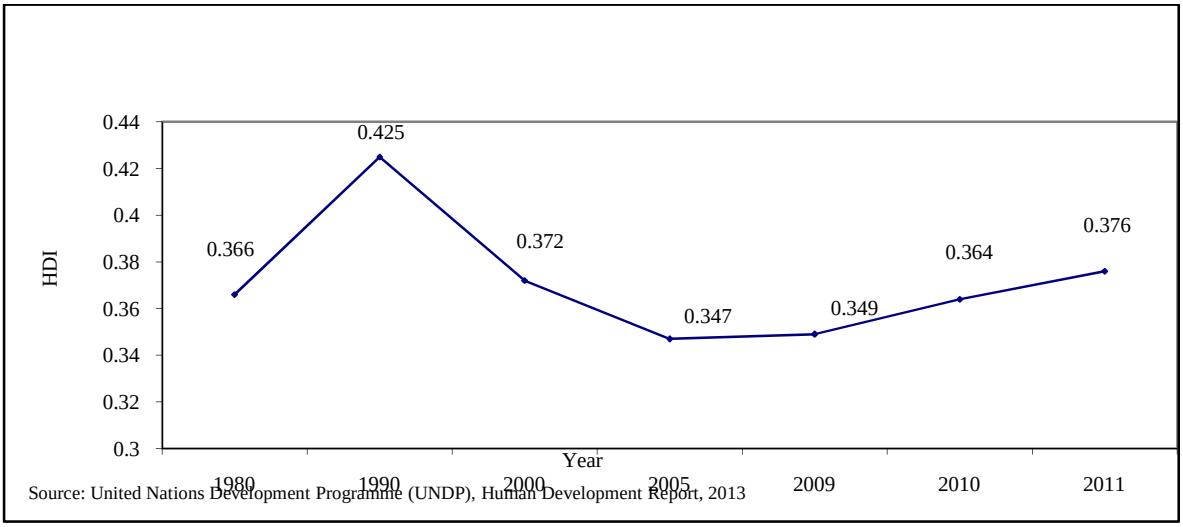
	1995 %		2001 %		2003 %		2011 %	
Persons living below the:	***Households***	***Pop***	***Households***	***Pop***	***Households***	***Pop***	***Households***	***Pop***
Food Poverty line	20	29	32.2	41.5	48	58	16.2	22.5
Total Consumption Poverty Line	42	55	60.6	70.9	63	72	62.6	72.3

Poverty among the Zimbabwean population remained very high at about 72.3% in 2011 reflective of difficult macroeconomic environment and low levels of formal employment. Parts of Chivi district are located along the Harare-Beitbridge highway and poverty manifested itself through people who were engaged in vending along the highway to supplement their meager income.

Globally poverty statistics make a startling revelation with one billion people living in abject poverty (less than a dollar a day); six million children die of malnutrition every year; and a staggering one billion has no access to clean water (UN Millennium Project, 2002). It is feared that more and more households are getting into poverty as many people are moving out of formal employment getting into informal employment and the country is facing widespread poverty (IMF Article IV, March 2014). Zimbabwe's economic fortunes have turned for worse with de-industrialization leading to people turning to survivalist type of activities in the informal sector.

Zimbabwe Human Development Index (HDI) has been showing low levels of human development since 1980 as shown by Figure 1.1.

Figure 1.1: Human Development Indices (HDI), Zimbabwe 1980-2011



Source: United Nations Development Programme (UNDP), Human Development Report, 2013

The trend of the Human Development has been mimicking the country economic development with high economic growth giving rise to high levels of HDI.

Table 1.2: Gini Coefficient for Districts in Masvingo Province, 1995 and 2003. (PASS, 2003).

District	1995	2003	Percentage Change
Bikita	0.36	0.44	21
Chiredzi	0.50	0.56	13
Chivi	0.39	0.62	59
Gutu	0.39	0.60	55
Masvingo Rural	0.35	0.52	47
Mwenezi	0.40	0.51	26
Zaka	0.39	0.48	22

In Zimbabwe inequality as measured by the Gini Coefficient increased from 0.53 in 1995 to 0.61 in 2003 (PASS, 2003). However, Chivi district's Gini coefficient was 62% which was the highest in the province and higher than the country's average in 2003. It is quite surprising to

find such levels of inequality in a rural setting. This might depict different capabilities among inhabitants in the area which might be an important determinant of poverty in Chivi.

1.2 Statement of the Problem

Poverty in Chivi has been attributed to poor climatic conditions and poor soil conditions in some parts of the district (Bird and Shephard, 2003; Dhliwayo, 2011, Manzungu and Mtali, 2012). While it is an undeniable fact that poverty is highly correlated to geography, it is also an indication that individuals have not succeeded to adopt risk-mitigation strategies to deal with the calamities they face. The major determinants of poverty at household level in Chivi remained obscure and not fully explained.

While most studies are unanimous that poverty in Chivi is fully explained by geography, this study appealed to household economics and consumer welfare economics to fully understand the determinants of poverty at household level. Since this study was focusing on the absolute poverty concept and relied on consumption expenditure it utilized consumer theory to fully investigate the determinants of poverty in Chivi. Most studies have focused on factors such as remoteness, quality of governance, property rights, availability of infrastructure and availability of services as determinants of poverty in regions this study went further to understand the demographic factors, economic factors and human capital factors at microeconomic level that determine poverty in Chivi district.

There is lack of consensus on which human capital factors determine household poverty and in what direction. While Malthusian theory reasoning avers that relatively large households are likely to be associated with high poverty levels, the Drugery Aversion theory postulates that peasants like the ones in Chivi, rely solely on family labour for production hence larger family tend to have higher levels of income. This suggests that household size is negatively associated with poverty according to Drugery Aversion theory. Moreover, a study by Cavendish (1999) concluded that the relationship between poverty and household size is not clear whether it is linear or in quadratic form.

When it comes to household demographic characteristics their relationships with poverty is not obvious and they vary from place to place. There is no consensus on which demographic factors impact on poverty and how they determine household poverty. For instance, while in Cambodia

female headed households are no more likely to be in poverty than male headed ones, in Zimbabwe female headed households were found to be poorer than male headed ones (World Bank, 2005 and PASS, 2003). It is in the context of these seeming contradictions that this study was carried out.

In many rural settings ownership of agricultural assets remains important in determining the household poverty status. It remains a contention as to which agricultural assets are critical in determining poverty status of households in drought prone areas like Chivi. Given the incessant droughts in the area there are doubts if ownership of agricultural assets is critical in determining poverty status of the household. Given the assumed failure of most agricultural enterprises it is interesting to establish if there are any agricultural assets that determine poverty in Chivi district.

1.3 Overall Objective

The study sought to establish what determines poverty in Chivi district.

1.3.1 Specific Objectives

The research sought to establish:

1. The major demographic factors that determine poverty in Chivi district;
2. The major human capital factors that determine poverty in Chivi district; and
3. The agricultural assets that determine poverty in Chivi district.

1.4 Research Questions

The major questions that this research seeks to answer include:

1. What are the major demographic factors that determine poverty?
2. What are the major human capital factors that determine poverty?
3. Which agricultural assets determine poverty?

1.4.1 Research Hypothesis

The research was based on the following hypotheses:

1. Households with aged household heads are more likely to be poor than those with relatively younger households heads;
2. Female headed households are more likely to be poor than male headed households;

3. Households with large number of members are more likely to be poor than smaller households;
4. The higher the household dependency ratio the higher the poverty of that household;
5. The higher the employment dependency ratio the higher the poverty of that household;
6. Households with higher level of education are less likely to be poor than households with lower levels of education; and
7. Households with ownership of four or more cattle are less likely to be poor than those without ownership.

1.5 Significance of the Study

This study added value to the subject of determinants of poverty in rural areas focusing on household characteristics and other broad areas of rural development at theoretical as well as methodological level. It aimed at policy makers to extrapolate the probability of being poor given certain household characteristics which is quite essential for targeting households for interventions. It also shaded light on the effectiveness of the poverty alleviation initiatives being implemented in Chivi district.

The study suggested determinants of poverty in rural areas singling out relevant household characteristics and enhance deeper understanding of poverty in a rural setting. Moreover, some of the studies of poverty that were done in Chivi were done more than ten years ago; therefore this study gave more current statistics of poverty situation in Chivi. It is one of the first poverty studies to be done in Chivi since the country adopted the multicurrency policy environment. It shaded more light on the current causes of poverty given changes that have taken place since the last studies were done.

Understanding of the microeconomic determinants of rural poverty enables policy makers to design and implement poverty alleviation strategies. The study was very useful for evaluation of ongoing poverty alleviation measures in Chivi and also measuring the efficacy of some of the strategies already implemented. Without fully understanding the determinants of poverty, interventions will be misdirected and become less effective in decreasing poverty.

The study contributed to the proposed solution to the enduring problem of poverty in rural areas and the policy makers will find it useful as it combined the voices of the poor with econometric

analysis to find the determinants of poverty. It also gave an updated profile of poverty prevalence in Chivi district.

1.6 Methodology

1.6.1 Theoretical Framework

The study utilized the Absolute Poverty concept in determining the poor households in Chivi. Though the concept of relative poverty is conceptually appealing, it tends to be more comparative in nature hence only useful to show inequality in a community. The concept of poverty taken in this study followed the Basic Needs approach which is in line with Becker's Household Production theory that is premised on the household utility function aimed at satisfying basic needs (Becker, 1965). This study also utilized the Capability approach as it is more encompassing and includes a vector of possible opportunities available to an individual in a particular state (Sen, 2000).

This study took the view that rural households in Chivi depended more on household own production therefore ownership of agricultural assets is an important determinant of poverty as postulated in the Ironmonger's Household Production Theory (Ironmonger, 2001). As also pointed out in the Farm Household Theory this study acknowledges that sources of rural household income include own production and sale of its labour. It is in this view that employment status and dependency ratio were regarded important determinants of poverty.

1.6.2 The Data

Interviews were carried out to collect household consumption data and household incomes through a representative sample. Data on household characteristics, household members' level of education, household members health status, employment activities, household consumption expenditure, housing amenities, agricultural activities and household members poverty perceptions was collected. Data was also collected for prices of food items at nearest service centres.

1.6.3 Empirical Methods

The study utilized the Logit model to determine the significant determinants of poverty. The model was settled on due to its predictive power and ability to deal with dichotomous variables.

1.7 Scope of the Study

The study focuses on Chivi district in Masvingo in 2015. The study aimed at establishing the determinants of poverty at household level. It utilized microeconomics tools to analyse household characteristics that determine poverty. The study was also aimed at updating the poverty profile in Chivi since the previous studies were carried out more than 10 years ago. This study offered a view on the determinants of poverty at a particular point in time and can provide useful insights for other rural areas with similar geographical characteristics.

1.8 Organisation of the Study

This Chapter presented the introduction to the study, background, statement of the problem, objectives of the study, research questions, research hypothesis, and significance of the study, theoretical framework, the data sources, empirical methods and scope of the study. Chapter 2 focuses on literature review while Chapter 3 focuses on methodology. The estimation of the model and interpretation of the results are dealt with in Chapter 4 and Chapter 5 presents summary results and policy recommendations.

Chapter 2: Literature Review

2.0 Introduction

This chapter engages literature by appealing to both theory and empirical studies on various themes on the determinants of poverty. Poverty is established to be multidimensional and tends to have many faces from time to time and place to place hence the need to have a clear understanding of the phenomenon for clear understanding of its determinants. While in the developed world prominence is given to subjective and relative poverty, the major worry in most developing countries is the absolute poverty (Lanjouw, 1998), Mok, 2009 and Ravallion, 1998). It is for the reason cited above that this study focused on absolute poverty anchoring on the Basic Needs approach and the quantitative or money metric poverty measures to identify the poor in Chivi.

Theories on the causes of poverty emphasize the exogenous and endogenous causes of poverty. This study took the view that mankind cannot remain hostage to their past but should take responsibility, therefore the determinants of poverty are located in the household. The view above is supported by Rostow (1960) theories of growth that locate poverty determinants in individual capabilities, customs and practices. However the dependency theory of development that favors the exogenous causes of poverty usually focuses on macroeconomic factors that determine poverty that include political relations, drought and geography. This study is being carried in an area where people are facing the same geographical conditions, same historical background and the same climatic conditions. However, the way these impact on these households differ depending on individual household characteristic and command of resources. Therefore, this study focused on microeconomic level determinants of poverty.

2.1 Poverty Concepts

Poverty is inability by individuals to attain a minimum standard of living as measured by an objectively derived poverty line that takes consumption patterns of the poor into consideration. It is often defined as deprivation of basic necessities and is directly linked to inability to command requisite income for one to be able to meet the basic minimum requirements. This is a money-metric quantitative measure of poverty. This conceptualization of poverty locates poverty at a

household level therefore is in line with the analytical framework adopted for this study. It is the same concept of poverty utilized by Zimstats (2013a) and PASS (2003). Poverty in essence is inability of the family's total income/ earning to meet the minimum basic requirements for merely physical efficiency (food clothing, shelter needful for maintenance of mere physical health) (Rowtree, 1901). This is supported by the World Bank (1990) that asserts that poverty is inability to attain a minimum standard of living interpreted to include consumption of food, clothing and shelter, but also access to education and health.

However, there is consensus that poverty is a multidimensional condition in which one is in a state of perpetual want. It entails lack of access to productive assets, and lack of income resulting in deprivation, vulnerability and powerlessness. Poverty manifestation include: hunger, malnutrition, ill-health, low education levels, lack of access to health care, lack of access to: safe housing; water; sanitation and decent employment (UNICEF, 2014, p3).

It can be argued that poverty is complex, social in nature with many variants and its roots are varied depending on the situation (Blank, 2003; Shaw, 1996, in Bradshaw, 2006). This is an extension of the money-metric measure of poverty to include other social needs like freedom, access to information and human rights. In light of this poverty is conceived as lack of sufficient economic capabilities to engage in a set of basic, fundamental human social activities that defines what it means to live as a human being in a particular place and time (Lotter, 2007: p 1209). It also includes experiences of economic, political and social discrimination and disempowerment. While this socially oriented definition of poverty has gained traction in the poverty discourse it mainly fits the qualitative analytical framework as assessment of some of the elements like human rights is subjective and highly contentious.

The qualitative concept of poverty provides deeper insights on why the poor are finding it difficult to come out of poverty. In Lesotho, qualitative poverty is defined as powerlessness and exclusion, resulting in the denial of access to human needs and lack of capacity to influence the direction of one's life (Kingdom of Lesotho, 2003: 12 in Blignaut and Ueckermann, 2005). The World Bank (2000: 12) in (Blignaut and Ueckman, 2005) also argues that qualitative poverty entails voicelessness and powerlessness leading to higher levels of vulnerability to exogenous shocks and inability to deal with them. The qualitative concept of poverty is akin to the capabilities concept of poverty that contends that poverty deprives individuals of their

capabilities and capacity to fulfill their rights and achieve their maximum human potential to meaningfully contribute to the country's development agenda (Sen, 2000). The qualitative concept of poverty gives an important framework for the understanding of macroeconomic factors that impact on households, however, in this study we go further to ask why are households powerless and why are they vulnerable.

The definition of poverty adopted in this study follows absolute poverty concept where poverty is conceptualized as inability to: command resources and income to live an integrated life; and to meet predetermined minimum requirements. This is a money metric measure of poverty and follows the basic needs approach to poverty. The absolute poverty definition just like the basic needs approach focuses on such basic needs like: nutrition; shelter and health (Brynard, 2011). These basic needs with time have been broadened to include education, security and leisure. A cost is put to each of these needs and the total is then termed the poverty line. There is debate however on what constitute these minimum requirements or the basic needs. This study adopted the WHO standards and UNDP standards for the definition of the minimum requirements for individuals to live a health and safe life.

Critics have often questioned the non uniformity of basic needs as there are variations of diets, shelter, security, leisure and recreation, depending on the diversity of cultures and modes of production, and the degree of socio-cultural change towards modernity and globalization (Njeru, 2004). This has been resolved by acknowledging that poverty line should be specific to time, place and communities. This study derived poverty lines taking into consideration the consumption patterns of the poor in Chivi and their local conditions. It is in light of this argument that the use of poverty lines derived from other surveys and or prescribed is discounted.

Some authors have taken the view that poverty should be looked in relative terms not in absolute terms. Relative poverty refers to the inability to keep up with standards of the high income group and in essence it is a measure of inequality. Relative poverty falls within comparative analysis where members of society determine what they refer to as an acceptable standard of living. Anyone who falls below that standard of living is referred to as poor. However, this is a very elastic measure of poverty because in this instance poverty standards changes over places making it difficult to compare poverty levels of different regions. It is very difficult to compare

communities based on this measure because what is termed acceptable differs from place to place depending on socio-economic and cultural realities. This measure is important in so far as it recognises that poverty can be viewed from a community perspective, however, it offers very little from a national policy perspective and guiding poverty interventions. As pointed by Mok (2009), most researchers see the efficacy of absolute poverty line in identification of the poor who could not afford a minimum standard of living. The relative poverty line is mainly concerned with dealing with inequalities in a society and is much more relevant in developed countries a view echoed by Lanjouw (1998), Mok (2009) and Ravallion (1998).

Akin to the concept of relative poverty is the subjective poverty that incorporates individual feelings into the determination of poverty. This is a qualitative measure of poverty where one can only be deemed poor if he feels that he is poor. In reality even those classified under absolute poverty to be better off would consider themselves as poor in a relative sense. This measure usually underestimates poverty in rural areas and overestimates poverty in urban areas. Typically in urban areas people aspire for more luxury while most rural dwellers are contended with the barest minimum. The subjective poverty is not very useful in bringing out the determinants of poverty at household level. Furthermore, Lanjouw (1998) argued that setting of a relative poverty line is arbitrary and that using the relative poverty line one cannot compare poverty incidences across regions and over time.

As already pointed out this study utilised the absolute poverty definition for econometric analysis and poverty profiling for Chivi district. The money metric measure is preferred because it is objective. In the discussion of the causes of poverty the capabilities dimension of poverty and the relative poverty will be considered.

2.2 Poverty Measurement and Poverty Lines

2.2.1 Classification of Households

This study utilised poverty lines to classify households into either poor or non-poor as already discussed. A poverty line refers to the minimum threshold of consumption expenditure or income below which one is classified as poor. This threshold varies from place to place and from time to time reflective of the time value of money and transaction costs and also prevailing institutions.

The poverty line is often linked to the minimum food requirements as proposed by Ravallion (1998). The Food and Agricultural Ogranisation (FAO) recommends an intake of 2100 kilo calories per day for an individual a standard also adopted by WHO and UNDP. A poverty line can be construed as a level on the consumer's expenditure function which gives the household's minimum cost at a given level of: utility; prices; and household characteristics (ibid). This practice is attributed to Booth (1889) and Rowntree (1901) in Chaudhry, Malik and Hassan (2009), who utilized the budget standards or minimum needs approach in setting poverty lines. Poverty lines therefore put a demarcation between the poor and the non-poor. A household, whose income / consumption expenditure is equal to or above the poverty line, is classified non-poor while that below is classified poor. In poverty analysis usually a third category is added which is called very poor to refer to those households whose total consumption expenditure is below the food poverty line see PASS reports, in other reports these are termed chronic poor (Bird and Shepherd, 2003).

2.2.2 Measurement of Consumer Welfare

This study utilised the consumption expenditure to measure the consumer welfare. On measuring poverty, usually consumption expenditure is preferred to income based on the permanent income hypothesis that suggests that consumption is smoothed over time though incomes face fluctuations. Usually there is also tendency by households to under report their incomes and practice have shown that consumption is easier to recall and report (Mok, 2009, Ravallion, 1998, Deaton, 1997). Gibson (2005) in Mok (2009) noted that income measures miss the poor's long term characteristics especially those engaged in subsistence seasonal activities like agriculture but the household consumption level might stay to its long run average. This study was based on a rural area; therefore, it adopted the consumption expenditure as a measure of welfare.

This study utilised the per-capita measure of consumption to allow comparison of households with different sizes. There has been debate over how welfare is distributed in households, with many scholars on poverty casting doubt on the per-capita as an appropriate measure of household consumption (Deaton, 1997). Haddad and Kanbur (1990) argue that the per-capita measure assumes equal division of consumption among household members understating heterogeneity of consumption among household members thereby understating poverty. However, Deaton (1997) argues that per-capita expenditure allocates too little to adults especially if the household has

many children and adult manual labourers. Moreover, it is argued that there are economies of scale that accrued as a result of a larger household in terms of gains accrued from purchasing in bulk and housing many people. This has given rise to the proposal that there should be use of adult equivalence scales or economies of scale as it tends to cost less to feed many people and house many people cost relatively less per person. However, it is argued that the equivalence scales are usually a result of consensus among experts than a result rigorous econometric modeling that reflect heterogeneous nature of families, (Expert Group on Poverty Statics, 2006) .

Lanjouw (1998) argued that there is extensive literature on rules to allocate household expenditure based on household member characteristics with inclination to allocate high weight to adults based on calorific requirements. However, it is argued that the fact that adults require more energy than children for instance does not necessarily means that their consumption expenditure is higher. As usually observed young children have more needs which might be more expensive than the adults for instance medical needs and education. Some have suggested equivalence scales based on observed allocations which in themselves carry biases in the household not necessarily a reflection of preferences. A study done by Hentschel and Lanjouw (1995) focusing on the impact of introducing equivalence scales on poverty profile, came to the conclusion that the poverty profile changes very little even though the adjustment associated with the different equivalence scales are minor and for Ecuador data: conclusion reached on the basis of an analysis of percapita consumption were the same as when the three equivalence scales were applied (Lanjouw, 1998). Therefore, for the study in Chivi the per-capita measure of household expenditure was utilised for derivation of poverty lines.

2.2.3 Poverty Line Derivation

Most approaches to poverty analysis have utilised a poverty line for poverty profiling and econometric analysis (Bidani, Datt and Lanjouw, 2001 and Lanjouw, 1998). Poverty lines have proved their efficacy in: monitoring poverty across population groups, regions and from time to time; profiling the poor; becoming a threshold of entitlements and becoming a focus for public debate (Lanjouw, 1998 and Bidani, Datt and Lanjouw, 2001). As already discussed the subjective methods of identification of the poor have proved to be less useful for comparison and policy formulation aimed at poverty alleviation.

In this study food poverty line is derived taking the consumption patterns of the poor into consideration. This follows the cost of basic needs methodology to obtain a food poverty line. Mok (2009) argues that policy makers seem to favor the cost of basic needs approach to poverty as proposed by Rowntree (1901). The poverty line is set by estimating the least cost food basket that meets the minimum food requirements plus the cost of non-food. The food basket can be determined by obtaining a commonly consumed basket that yields the minimum nutritional requirements. This can then be costed using local prices to obtain the poverty lines. Alternatively the food basket can be obtained using the reference group which usually refers to the bottom deciles of the population consistent with the consumption patterns of the poor and their preferences. The selection of this group allows excluding luxuries from calculating poverty lines in line with the rationality assumption and hierarchy of needs theory. Ravallion and Bidani (1994) estimated the cost of food basket for poverty lines in Indonesia based on the consumption pattern of the lowest 15% of the households ranked by expenditure per-capita (Mok, 2009).

However there are other methods that are proposed in literature for derivation of the food poverty line that include the food energy intake method and the direct calorie intake method. The food energy intake method improves on the initial method proposed by Greer and Thorbecke (1986) by putting the predetermined caloric value in monetary terms than nutritional value per se. This method suffers from the weakness that it does not take the consumption patterns of the poor into consideration and it is prescriptive in nature. The direct calorie intake method just compares the per-capita energy intake against the standard energy requirements. Even the direct calorie intake method is discounted since it is construed to be a measure of malnutrition than poverty (Mok, 2009).

The total non-food expenditure of those whose food expenditures are equal to the food poverty line is added to the food poverty line to give the Traditional poverty line. This method follows a suggestion by Ravallion (1998) and has found many takers because it takes into account the consumption patterns of the poor. This study followed this method due to its soundness and it is the one which was followed in PASS (2003). This would allow comparability of the studies. This approach as suggested by Lanjouw (1998) and Ravalion (1998) has basically two methods the “Traditional and Austere” giving rise to what is termed the Traditional poverty line and the Austere poverty line respectively.

The Traditional Poverty line is obtained by scaling up the food poverty line using the non-food expenditure of people whose food expenditure is equal to the poverty line. The Austere Poverty line is obtained by scaling up the food poverty line with non-food expenditure of people whose total expenditure is equal to the food poverty line. Ravallion (1998) argued that if a person gives up food to spend on non-food that expenditure should be considered "basic non-food". It is therefore expected that the Traditional Poverty line overstates the poverty level since for the person who has already satisfied the basic food requirements; any expenditure on non-food goods must exceed basic non-food requirements (Ravallion, 1998). This study will calculate both the Traditional and Austere poverty lines being the upper and lower limits respectively (Ravallion, 1995). Using the Traditional poverty line is prudent from policy perspective because poverty is not underestimated.

Estimation of the non-food component has not been without controversy as various analyst proposed varied methodology. One way which has been adopted in practice to deal with non-food items was to chose a basket of non-food items and cost them to come up with the contribution of non-food items. This methods has been used in Uzbekistan poverty lines but has been discredited because of its arbitrariness with regards to the choice of the type and quality of goods to be included in the basket (Lanjouw, 1998 and Mok, 2009). Others have proposed that the non-food component by obtaining the proportion of non-food component at mean consumption, then scale up the food poverty line using this proportion (Orshansky, 1963 in Mok (2009). Others like, Deaton (1997) was critical of the methodology because it did not take consumption pattern of the poor into account, however it was accepted then because it yielded poverty line that was nearer to the estimated that was used by the USA government then (Mok, 2009).

Studies done in Parkistani have shown that while there are differences in scaling up the food poverty line the results were not significantly different (Lanjouw, 1998). This shows that methods were chosen not because of the poverty profiles they will yield but because of the plausibility of the underlying assumptions. This study recognised these different methods of coming up with poverty lines but due to the arguments already proffered the "Traditional and Austere" poverty lines were calculated.

Constructing of a poverty line allows for further analysis of poverty coming up with poverty incidences, depth and poverty severity following the Greer and Thorbecke (1986) class of measures. The class of measures includes the poverty incidence, poverty gap and poverty severity. Poverty incidence refers to the percentage of households below poverty line or the head count index while the poverty gap refers to the amount of transfer that is required to take the poor out poverty and the poverty severity index measures inequality among the poor.

This is represented by $P_\alpha = \sum_{i=1}^{q} [\frac{1 - x_i / z}{n}]^\alpha$, where:

x_i, is the per-capita consumption expenditure (or income) for those households below the poverty line, and zero for those above;

z, is the poverty line;

n, is the total population;

q, is the number of poor people; and

α, takes the value of zero for head count index or poverty incidence; 1, for the poverty gap; and 2, for the squared poverty gap which is the poverty severity index. Poverty headcount is simply the percentage of population below the poverty line. However this measure is not sensitive to the degree of poverty a weakness which is addressed by the poverty gap and measures the depth of poverty. The squared poverty gap also known as the poverty severity index measure the severity of poverty in that it applies increasing weight to distance below the poverty line.

2.3 The Determinants of Poverty

This section discusses the theory and the empirical studies on the determinants of poverty.

2.3.1 Household Size

In general it is expected that as households become bigger competition for scarce resources increases since resources are limited. This gives the belief that household size is positively associated with poverty. Population Reference Bureau (2012) opined that declining fertility implies that more resources can be allocated to human capital development and levels of savings and investment increases. However, this view has never been without challengers as the

Drudgery Aversion theory postulates a positive relationship between income and family size. The argument of the theory is premised on the fact that peasant households depends on family labour for production hence relatively larger families have greater capability to produce more on their farms. Manzungu and Mtali (2012) study in Chivi revealed that labour shortage was the major cause of increasing fallow land in Chivi. If this is really the case, households with more members are expected to be better off.

Bird and Shepherd (2003) study on semi-arid regions in Zimbabwe suggests that contrary to the expectations of Drudgery Aversion theory households with large numbers of economically active adults were likely to be poor. Non-poor households tended to have fewer children and poorer households tended to have more children but the degree of association was not very strong. Generally household size is expected to positively relate to poverty as a study by Sekhampu (2013) on "Determinants of Poverty in South African Township" suggested that larger households were found to have a higher probability of being poor as indicated by a significant positive coefficient. This supports the study by Garza Rodriguez (2011) in Mexico using 1996 data which suggested that household size was one of the variables positively correlated with the probability of being poor. World Bank (2005) study in Cambodia suggested that poor households tend to be larger than the non-poor with an average of 6.6 persons and 4.9 persons respectively.

However, a study done in Chivi area of Shindi by Cavendish (1999) came to the conclusion that the relationship between poverty and household size is not clear whether it is linear or in quadratic form using 1993/94 data, but it was quite clear that being part of a small family reduces the probability of being poor. The PASS II (2003) study also established that on average in Zimbabwe very poor household had an average size of 5.3 compared to 4.2 for the poor and 3.4 for non poor. In rural areas in Zimbabwe in 2003 the very poor had an average household size of 5.5, poor – 4.6 and non-poor – 3.6, showing a clear pattern that poor households tend to be large (ibid). However, all these studies done in Zimbabwe and Chivi did not utilize econometric analysis to establish the determinants of poverty. In contrast a study by Radhakrishna etal (2007) in rural India on estimation of chronic poverty suggested that risk of chronic poverty decreases with additional number of workers within the household.

2.3.2 Household Dependency Ratio

Dependency ratio calculated as the ratio of economically inactive members of the household to the economically active members of the households, seeks to establish the level of the burden the economically active have in a household. This is more refined indicator compared to the household size which does not relate to the ability to generate income. From economic theory it is expected that households with lower dependency ratio have lower poverty levels. It is argued that modern economic growth as espoused by Kuznets (1973) depends on highly productive labour force than large number of unskilled labour. Therefore, even if this measure is important further qualification is needed to establish the quality of those economically active. A study done by Bird and Shepherd (2003) casually defined dependency ratio with minimal reference to economic activity and it seems to suggest that high dependency ratios in Chivi was associated with higher levels of poverty. However, in rural setting like Chivi, the well to do families used to have very large households due to their command of resources would marry many wives in typical traditional fashion.

2.3.3 Gender of the Household Head

Female headed households are usually expected to be poorer than male headed ones. This stems from the fact that Zimbabwe is largely a patriarchal society where women faced gender discrimination for a long time. The discrimination against women was faced in not having equal opportunities in employment, education and in many other social activities. Widows used to face the wrath of greedy relatives of their late husbands as they were excluded from inheriting the estate of their late husbands. Some of these practices are on the decrease due to a number of measures taken by government. A study by Bird and Shepherd (2003), suggested that women headed households in Chivi were more likely to be poor and be involved in high drudgery activities, and the inference was made from the correlations. However, correlations do not imply causality. An inference made in the studies in Chivi was that women household heads were generally not educated (Bird and Shepherd, 2003). The same conclusion was reached in a Cambodia study which established that 43% were illiterate and 90% of these were poor (World Bank, 2005). Mazarire (2003) observed that Chivi history showed that female status was only hailed where it served to buttress male hegemony, which also implied male control of resource. It is recorded that the pre-colonial history of Chivi showed that the identities of mothers were the bases on which land was allocated, women themselves were not allocated land at all (Mazarire,

2003). The Zimbabwe Poverty Assessment Study in 2003 showed that female-headed households were poorer (68 percent) than male-headed households (60 percent). The study does not suggest any causality as it is just descriptive. However, it can be inferred from this study that women headed households are likely to be in a worse off position compared to their male counterparts. However, since 2003 there has been a raft of institutional changes by government to emancipate women and promote gender equality throughout the country. With these changes, even the stories captured by Bird and Shepherd (2003) of widows being stripped of their assets in Chivi by the relatives of their late husbands might have been curbed.

However, observation made in Vietnam and Cambodia female headed households are no more likely to be in poverty than male headed ones (World Bank, 2005). Cavendish (1999) study in Chivi in the Shindi area using 1994 data came to the conclusion that the probability of being poor increases for households headed by resident married male or dejure female headed with married sons and defacto female headed households are less likely to be poor. The study by Cavendish (1999) brings in some interesting aspects which most studies have not attempted to entangle such as the issue of the dejure and defacto headship. Households headed by female married whose husband works in town are less likely to be poor than others.

2.3.4 Age of the Household Head

The potential links between old age and a greater vulnerability to poverty is mainly due to the fact that older people are less able to sustain themselves through own income from work, assets, savings or pension insurance making them more dependent on the benevolence of the family members (Ogwumike and Aboderin, 2005). The plight of old age is worsened by the fact that usually old people: have diminishing physical and mental capabilities; lack literacy skills; suffer from poor nutrition; impacted negatively by outward rural migration due to loss of labour; and a heavy burden is placed on them due to the impact of HIV and AIDS. This suggests that households that are headed by the aged are likely to be poor in Chivi than households headed by younger people.

However, a study done in Shindi area in Chivi is less conclusive on this as it suggested that a U-curve phenomenon was observed on the relationship between age of household head and the probability of being poor with highest poverty associated with middle rather than old age (Cavendish, 1999). This seems to be contrary to Modigliani life cycle model that postulates that

labour income is usually low in early life relative to later working years as income increases in the last part of the working life then drops at retirement (Modigliani and Brumberg, 1954). Following this theory it is therefore reasonable to postulate that in Chivi, households headed by aged are more likely to poor compared to the younger ones. In Chivi, like in many African countries, the older people having worked in informal sector rarely have the benefit of pensions and savings contrary to the postulations of the Permanent Income Hypothesis by Friedman (1957).

2.3.5 Health Status of the Household Members

Poverty is linked to the health status of household members. If for instance there is chronic illness in household resources will be diverted towards care for the household member who is terminally ill. Moreover, illness reduces the number of household members who are available for work reducing household production levels. Poor health in general has serious implication on household ability to move out of poverty. This view is supported by a study in Kenya that suggests that poor health and health related expenses might result in increased poverty as income is diverted from other basic needs (Kilele and Ngeng'e, 2004). Moreover productivity of household members is reduced as they spend time looking after the sick. Those with poor health are likely to be less productive.

In Chivi district like any other place in Zimbabwe, HIV/AIDS has taken a heavy toll on the population with the deaths in 15-35 age group increasing the number of orphans and households headed by grandparents and women (Bird and Shepherd, 2003). As noted by Chambers (1983) this usually results in high dependency ratio, with many young people, old people and/ or the sick condemning the households further in poverty.

2.3.6 Employment Status of the Household Head

The employment status of the household heads determines the ability of the household to have command over resources and ability to escape the vicious cycle of poverty. From the Farm Household theory it can be inferred that poverty status of a household is not confined to the household ability to produce but also its ability to earn from employment outside the household. However, this theory is criticized for failing to recognise the role played by non-household members in contributing to income. Studies in Zimbabwe have shown that employment is the link between economic growth and poverty reduction (ZEPARU, 2003). ZIMSTAT (2013a)

poverty report inferred from descriptive statistics that access to formal employment by the household head reduces the likelihood of poverty. In 1998 economic performance was worsening in Chivi, there was chronic underemployment and open unemployment with most economically active people absorbed in the subsistence agriculture (Bird and Shepherd, 2003). The data they gathered in 1998 in Chivi suggested that poor households were likely to have less access to wage employment than non-poor households. Cavendish (1999) concurred with Bird and Shepherd (2003) that poverty in Shindi a communal area in Chivi is strongly correlated to lack of access to productive land and exclusion from formal employment for a long time. This reinforces the argument that households heads who are engaged in formal employment are less likely to be poor than those solely dependent on subsistence farming. The poor were likely to be mainly involved in survivalist activities with low social status, high drudgery and lowest return and this is likely to keep them deep in poverty.

3.3.7 Property Owned by the Household

Lack of productive assets affected the people in Chivi to engage in more productive activities thereby inhibiting their ability to extract themselves out of poverty. Productive assets in this instance include ploughs, scotch carts, bicycles, wheelbarrows and trucks. This is supported by the Ironmonger Household Production theory which outlines that labour and capital are important in the household production process (Ironmonger, 2001). Lack of these assets condemn the inhabitants into a poverty trap as studies in 1994 and 1996 reflected that the poor in Chivi engaged in lowly paying high drudgery tasks for survival (Cavendish, 1999). Studies have established that poor households have few assets, insufficient shelter made of less durable materials, lack of access to arable fertile land, lack draught power, have no or very few cattle, lacks decent clothing, has low labour productivity on the farms and lacks productive assets (Chambers, 1983).

Bird and Shephard (2003) also supported the role of productive assets in poverty alleviation and asserted that critical assets that correlated with higher incomes were oxen, scotch carts and wheelbarrows. Their studies established that more than half of the population in Chivi did not own these critical productive assets. Manzungu and Mtali (2012) found out that the major causes of fallow land in Chivi district include: shortage of draught power cited by 34% of the respondents; labour shortage- 24%; lack of inputs- 22%; poor soil fertility – 16%; and drought –

4%. The situation could have worsened following a decade of economic meltdown. The descriptive statistics cited in these studies give some insights into the determinants of poverty but correlation is not causation (Deaton, 1997).

3.3.8 Social Capital

Poverty differentials in Chivi, might be explained by access to different types of land for cultivation. Generally those with access to better lands and situated on higher grounds are more likely to be less poor than those located in low lying areas with less fertile lands for cultivation. This contention is supported by Cavendish (1999) who revealed that the Popi and Muperi people in Shindi area in Chivi communal lands are poorer than the Shindi people because they are overcrowded and do not have adequate land for agricultural activities. Stories in Chivi have shown that access to land was heavily influenced by the chieftainship patterns and interrelationships and this has in turn determined the poverty status (Bird and Shepherd, 2003 and Cavendish, 1999).

The more economic remote the area is, the higher the likelihood that its households fall into poverty. This is based on the transaction costs theory, which contends that areas that are less accessible faces higher transaction costs emanating from transport and communication. These transaction costs make productive assets more expensive condemning the people into the vicious cycle of poverty. These areas also lack access to markets therefore inhabitants fail to sell their products at the best prices obtaining in other markets. Cavendish (1999) and Bird and Shepherd (2003) highlighted the role played by transaction costs in perpetuating poverty in Chivi district.

3.3.9 Education

This study contends that those with higher number of average years of schooling in Chivi are likely to be less poor due to their ability to command resources. In 2003, the National Poverty Study Survey established that among those who have never been to school 55% were very poor 17% were poor and 28 percent were non-poor, compared to those with diplomas who had only 7% very poor, 8% poor and 85% non poor (PASS, 2003). However, this is just descriptive analysis that does not show or suggest causality. Chambers (1983) argues that lack of education perpetuates isolation condemning victims into the deprivation trap as those who cannot read lack vital economic information on markets and other important political developments. Bird and Shepherd (2003) suggested that in Chivi high education levels were associated with low poverty

levels. Just like the previous studies, the conclusions were reached from descriptive statistics which do not necessarily suggest causality.

A study done in Mexico that utilized a logistic regression model suggested an inverse relationship between poverty and the number of years of schooling (Garza-Rodriguez, 2011). As already discussed, lack of education can lead to inter-generational poverty, as children from uneducated household heads fail also to get education due to financial constraints. Without requisite education participation in the formal employment becomes peripheral if any, limiting the household chances to diversify from high risk agricultural enterprises. Achia, Wangambe and Khadioli (2010) used a logistic regression model on demographic and health survey data to suggest that in Kenya, education was negatively related to the probability of being poor. This conclusion agrees with Elderman (1975) conclusion that human potential of an economy's members must be released before the economy can develop properly. Sen (1984) and Manfred (1981) theories support that human capabilities act as catalyst for economic development not economic policies.

However, Cavendish (1999) noted that while average years of schooling was low for household heads, considering all household members the average years of schooling was higher in Shindi area in Chivi. It is therefore, interesting to find out if the statistics have changed with passage of time and as expected has the increase in average years of schooling managed to move households out of poverty. Cavendish (1999) captured this optimism well when he asserted that the increase in average years of schooling for children augurs well for the potential of greater prosperity in the future. Most of the studies that were done were not considering the average years of schooling for the whole household which might be an interesting variable to influence household poverty. It is possible that the household head is not educated but has a highly educated son, or partner which might impact on the household poverty status.

2.3.10 Skewed Land Distribution

Sen (1999) opinioned that people and nations are dominated and are vulnerable to those who are materially better off. In addition limited freedom means that nations and individuals have little to no control over their own destinies (Todaro, 1997). This agrees with Mazarire (2003) who observed that in Chivi district the settlement patterns were influenced by power, where the ruling clan used to occupy high ground with better pastures and land for cultivation in the pre-

independence area and these patterns were inherited up the present day. This implies that these settlement patterns might explain poverty in Chivi district. This same view was supported by Cavendish (1999) who observed that the Popi and Muperi people in Shindi were poorer than the other clans because they lacked access to land due to historical land distribution policies of 1970s. This narrative points to a relationship between poverty and household clan as depicted by the totem.

2.3.11 Macroeconomic Policies

Anecdotal evidence in Zimbabwe has linked poverty to the adoption of the Structural Adjustment Programmes. There are several studies that seem to justify this stance, pointing to certain policy measures to have been behind the entrenchment of poverty in Zimbabwe. However, a study by Chitiga, Mabugu and Kandiero (2007) suggested that trade liberalization policy reduced poverty in the Zimbabwean economy more in the urban areas than the rural areas. Cavendish (1999) also alluded to the fact that there is was no enough evidence to support that Structural Adjustment Programmes led to the increase in poverty in Shindi but there was evidence that indeed transfers increased in these areas during this period. However, the subsequent economic rebound witnessed during the 2009-2012 that coincided with introduction of the multicurrency regime might also have changed the situation. More interesting is the liquidity crunch and the global economic slowdown and its possible impact on the flow of remittances might have changed the poverty landscape in Chivi.

1.3.12 Work Ethic and Attitude Towards Work

Poverty can result from people's negative attitude towards work and laziness. A study done in Lesotho (Blignaut and Uekermann, 2005), suggests through Granger Causality test that attitude and vulnerability influence income and not vice versa. This seems not to be in agreement with Chambers (1983) who asserted that the poor are usually tough, hard working, ingenious and resilient. It is further argued that the view that the poor are improvident, lazy, fatalistic, ignorant, stupid and responsible for their poverty is wrong (ibid). However, the context of Chambers' argument might be that poverty cannot wholesomely be blamed on the poor themselves. It is an undeniable fact the enduring adage that one can only harvest where he sows, is even true up to now and even more appropriate in rural setting like Chivi.

2.3.13 Nature of the Enterprise

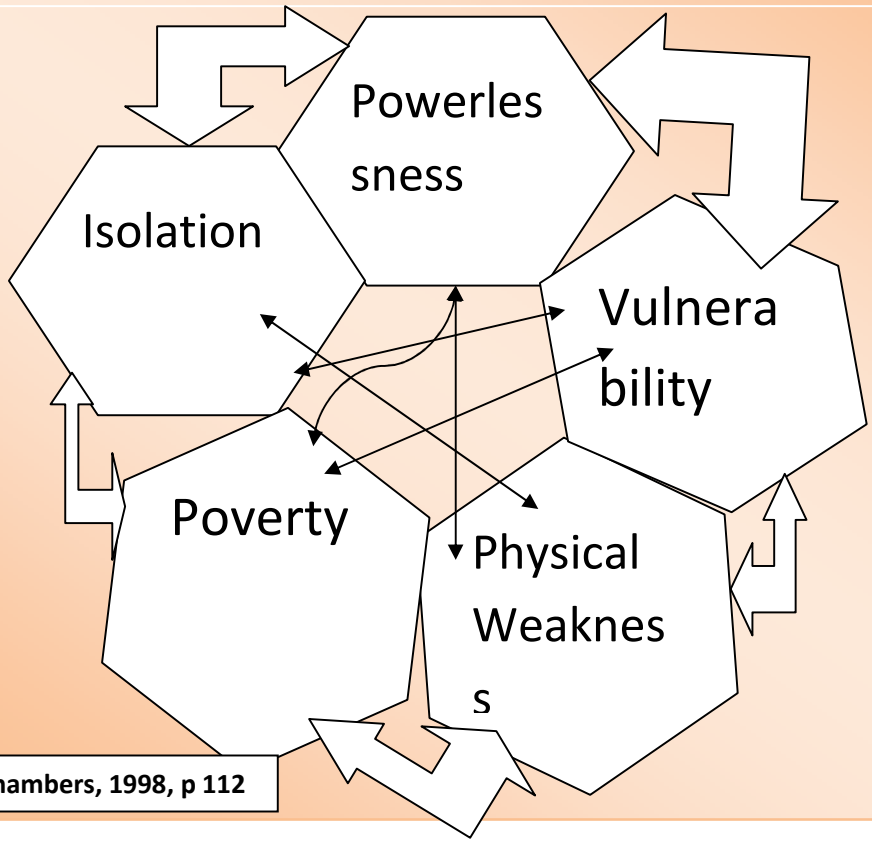
Survival activities of the poor are mostly confined in the informal economy. It is therefore argued that the best way out of poverty will be seeking participation of the poor in the formal economy. Due to informalisation of many activities of the poor their capital is regarded as *dead* in that it cannot be used as collateral for the purposes of accessing finance in the formal banking institutions. This argument therefore reinforces the idea that the poor are poor due to their participation in the informal economy and lack of integration with the formal economy. Dasgupta (1998) argues that villages resemble enclaves often not integrated with the rest of the economy without access to credit and insurance facilities opening a pathway for them into a poverty trap. Kritzinger (2012) argues that the poor have unrealized potential which need to be unleashed for successful poverty eradication. There have not been many studies on the impact of household enterprise on the household poverty status in Chivi.

Rainfall-fed crop production is severely constrained in Chivi as only one in every five seasons turns out to be good due to poor rainfall patterns, exacerbated by poor soil physical structure, granite derived with low chemical fertility and low organic matter content (Manzungu and Mtali, 2012). The situation points to the need for the people of Chivi to find alternative land uses and the question remains why the people continue on the same old path. Bird and Shepherd (2003) carried a study on "Chronic Poverty in Semi-arid Zimbabwe" which suggested that the very poorest households have very limited non-farm livelihoods activities even though it is clear that rain-fed agriculture has been less rewarding. It is in such circumstances that the type of enterprise becomes a very important determinant of poverty.

2.3.14 The Deprivation Trap

Chambers (1983) argues that the poor have to struggle against five interlocking disadvantages which trap them in deprivation: poverty itself, physical weakness, isolation, vulnerability, and powerlessness. Dasgupta (1998) added that such poverty can be dynastic: once a household falls into a poverty trap it can condemn all the descendents into it who may find it very difficult to emerge out of it. This leads to chronic poverty that is intergenerational in the sense that children from poor households due to lack of opportunities and lack of capabilities are likely to become poor adults, whose children will in turn risk remaining in poverty (Aliber 2003:476 in Brynard, 2011). Chambers (1983) explains poverty through what he termed the vicious cycle of poverty as shown in Figure 2.1.

Figure 2.1: The Deprivation Trap.



Source: Chambers, 1998, p 112

As shown in Figure 2.1 poverty contributes to physical weakness, vulnerability, powerlessness and isolation. Isolation in this instance refers to lack of education, remoteness and being out of contact, inability of individuals to acquire economic information and inability to access markets and important services. World Bank (2005) noted that social networks and institutions (which includes kinship systems, local organizations and networks of the poor) play an important role in protecting the basic needs of the poor people becoming vital sources of security and insurance for instance in North India and Madagascar. Vulnerability leads to individuals losing productive assets due to shocks as they lack contingencies.

2.4 The Conceptual Framework on the Determinants of Poverty

The theoretical framework for the causes of poverty suggests that poverty is the inability to reach a desirable level of utility as a result of lack of basic necessities due to inadequate human capabilities as shown in Figure 2.2. While it can be conceived that poverty is lack of income, endogenous theories suggest that poverty is intrinsically caused by lack of capabilities. It could

be argued that education is important in increasing human capabilities as it increases individual skills and labour productivity.

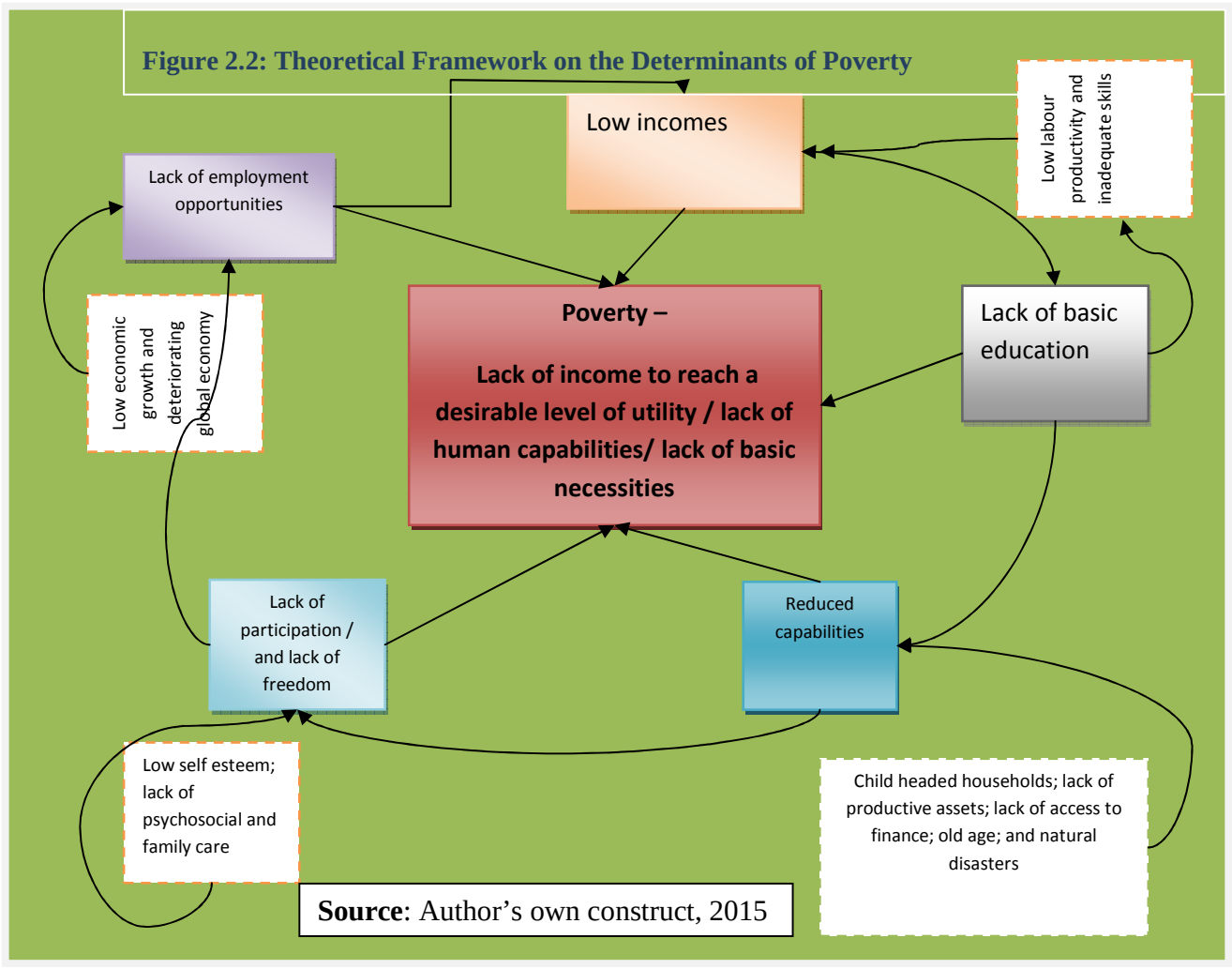


Figure 2.2 shows that lack of education may lead to reduced capabilities. However, reduced capabilities may be as a result of various factors that include lack of productive assets; difficult upbringing (child headed families); lack of access to finance; old age; and natural disasters. Reduced capabilities may lead to lack of participation and lack of freedom due to low self esteem. Under these circumstances individuals trapped in this web of poverty would find it difficult to engage in gainful employment. Lack of employment opportunities is usually exacerbated by low national economic growth and deteriorating global economy. This usually condemns individuals to survivalist activities which yield very minimum incomes which are

highly volatile. Lack of income would deny individuals opportunities to escape the poverty scourge for instance siblings will be denied basic education triggering a vicious cycle of poverty.

2.5. Modeling Poverty

Approaches to examination of poverty determinants varied from classical regression approach, probit estimation technique and discrimination factorial analysis (Chidoko etal, 2011). The most used approach to analyse the determinants of poverty is regression analysis (World Bank, 2005). Some studies have tried to explain the level of expenditure or income per capita – dependent variable as a function of many variables (ibid). This is the methodology which was used in the study by (Chidoko etal, 2011). However, using this model does not yield the probability of being poor given a set of characteristics. Strictly evaluating the study that was done in Zimbabwe does not qualify as a poverty study but a consumption expenditure study, since households were not classified into poverty categories.

Recent research has explored more exotic forms of analysis including non-parametric regression classifications and regression trees (CART models) and multiple adaptive regression splines (MARS models) (World Bank, 2005). The major objective of such efforts has been to understand the parsimonious number of determinants of poverty, and quantify their effects, even when their effects are non-linear (ibid). These studies are more recent and have not yet gained traction in empirical studies.

The logit and probit regression models are widely used to explain whether the household is poor or not. These models have now become the benchmarks for poverty analysis especially if one seeks to identify the poor for direct interventions. Analysis of literature shows that those studies that focus on determining the probability of being poor given certain characteristics were using either the logit or probit model (Rhakrishna etal, 2007- logit regession model, El-Osta and Morehart, 2008- probit model, Achia, Wangombe and Khadioli, 2010- logit model and Garza-Rodriguez, 2011-logit model). Interestingly none of the poverty studies in Zimbabwe have utilized either logit or probit model for analyzing poverty in Zimbabwe and most of those which were done in Chivi were mainly descriptive. Therefore this study utilizes the logistic regression model to analyse the determinants of poverty in Chivi.

The logistic regression model allows us to calculate the odds ratio, which is the probability of being poor, divided by the probability of not being poor. Variables with odds ratio greater than one are positively correlated with the probability of being poor, while those variables whose odds ratios are less than one are inversely correlated with the probability of being poor. World Bank (2005) pointed out that though such analysis is sensitive to specification errors it is very useful when designing targeted interventions as it allows one assess the predictive power of various explanatory variables used for means testing.

2.6 Conclusion

This chapter has discussed the determinants of poverty in light of theoretical literature and empirical studies. The concepts of poverty, poverty line derivation and modeling of poverty were also debated. The chapter concludes by discussion the poverty deprivation trap, the poverty conceptual framework and modeling of poverty. The discussion that follows in Chapter 3 focuses on the methodology adopted for this study.

Chapter 3: Methodology

3.0 Introduction

This chapter gives analysis of the sampling procedure, data collection methodologies, modeling techniques and justification of variables. The methodology to derive poverty lines and classify households is outlined. This study utilized a questionnaire administered to households through personal interviews. The descriptive statistical analysis was done and inferences were derived from regression analysis. Poverty lines were calculated based on the income consumption per-capita of the bottom 40% of the households ranked by consumption expenditure per capita to take preferences of the poor into consideration; therefore a "Traditional and Austere" poverty line was calculated and the poverty profile followed the Greer – Thorbecke class of poverty measures. This Chapter also discusses research design, the selection of variables, poverty measurement methodology and poverty derivation methodologies and poverty profiling.

3.1 Research Design

A cross-sectional study was preferred for a study to establish the major microeconomic level determinants of poverty among households in Chivi. For most poverty studies that were carried out in Zimbabwe, cross-sectional research studies were used notably Cavendish (1999) and Bird and Shephard (2003). Even the income and consumption data which was utilized by Zimstats (2003) in the poverty study used cross-sectional data and the PASS (2003) and (1995) utilized the cross-sectional data. Cross-sectional studies bring out important information on association of variables though they do not bring out causality (Mann, 2003). Data obtained from cross-section study provide a useful snapshot at a particular point in time but does not capture the dynamic nature of poverty (Weerasekera, 2015). Analysis of poverty dynamics is left for future studies as this study focused on the determinants of poverty. This type of study enabled the researcher to analyse different variables in one study. The random sampling techniques utilized for this study as discussed in 3.2 allowed for the results to be generalized for the population.

The research utilized a questionnaire to collect data from households. The use of questionnaires was supported by Anderson (2004) who pointed that questionnaires are the widely used research instruments for gathering data. Data on household characteristics was provided by the household head through face to face interviews. The questionnaire was designed in such a way that it had both quantitative and qualitative questions. Respondents' opinions on the major determinants of

poverty were solicited while the quantitative expenditure data was collected on household consumption.

The design of the questionnaire was careful enough to capture the respondents' feelings and perceptions. The study only focused on relevant questions to the study and the questions were fairly simple and were being asked in local language to increase clarity of these questionnaire attached in Appendix III. The questionnaire contained both open ended and closed questions. The combination of quantitative and qualitative techniques was used in recognition of the fact that poverty is multi-dimensional and its determinants cannot be understood from one dimension.

The interviewer also observed some of the characteristics like the state of the main dwelling unit. To protect the identity of the households that participated in the research the questionnaire did not include names of the respondents. Households were politely requested to participate without any inducement or any promise for material gain.

Poverty profiling using quantitative techniques enabled comparison of the characteristics of poor households and non-poor households.

3.2 Sampling Technique

The study targeted 275 households out of 35912 households in Chivi. The sample size was determined using a formula suggested by Yamane (1967:886) in Israel (2009:3) at 6% level of confidence a sample of 275 would give representative results of the population of 35 912 households in Chivi district. The study was carried out in seven villages: Chitsika, Imbayago, Mafadza, Mariko, Musiiwa, Mutau and Zivuku covering wards 22, 23 and 24. The formula to determine sample size is $n = \frac{N}{1 + Ne^2}$ where: n =sample size; N = population size; and e = is the confidence level (Israel, 2009).

A sample was chosen for the survey given the resource and time constraints faced by the researcher. Moreover, carefully selected samples have proven to yield reliable and representative results (Deaton, 1997). The respondents were selected through a random sampling technique to avoid selection bias. The selection of respondents followed stratified random technique. The wards were randomly selected, then villages were randomly selected from wards and households

randomly selected from the villages. As already discussed clustering was proven to be cost effective and usually yields higher response rates (Deaton, 1997).

3.3 Data Collection Procedure

In this study emphasis was put on quantitative analysis to capture crucial dimensions of poverty and for poverty profiling. Qualitative aspects were accommodated to capture subjective aspects of human behavior, and experiences (Njeru, 2004). This research is anchored on household data collected through a questionnaire from in-depth interviews. A household was defined as a group of people who share the same cooking pot (Deaton, 1995). It is argued that even if households do not share the same pot assets might be held at extended family level (ibid). However, this is not a common problem in Chivi as the study by Cavendish (1999) has revealed see Cavendish (1999, page 3 note 1). Moreover, other poverty studies have utilized the same definition of the household, notably the Zimstat (2013) and PASS (2003) studies.

The questionnaire was pre-tested before the main survey began for the researcher to fine tune the questionnaire and streamline the questions. The pretest of the questionnaire was done for a week in the same area where the main study was carried out. This allowed the questions to be fine tuned so that they become clearer to respondents. The period also gave the researcher the opportunity to train the enumerators on interviewing skills. The Enumerators were selected from the area under study since they had the knowledge of the area and were generally accepted by the respondents. The Enumerators also understood the customs and practices of the area under investigation.

Data collection was done through face-to-face interviews. This method allowed high response rate and it also allowed the interviewer and the interviewee to have an interaction. The questionnaires were administered to 204 household heads.

Though the questionnaire had some closed questions, all the questions were asked as open-ended to avoid guessing. It is for this reason that face to face interviews were preferred to postal and email. Collection of data was systematic and interviews remained fairly conversational and situational. The interviews were designed to increase comparability of responses, reducing interview effects and bias. The questionnaire was designed in a way that allows easy

organization and analysis of data. Closed questions are easy to administer and generate standardized responses which allow easy analysis.

Data on consumption was based on reference period ranging from the past month to a year to capture different types of goods. Most food items are purchased monthly and others daily. However for other non-food items, purchasing periods vary from month to five years. The reference period given in the questionnaire were based on the same standards used for census.

3.4 Data Processing

Data collected from the field was cleaned through the filters that were embedded in the questionnaires. Some questions that were asked had relations for instance there is no way a person who is not able to read and write can be coded to be a professional. In such instances the correct code for that person will be unskilled. The description of the person's main activity was also used to check the accuracy of the code of the main activity. After the data was checked consistency and call backs were carried where the questionnaire was not fully completed.

Using the household questionnaire a data base was created in Access computer package with filters to correct data collection errors. The data entry programme had a data verification programme. While data entry was done by one person, verification was done by another and only 100% correctly entered questionnaires were accepted. For easy of data entry, forms were created in Access computer package. After completing data entry and cleaning, data was exported to excel for further manipulation into usable format.

For descriptive analysis SPSS package was used because of its ability create cross tabulations and other descriptive statistics. For econometric modeling and regression analysis Eviews and Gretl were utilized. During analysis outliers were removed from the sample to avoid distortion of results.

3.5 Modeling Techniques

This study estimated an econometric model for determinants of poverty using the Logit model. It has become standard to use either the logit or probit models to analyse the determinants of poverty (Chaudry, Malik and Hassan, 2009). A Logit model was preferred because the dependent variable was discrete and therefore violates the assumption of linearity which important of Ordinary Least Squares. Moreover, the Logit model gives the relative importance of each

variable. Analysis of this kind enables assessment of predictive power of various explanatory variables and can be very useful for targeted intervention. The model is appropriate because it enables us to calculate the probability of being poor given certain characteristics. Following the logistic regression model the probability of a household being poor is a function of set of variables x such that: $\Pr ob(Y=1) = F(\beta' x)$ $\Pr ob(Y=0) = 1 - F(\beta' x)$

Using the logistic distribution we have $\Pr ob(Y=1) = \frac{e^{\beta' x}}{1+e^{\beta' x}}$; $= \Lambda(\beta' x)$

Where: Λ -represents the logistic cumulative distribution function.

Household poverty status is the dependent variable while the independent or explanatory variables include: age of the household head, average age of household members; household dependency ratio; sex of the household head; proportion of female household members; size of the household; employment status of the household head; ownership of cattle; ownership of scotchcart; number of children; education level of household head; and health status of household members.

The general empirical estimation model is:

$$\log it(p) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 - \beta_6 x_6 + \beta_7 x_7 + ... + \mu$$

The dependent variable takes the value of 1 if the household is poor and 0 if the household is non-poor. The model gives the probability of being poor given these characteristics of the household. A parsimonious model of poverty is derived from the general specification.

The logistic regression model allowed us to calculate the odds ratio, which is the probability of being poor, divided by the probability of not being poor. Odds ratio greater than one are positively correlated with the probability of being poor, while those variables whose odds ratios are less than one are inversely correlated with the probability of being poor.

3.6 Variables Measurement

The general econometric model includes the following variables:

1. **Household size-** Data was collected on the number of members in a household. This variable is a continuous variable and a positive sign is expected on the relationship between poverty and household size.
2. **Household dependency ratio-** this is a ratio calculated from data of economically inactive people in the household divided by economically active. This variable is continuous. The economically inactive members are those below the age of 15, the aged – above 65 years of age and the terminally ill while the economically active are those above the age of 16 but below the age of 65. A positive relationship is expected between poverty and dependency ratio.
3. **Gender of the household head-** this is a dichotomous variable that takes a value of 1 if household head is female and 0 if the household head is male. A positive relationship is expected between poverty and household being headed by female.
4. **Proportion of female household members-** this variable was calculated as a ratio of female household members to male household members. A positive relationship is expected between being poor and having higher proportion females in a household.
5. **Age of the household head** – this is a continuous variable and the ages were collected from respondents. A positive relation between age and poverty is expected. This variable can also be squared to magnify the age differences. Alternatively the average age of the household is also considered. Average age of the household was obtained summing the ages of household members divided by the number of household members.
6. **Employment status of the household head-** information on employment status of each household member was collected by asking the main activity in the last 12 months. This variable is dichotomous, if the household head is employed it takes the value of 1 and zero otherwise. It is expected that a household head is employed is less likely to be in poverty than those that are not employed.
7. **Employment dependency ratio-** This ratio is obtained by dividing the total number of people in the household by number of people employed in the household. This is a continuous variable. Households with more members employed, have a lower employment dependency ratio and will tend to be less poor. A positive relationship between poverty and employment dependency ratio is expected.

8. **Number of cattle owned by the household-** this is a continuous variable, data was collected on the number of cattle each household owned. It is expected that household that own a large number of cattle are likely to be less poor than those that own less cattle. A negative relationship between poverty and number of cattle owned is expected. This variable can be turned into a dichotomous variable to capture availability of draught power, where the variable takes the value of 1 for households that own four or more cattle and zero otherwise.
9. **Ownership of scotch cart-** Data was collected from each household to establish if it owns a scotch cart or not. The variable is dichotomous and it takes the value of 1 for households owning and zero for those not owning. A negative relationship is expected between ownership of scotch cart and poverty.
10. **Education level of household head-** Data was collected on the highest level of education on each household member; the average years of education were recorded. This is a continuous variable and it is expected that as years of education increases the poverty levels decreases so a negative relationship is expected.
11. **Average years of schooling for the household-** This was calculated by dividing the total years of schooling with the total number of household members. This is a continuous variable and it is expected that as years of education increases the poverty levels decreases so a negative relationship is expected.
12. **Health status of household members**- Data was collected on the health status of the household members. The household with a chronically ill member would be coded 1 and those without would be coded zero. A positive relationship is expected between poverty and having a chronically ill household member.
13. **Location variables – Vi,** took the value of 1 if the household was located in village i^{th} villages and zero otherwise for all villages $i, \{ i = 1 \ldots . 6 \}$. The sample had seven villages so, 6 dummies for location were created.
14. **Religious beliefs- R2** took the value of 1 if the household religious beliefs follow Christianity Catholic and zero otherwise. Other dummy variables were also created for other religious beliefs.

15. **Totem – T1** this was a social capital variable that took a value of 1 for one being of Shumba (lion) and zero, otherwise. Other dummy variables were created for other totems which were represented in the sample as shown in Appendix III.

All these variables are entered in the model at once and alternatively until a parsimonious model was established. Results for all econometric tests will be discussed together with the results in Chapter 4.

3.7 Calculation of Poverty Lines

For poverty line derivation, the bottom 40% of the households based on total consumption expenditure per capita was used. The data collected on household consumption was converted into consumption per capita per month. Consumption expenditure per month was calculated for each household per each food item. To convert into consumption per capita data collected on consumption expenditure was divided by the total number of household members. Yearly data was converted to monthly data by dividing by 12 months. The following steps were taken in calculation of poverty lines.

Step 1

The food basket was selected by ranking all the food items by mean consumption expenditure per capita. The data was ranked by total consumption expenditure per capita and the bottom 40% was selected after removing the bottom 5% to exclude the outliers. For each food item, kilocalories per 100g were obtained from FAO and PASS (2003). Price per kilogram for each item in the food basket was calculated using data collected from the shops using the institutional questionnaire.

Step 2

Mean consumption expenditure was calculated for each food item in the basket considering the bottom 40% of the households. For each food item the amount of kilograms consumed were calculated by dividing the mean consumption expenditure per capita by the price of the food item. This was then converted into grams consumed per month by dividing by 1000. The consumption per month was converted into consumption per day by dividing it by 30. To obtain

kilocalories per day per each food item the grams consumed per day were divided by 100 and multiplied by kilocalories per 100 grams of each food item.

Step 3

The kilocalories per day per each food item were summed up to give the total kilocalories per day. A person to lead a health life he/ she needs a minimum of 2100 kilocalories a day Zimstats (2013a). Therefore, for obtaining a food poverty line, 2100 was divided by the total kilocalories obtained from the food items consumed by the bottom 40% and multiply by the sum of the consumption expenditure per capita of the food items. Table A1, shows how the poverty line was derived.

Table A1: Derivation of Food Poverty Line

Item	Mean Expenditure per capita per month	Prices per kg	Kg consumed per capita	Grammes consumed per capita per month	Grammes consumed per day per capita	Kilocalories per 100g	Kilocalories percapitra per day
Alcoholic Beverages	0.27	0.25	1.08	1,075.20	35.84	60.00	21.50
Beans	0.11	1.00	0.11	106.79	3.56	23.20	0.83
Beef	0.72	3.40	0.21	212.97	7.10	48.00	3.41
Bread	0.18	1.00	0.18	181.93	6.06	267.00	16.19
Cabbages	0.49	1.00	0.49	488.08	16.27	19.70	3.21
Chicken	1.78	5.00	0.36	356.23	11.87	185.00	21.97
Cooking oil	1.17	1.00	1.17	1,166.22	38.87	895.00	347.92
Dried_tinned vegetables	0.79	0.50	1.59	1,587.09	52.90	48.00	25.39
Eggs	0.25	0.34	0.74	737.12	24.57	156.70	38.50
Flour	0.91	1.00	0.91	913.01	30.43	355.70	108.25
Fresh Fish	0.12	2.00	0.06	58.07	1.94	100.00	1.94
Green mealies	0.08	0.40	0.21	211.48	7.05	115.00	8.11
Groundnuts	0.01	0.50	0.02	16.26	0.54	567.00	3.07
Maize meal grain	3.76	0.65	5.79	5,789.07	192.97	115.00	221.91
Matemba	0.21	2.00	0.11	106.44	3.55	100.00	3.55
Meat from wild animals	0.08	2.00	0.04	38.36	1.28	387.94	4.96
Milk	0.71	2.00	0.35	354.21	11.81	66.30	7.83
Muboora_nyeve_etc	0.68	0.50	1.36	1,362.35	45.41	48.00	21.80
NonAlcoholic Beverage	0.32	1.00	0.32	318.80	10.63	16.67	1.77
Onions	0.06	1.00	0.06	62.33	2.08	15.00	0.31
Rape_Covo_Chomoulie	1.22	0.50	2.43	2,430.92	81.03	48.00	38.89
Rapoko	-	0.52	-	-	-	115.00	-
Rice	0.75	1.00	0.75	751.66	25.06	111.30	27.89
Roundnuts	-	0.25	-	-	-		-
Salt	0.21	0.50	0.41	411.26	13.71	-	-
Sorghum	0.13	0.29	0.44	444.94	14.83	115.00	17.06
Sugar	1.13	1.00	1.13	1,133.37	37.78	387.90	146.55
Sweet potatoes	-	0.49	-	-	-	90.00	-
Tea	0.23	1.00	0.23	226.03	7.53	1.00	0.08
Tomatoes	0.32	0.50	0.64	640.50	21.35	20.50	4.38
	16.69						1,097.25
							31.94
							159.68

One requires an expenditure of US$ 16.69 per month to obtain 1097.25 kilocalories per day , therefore to obtain 2100 kilocalories we require: US$31.94, per month =
(2100/1097.25)*16.69
this is the food poverty line for Chivi District

Step 4

Calculation of the Total Consumption Poverty Line (TCPT)

The non-food expenditure was added to the food poverty line to get the total consumption poverty line using the scaling up method. To obtain the Austere poverty line, the median non food expenditure was calculated for households whose total expenditure was plus or minus 1%, 2%, 3%, 4% and 5% of the food poverty line. The mean of the five values was taken and added to the food poverty line to obtain the Austere poverty line. As per the expectation of theory the Austere poverty line was below the Traditional poverty line.

To obtain the Traditional poverty line, the median non food expenditure was calculated for households whose food expenditure was plus or minus 1%, 2%, 3%, 4% and 5% of the food poverty line. The mean of the five values was taken and added to the food poverty line to obtain the Traditional poverty line. As per the expectation of theory the Traditional poverty line was above the Austere poverty line. Table A2 shows the calculation of the Austere and Traditional poverty line.

Table A2: Calculation of Non - Food Component for Chivi District Poverty Line					
	US$/mth:	Kcal/day			
Total:	16.69	1,097.25			
PL (2100kcal) =	31.94	Food poverty line			
Scaling up the poverty line to include nonfood expenditure					
	Lower limit	Upper limit			
1%	31.62	32.26			
2%	31.30	32.57			
3%	30.98	32.89			
4%	30.66	33.21			
5%	30.34	33.53			
	Median monthly nonfood expenditure per capita				
1%	8.375				
2%	8.375				
3%	8.375				
4%	9.05				
5%	9.5				
Non-food component	8.73				
Food component	31.94				
Final Poverty Line (austure)	40.67	per capita per month			
	Median monthly total expenditure per capita				
1%	9.5104167				
2%	11.958333				
3%	11.958333				
4%	7.0625				
5%	11.958333				
Average	10.49				
Final Poverty Line(traditional povertyline)	42.43	per capita per month			
	Total Numbe	Percentage			
total households	204.00	100%			
h/h below tpl austere	152.00	75%			
h/h below traditional tpl	155	76%			
hh below food pl	125	61%			

3.8 Conclusion

This chapter has discussed the methodology that was followed in this study. The research design, data collection methods, interviewing techniques, modeling techniques and calculation of poverty line was outlined in the chapter. The succeeding discussion in Chapter 4, presents the research findings.

Chapter 4: Research Findings and Discussion

4.0 Introduction

This chapter presents the research findings and the other variables which were found to be insignificant. The poverty line was calculated, which was used to classify households into either poor or non-poor. The poverty prevalence in Chivi district was estimated at 75.5% which shows an increase from 74% established in 2003. The major demographic determinants of poverty in Chivi included age of household head, household head religious beliefs and the size of the household. The major agricultural asset that determined the poverty status of the household in Chivi was established to be the number of cattle owned, while the human capital determinants of poverty included average years of schooling. The social capital determinants of poverty included geographical location and the household head totem. Among the variables that were found to be insignificant were; sex of the household head, household dependency ratio, employment status of household head, and presence of a sick or chronically ill person in the household and highest level of the household head. The Chapter also presents preliminary data analysis in Appendix II, empirical analysis and presentation of the model and a discussion of the results from the model.

4.1 Preliminary Data Analysis

A total of 204 households were interviewed giving a total of 922 people with 484 females and 438 males. In this sample women constituted 52% of the total population in line with the 2012 Census, which established that women constituted 54% in Chivi district (Zimstat, 2012).

The food poverty line for Chivi district was US$ 31.94 while the austere poverty line was US$ 40.67 and the Traditional Poverty line was US$42.43. For a person to be considered non-poor in Chivi he/she had to achieve a food consumption expenditure of US$ 31.94 and total consumption expenditure of US$ 42.43. The food poverty line is comparable to others obtained in other studies (Zimstats, 2013).

Table 4.1: Poverty Measures Estimates for Households, Chivi, 2015.	
Poverty Measure	**Poverty Estimate**
Poverty Incidence %	75.50
Poverty Gap	0.465249
Poverty Severity	0.267137
Chronic Poverty %	61

Poverty incidence in Chivi was estimated at 75.50% in 2015 higher than the 74% obtained in 2003 and the chronic poverty was estimated at 61%. Chronic poverty refers to the percentage of households whose total expenditure per capita is below the food poverty line. The situation is expected to worsen further due to the impact of the drought this year. Picture 4.1 depicts a typical field in Chivi taken during the field study in March 2015 showing a maize crop that had wilted signaling worse things to come. The poverty gap was 0.47, implying that an equivalent of 47% of the poverty line is needed to move households out of poverty. This could be through government transfers, NGOs donations or individual initiatives to supplement on household income. The study has revealed that there is over reliance on farming in Chivi for household survival yet as shown in Picture 4.1 the area is almost always severely affected by drought.

The poverty severity index was estimated to be around 0.267 implying that there was 27% inequality among the poor. This shows that poverty is not affecting the households uniformly and this view is supported by the 61% of chronic poverty as shown in Table 4.1

Picture 4.1: The Impact of Drought Maize Field in Chivi, March 2015

4.2 Empirical Analysis and Model Presentation

Using logistic regression model the major determinants of poverty in Chivi were suggested based on the variables that were found to be significant. For detailed discussion on model estimation see Appendix II. Table 4.2 presents the results of the parsimonious regression model and Table 4.3 shows the calculated odds ratio for each variable.

The data was tested for multicollinearity and the correlation coefficient matrix in Appendix I, Table B1, showed that there was no problem of multicollinearity in the data. The Jargue – Bera test shown in Figure B1 revealed that the residuals were not normally distributed. However, since the normality test is for convenience the regression were run. The OLS regression model was run for the general model and test for heteroscedasticity was done and it was concluded that there was no heteroscedasticity in the data at 5% level of significance see Model B2 in Appendix I.

The model Likelihood ratio was significant at 00% therefore the study reject the null hypothesis suggesting that the explanatory variables do not explain the model. The predictive power of the model is 80.9% which was considered good. The McFadden Rsquared = 0.250800 which shows goodness of fit of the model. However, this measure is not very significant because the study utilized the dichotomous dependent variable and usually the Rsquared measure is very low for

cross-sectional data (Gujarati, 2004). The model with lowest Akaike criterion value was settled on given significant variables at 10%.

The Parsimonious Model: Logit, using observations 1-204
Dependent variable: Pov
Standard errors based on Hessian

Table 4.2: Estimated Results: Logit Model, Dependent Variable. Household Poverty Status

	Coefficient	*Std. Error*	*z*	*p-value*	
Const	2.24743	1.08537	2.0707	0.03839	**
Ayrs	-0.224598	0.090854	-2.4721	0.01343	**
Cttown	-1.44337	0.441167	-3.2717	0.00107	***
HhAge	-0.024683	0.0112036	-2.2031	0.02759	**
Hhsize	0.471815	0.131648	3.5839	0.00034	***
R2	-1.51035	0.600746	-2.5141	0.01193	**
T1	0.821202	0.490825	1.6731	0.09431	*
V4	2.04204	1.1829	1.7263	0.08429	*
V2	0.90808	0.611567	1.4848	0.13759	

Mean dependent var	0.754902	S.D. dependent var	0.431203
McFadden R-squared	0.250800	Adjusted R-squared	0.171578
Log-likelihood	-85.11256	Akaike criterion	188.2251
Schwarz criterion	218.0882	Hannan-Quinn	200.3053

***- coefficient significant at less than 1%

**- coefficient significant at 5%

*- coefficient significant at 10%

Number of cases 'correctly predicted' = 165 (80.9%)
f(beta'x) at mean of independent vars = 0.431
Likelihood ratio test: Chi-square(8) = 56.9841 [0.0000]

From Table 4.2, the estimated model for the determinants of poverty in Chivi is given by:

$$\text{logit}(Pov) = 2.2474 + 0.4718Hhsize + 0.8212T_1 + 0.9081V_2 + 2.042V_4 - 0.2246Ayrs - 1.4434Cttown - 0.0246HhAge - 1.5104R_2$$

where:

- Pov- is the household poverty category, which took the value of 1 if the household is poor and 0 otherwise;
- Hhsize- is the household size;

- Cttown – is the number of cattle household owns, it took the value of 1 if household own 4 cattle and above and 0 otherwise;
- Ayrs – is the Average years of schooling for the whole household; and
- Hhage- is the age of the Household head.
- R_2 - is the household religious beliefs, which took the value of 1 if household religious belief is Christian Catholic and zero otherwise.
- T_1 - represented the household head's totem, it took the value of 1 if the household head totem is Shumba (lion) and 0 otherwise.
- V_4 - First location variable in the model, it took the value of 1 if the household came from village 4 and zero otherwise.
- V_2 - The second variable that represented location, it took the value of 1 if the household came from village 2 and zero otherwise.

Table 4.3 shows odds ratio: if it is greater than one the variable is positively associated with the probability of being poor; and if it is less than one then the variable is negatively associated with the probability of being poor.

Table 4.3: The Odds Ratios and Probabilities

Variables	*Coefficient*	*Std. Error*	*z*	*p-value*		*Probability*	*Odds Ratio*
Const	2.24743	1.08537	2.0707	0.03839	**	0.904429	9.463384
Ayrs	-0.2246	0.09085	-2.4721	0.01343	**	0.444085	0.798837
Cttown	-1.4434	0.44117	-3.2717	0.00107	***	0.191024	0.236131
HhAge	-0.0247	0.0112	-2.2031	0.02759	**	0.49383	0.975619
Hhsize	0.47182	0.13165	3.5839	0.00034	***	0.615813	1.602901
R2	-1.5104	0.60075	-2.5141	0.01193	**	0.180887	0.220833
T1	0.8212	0.49083	1.6731	0.09431	*	0.694491	2.273231
V4	2.04204	1.1829	1.7263	0.08429	*	0.885141	7.706314
V2	0.90808	0.61157	1.4848	0.13759		0.712607	2.479557

4.3 Demographic Factors that Determine Poverty

The study concluded from data that there is enough statistical evidence to suggest that: household size is positively related to household poverty; age of the household head is negatively

associated with poverty in a household; and the household religious beliefs plays a significant role in determining household poverty status, specifically that being Christian Catholic, which is negatively associated with household poverty. However, gender of household head and household dependency ratio were found to be insignificant determinants of poverty in Chivi at 10% level of significance.

4.3.1 Household Size

Evidence from the data suggests that household size is a significant determinant of poverty at less than 1% level of significance. From Table 4.2 the p-value of 0.0003 suggests that the study rejects the null hypothesis that household size does not determine household poverty status at 0.03% level of significance. The study, therefore accepts the alternative hypothesis that the higher the household size the higher the poverty level. The positive coefficient shows that poverty increases with household size in Chivi. This implies that holding all other things constant the log odds of being poor increases by 0.471 units for one person addition to a household. The odds ratio in Table 4.3 shows that a unit increase in the size of household increases the odds of being poor by 62%. It can be inferred from this analysis that birth control might be one of the viable strategies in the fight against poverty in the district.

There is also enough statistical evidence to suggest that as household size increases, poverty levels also increase as shown by the poverty incidence, poverty gap and poverty severity index shown in Table 4.4. The poverty gap increases with the number of household members, the same pattern is followed by poverty severity as shown in Table 4.4.

Table 4.4: Decomposition of poverty by Household Size, Chivi, 2015

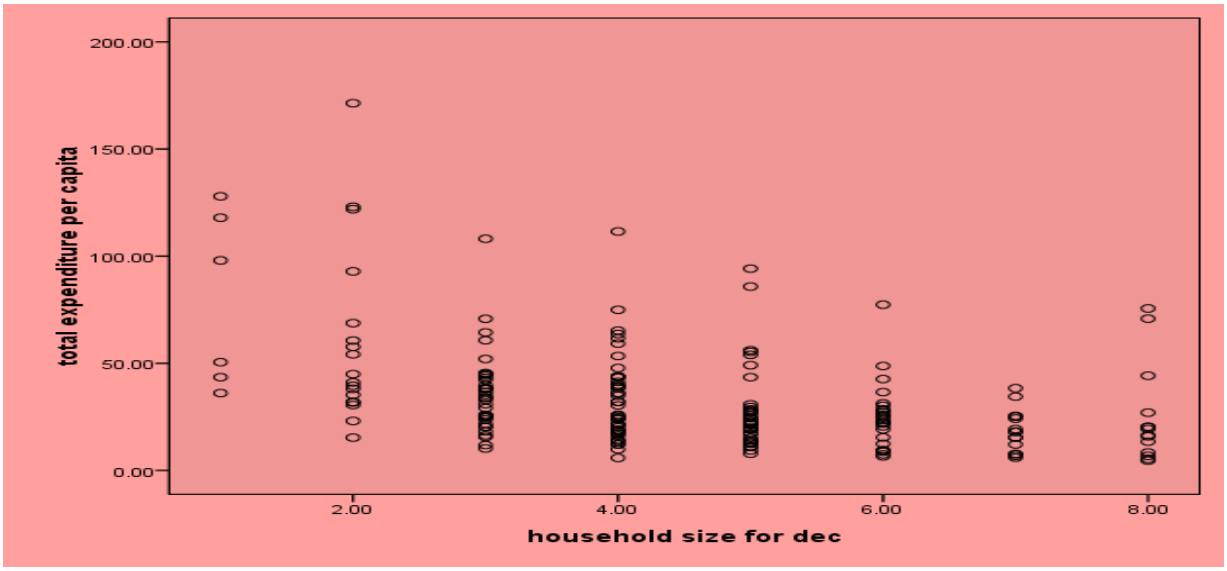
Household Size	Poverty Incidence	Poverty Gap	Poverty Severity	Total No.
1	17%	0.15	0.15	6
2	50%	0.25	0.25	18
3	71%	0.34	0.34	38
4	75%	0.43	0.43	48
5	83%	0.53	0.53	40
6	88%	0.51	0.51	25
7	100%	0.57	0.57	15
Greater than seven	79%	0.66	0.66	14
Total No.				204

Table 4.4 shows that households with higher number of members also needed higher level of compensation for them to be better off as depicted by the poverty gap index. This confirms Malthusian theory of population growth that if population grows exponentially without corresponding increases in productivity it leads to increased poverty. The plight of households in Chivi is worsened by over reliance on agricultural activities, which are highly vulnerable to erratic rainfall patterns.

Further analysis of the household characteristics reveals that the large households tend to cater for extended family ties including grand children, nieces and nephews. On average, households with more than seven people usually had two relatives. The average household size obtained in Chivi was 4.5 with more than 46% of the households having 5 members and more. The average household size is almost similar to the one obtained in 2012 census of 4.6 for Chivi district (Zimstats, 2012). This shows that on average Chivi has large households, has implications on pressure on resources hence poverty levels.

Figure 4.1 shows the relationship between household size and consumption expenditure per capita. The figure seems to agree with theory that as household size increases consumption expenditure per capita decreases. In Chivi, the data seems to suggest that there is no enough statistical evidence to support the hypothesis by the Drudgery theory of household production, which suggested that in rural areas larger households are better off as they have sufficient labour. One plausible explanation to that is that, Chivi is drought prone area therefore most household production activities were hindered.

Figure 4.1:The Relationship between Consumption Expenditure and Household Size, Chivi.



Source: Survey Results, 2015

4.3.2 Age of Household Head

Evidence from the data seems to suggest that there is a negative relationship between household head age and the household poverty level and the coefficient is significant at 5% as shown in Table 4.2. The odds ratio in Table 4.3 shows that being in a household with an older household head decreases the odds of being poor by 2% in Chivi. The study, therefore upholds that the age of household head is positively associated with probability of being poor. This result is very surprising since the research expected a positive relationship between household head age and the probability of being poor. In the context of Chivi older people might have more diversified income streams through transfers from relatives and children. This observation from the study is in line with Modigliani and Brumberg (1954) life cycle model disputing the U shaped phenomenon observed by Cavendish (1999). It is quite revealing that the burden of poverty is placed on the shoulders of young people and this has serious implications in perpetuating the vicious cycle of poverty (Chambers, 1983).

The relationship depicted seems to suggest that in Chivi district poverty is not necessarily associated with old age of the household head contrary to what was observed in Nigeria (Ogwumike and Aboderin, 2005). Though it was not expected, households headed by younger

people tended to have higher poverty incidence in line with high unemployment levels. Households headed by relatively older households in rural Chivi might be enjoying more transfers from their children working in town or in the diaspora. Some have also managed to work and amassed wealth therefore enjoying their life time savings though these are few in a rural setting.

The young adults' plight was worsened by the fact that they were growing into unemployment yet they faced demands from their young families. To tame the vicious cycle of poverty there is need for government to approach rural development with urgency and expedience and create employment for young people.

4.3.3 Religious Beliefs

The data seems to suggest that religious beliefs are a significant factor in determining poverty in Chivi, this variable was significant at 10% level of significance as shown in Table 4.2. The odds of being poor decreases by 78%, if one is a Catholic, however, the odds of being poor are 78% for household heads that are non Catholic as shown in Table 4.3. Religion plays an important role in forming people's perceptions about life and including poverty, as it also shapes people's value systems (Beyers, 2014). This seems to concur with Rostow (1960) theories of growth that traditional beliefs may not be amenable to economic development. Examples of these beliefs include the belief of marrying many wives which leads to increases in household sizes that increase the probability of being poor.

Table 4.5 shows decomposition of poverty measures by religious beliefs of household head.

Table 4.5: Decomposition of Poverty by Household head Religious Beliefs, Chivi, 2015

Household Religious Beliefs	Poverty Incidence	Poverty Gap	Poverty Severity
Christian Pentecostal	74%	0.50	0.32
Christian Catholic	59%	0.40	0.22
Christian Protestant	56%	0.46	0.25
Christian Apostolic Sects	86%	0.45	0.24
Traditional	91%	0.49	0.28
Other	75%	0.41	0.23

Poverty incidences are very high among households with household heads who were Traditional, Christian Apostolic Sects and Christian Pentecostal. However, poverty was lower among the Christian Catholics and Christian Protestants. This confirms the much celebrated Protestant work ethic that emphasizes on hard work. The Christian Catholics had the lowest poverty gap and poverty severity index as shown in Table 4.5. There is therefore need to work with different religious groups in a bid to fight poverty. Agreeing with Rostow (1960)'s model of economic growth the belief systems have to change to promote economic development and indeed to end poverty in Chivi. A further anthropological study might be needed to examine why poverty differentiates between different religions.

4.3.4 Other Demographic Variables

In this study the following demographic variable were found to be insignificant at 10% level: gender of household head, dependency ratio, and proportion of females in the household and presence of sick households in the household see Box 1 for further discussion. While, the study intends not to conclude that these variables are not important determinants of poverty, there was no enough statistical evidence to suggest that they are important factors in Chivi in 2015.

There was also no enough statistical evidence from the data that sex of household head is an important demographic determinant of poverty in the district. The variable had a p-value of 98%, therefore; the research accepted the null hypothesis that sex of household head does not significantly determine poverty in Chivi district at 10% level of significance as shown in Model 26 in Appendix III. Box 1 shows the results obtained by removing sex of the household head from the model. This is in line with the conclusion that was reached in Cambodia (World Bank, 2005) and cast doubts over the validity of the conclusions reached by Cavendish (1999) in Chivi in the current environment.

Box 4:1: Test Results for Eliminated Variables, generated by the Gretl model.

Sequential elimination using two-sided alpha = 0.10

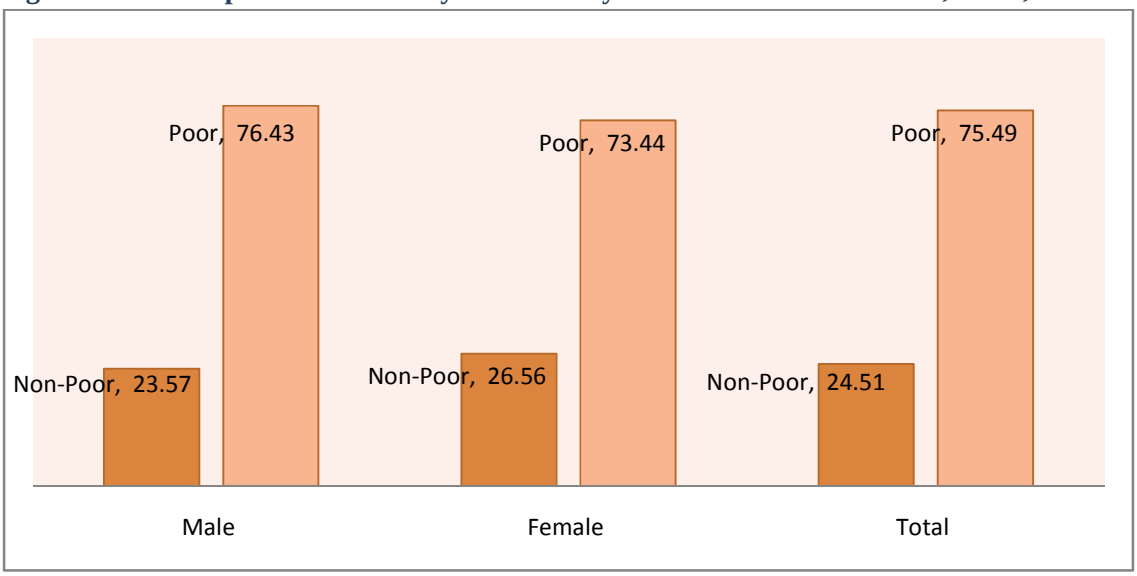
Dropping Hhsex (p-value 0.947)
Dropping Ppfml (p-value 0.113)

Test on Model 26:

Null hypothesis: the regression parameters are zero for the variables
Hhsex, Ppfml
Test statistic: F(2, 166) = 1.26012, p-value 0.286319
Omitting variables improved 3 of 3 model selection

The sign of the coefficient was negative suggesting that being female decreases the probability of being poor. This result might not be very surprising given the strides that were taken in gender emancipation and provision for equal opportunities in Zimbabwe. Figure 4.2 seems to suggest that male headed households tended to have higher poverty incidences. However, as already discussed there is no enough statistical evidence to support this claim.

Figure 4.2: Decomposition of Poverty Measures by Sex of Household Head %, Chivi, 2015



Another demographic variable that was considered insignificant in the study was the proportion of female is the household. Regression results showed that the variable had a p-value of 11% therefore the study accepted the null hypothesis that the proportion of women in a household does not determine poverty levels at 10% level of significance. However, the coefficient was positive as shown in Appendix III in the geneneralised model. Table 4.6 shows that as proportion of females increases poverty incidence tends to increase.

Table 4.6: Decomposition of Poverty by Proportion of females in a household, Chivi, 2015

Proportion of Females	Poverty Incidence	Poverty Gap	Poverty Severity
00.0-0.5	71%	0.45702	0.258384
0.51-0.8	81%	0.528452	0.324255
0.81-and above	87%	0.257782	0.088457

The health status of household members was also found insignificant at 10% level of significance since it had a p-value of 74%. As such, there is need for further investigation on all the health factors and test how they impact on poverty. Utilizing Demographic Health Survey data for further analysis of health factors at household level might address some of the unanswered questions in this study.

The household dependency ratio was also found to be not a significant determinant of poverty and did not have the expected sign if the household size is included in the model. It was observed that the household size explains the model better than the dependency ratio; therefore the dependency ratio was dropped. The p-value of the variable was 72% therefore the study accepted the null hypothesis that dependency ratio was not an important determinant of poverty. This is typical of rural areas where almost everyone is a communal farmer; therefore the dependency ratio does not make much difference. This reinforces the point that there is need to further strengthen and develop rural areas and offer them an alternative to communal farming.

4.4 Human Capital Factors that Determine Poverty

This study established that average years of schooling is negatively associated with probability of being in poverty and that the level of education of the household head does not significantly

influence the poverty status of the household. The level education of the household head was found to be insignificant with a p-value of 40%. Education level of the household head might not fully reflect dynamics in the household; therefore for that reason this study utilized the average years of schooling to include all household members.

4.4.1 Average Years of Schooling

The study confirms that households with higher levels of average years of schooling are less likely to be poor than households with lower levels of education. The data suggested an inverse relationship between average years of schooling and the probability of being poor. The odds ratio shows that a unit increase in the average years of education decreases odds of being poor by almost 20% as shown in Table 4.3.

The results confirmed that education is an important determinant of poverty similar to studies that were carried out in Mexico (Garza-Rodgriguez, 2011) and Kenya (Achia, Wangambe and Khadioli, 2010). This study concluded in unison with Elderman (1975) that human capital of household members must be released before households move out of poverty.

The people in Chivi were unanimous that education was important though for varied reasons. Some argued that it is a gateway to a better life while others remarked that “education is life”. The views of the people of Chivi were that education enables people to understand life better through enlightenment therefore it promotes good behavior among the youths. They also acknowledged that despite lack of employment opportunities education gives one the ability to navigate through difficulty situations. It is therefore important that the provision of affordable basic education to all remains on the government agenda.

Walking long distances to school for primary school children remain one of the impediments to achieving education for all. Some children walked about 9 km to the nearest primary school. Moreover, the data showed that of the 255 young boys and girls who walked more than 60 minutes to a primary school 81% were from poor households. More disturbing revelation was that some girls faced discrimination, violence and abuse including rape cases at schools. As expected in a drought ravaged area the children also faced hunger at schools. Due to poor rural transport infrastructure some children found it difficult to cross flooded rives. Attitude towards

education might be affected by the fact that some children got injured during sports at school and got no medical assistance.

Construction of footbridges along major rivers in Chivi will assist children during the rainy season. Government should seriously consider feeding schemes in primary schools, especially in such areas that are poverty stricken like Chivi. Additionally, insurance companies should also consider as part of their social corporate responsibility to offer health insurance to children in primary schools to cater for those injured during sports. Alternatively the schools should take group medical aid schemes for their sports teams.

4.5 Ownership of Agricultural Household Assets

This study suggests that ownership of cattle is significantly negatively correlated with the probability of being poor in Chivi. However, ownership of scotch carts was found to be insignificant in determining household poverty status.

Ownership of cattle was found to be highly significant at less that 1% level of significance as the major determinant of poverty. If a household owns four or more cattle the odds of being poor reduces by 76% as shown by the odds ratio in Table 4.3. This implies that, all things being equal, a unit increase in the number of cattle of the household the model will decrease by 1.4434 units. Cattle play a very significant role in many rural societies as a store of wealth, form of insurance and they also provide draught power. These results are in line with the findings by Bird and Shephard (2003) who suggested a higher correlation between ownership of productive assets and incomes.

Among those with a relatively higher number of cattle, poverty incidences, poverty gap and poverty severity was lower. In Chivi, those who owned less than 2 cattle had a poverty incidence of 82% while those with more than 4 cattle had 51% poverty incidence. The poverty gap and poverty severity scenarios followed a similar pattern depicted by the poverty incidence as shown in Table 4.7.

Table 4.7: Decomposition of Poverty by Household Ownership of Cattle, Chivi, 2015

Number of Cattle Owned	Poverty Incidence	Poverty Gap	Poverty Severity
less than 2	82%	0.48	0.29
2-4	78%	0.45	0.24
>4	51%	0.39	0.17

Households that owned scotch carts also tended to be less poor compared to those without. Table 4.8 shows that households that owned scotch carts had lower poverty incidence than those that did not own. Those that owned scotch carts had 55% poverty incidence compared to 77% for those that did not own. However, this variable was found to be insignificant at 10% level of significance therefore there was no enough statistical evidence to support that owning a scotch is a major determinant of poverty.

Table 4.8: Decomposition of Poverty by Ownership of Scotch carts, Chivi, 2015

Does Household Own Scotch cart	Poverty Incidence	Poverty Gap	Poverty Severity
Yes	55%	0.38	0.18
No	77%	0.47	0.27

Observations made by the researcher showed that drought did not only affect the maize crop but also pastures. The pastures in Chivi depict a typical rural football pitch as shown by Picture 2.

Picture 2: Shows lack of pastures in Chivi District, 2015

Picture 2 shows that in some areas there was critical need for animal supplementary feeding due to lack of pastures. Poverty alleviation initiatives usually focus on providing supplementary feeding to household members ignoring animal feed. Though people could make it out of the devastating drought in most cases cattle and other animals fail to make it due to lack of supplementary feeding. Moreover drought resistant animals like donkeys in Chivi were not very prominent as cattle. For instance 47.5% of the households owned cattle compared to 14.2% that owned at least a donkey. Due to incessant droughts in the area, drought resistant animals were ideal for the provision of draught power.

Analysis of the cropping patterns in the district showed that drought resistant crops like sorghum and millet were not as popular as maize. Change of attitudes towards the drought coping mechanisms is needed for the people in the district to escape abject poverty.

4.6 Employment Status of Household Members

In the study there was no enough statistical evidence to support that employment status of the household head significantly influences the household poverty status. The p-value was 62% therefore; the study accepted the null hypothesis that employment of the household head does not significantly influence poverty status of the household at 10% level of significance. In like manner, the other variable for economic dependency ratio was also rejected at 10% level of significance. Table 4.9 shows that poverty incidences were higher in households headed by those economically inactive including the sick, disabled, students, unemployed and retrenched compared to those employed.

Table 4.9: Decomposition of Poverty by Employment Status of Household Head, Chivi, 2015

Employment Status of Household Head	Poverty Incidence	Poverty Gap	Poverty Severity
Economically Inactive	78%	0.541026	0.332272
Employed	75%	0.438661	0.244283

However, even if the household head might be economically inactive, he/ she will not necessarily be poor if he is staying in a household where more than half of the members are employed. In the same manner if a household head is employed but is supporting more people he/ she might end up being poor. Therefore, it was found necessary to evaluate the poverty status of households in relationship to the employment status of all household members. As already pointed out, this variable was found to be statistically insignificant at 10% level of significance as a major determinant of poverty.

Table 4.10 shows that employment as dependency ratio (total number of people in the household to those employed) increases poverty levels increases. Households with high employment dependency ratio between 2.5-0.14 had 68% poverty incidence compared with 85% poverty incidence for those households without any member employed. The poverty gap also tends to increase with the employment dependency ratio.

Table 4.10: Decomposition of Poverty by Employment Dependency Ratio, Chivi, 2015			
Employment Dependency Ratio	Poverty Incidence	Poverty Gap	Poverty Severity
No one employed	85%	0.48	0.27
5-8	82%	0.54	0.34
4.5-2.67	87%	0.52	0.33
2.5-0.14	68%	0.40	0.21

Figure 4.7 in Appendix II shows that as employment dependency ratio increases the consumption expenditure decreases. This suggests that as many people are employed in the household there are also higher chances of the household to move out of poverty. This finding corroborates earlier studies that also confirmed the importance of employment (Zimstat, 2013a, ZEPARU, 2003 and Cavendish, 1999). The conclusion reached regarding this factor was that, there was not enough statistical evidence to support that the employment dependency ratio is a major determinant poverty in Chivi. This should be taken in light of the fact that the study area is a rural area where the form of employment is communal farming which is not very rewarding. It will be quite interesting to investigate how the variable behaves in urban areas or other contexts. This conclusion however, does not suggest that employment creation is not necessary in rural areas. The major observation made in this study was that there was need to diversify sources of income in rural areas to reduce over dependency on agriculture, which was not very rewarding.

4.7 Social Capital Factors that Determines Poverty

In the study area, totem of the household head was one of the major social factors that determine poverty and there was enough statistical evidence from data collected to support that claim at 10% level of significance. Also found to be significant at the same level of significance was the *geographical area*, as determined by the village the household was located. While all village dummies were created, only one village dummy was found to be significant. The significance of the village dummy confirms that indeed geography remains an important determinant of poverty even at micro –level where geographic factors are usually assumed to be ubiquitous.

4.7.1 Totem of the Household Head

Evidence from the study suggested that being of the Shumba totem increases the odds of being poor by 27%. The Shumba people in Chivi are more than 2.273 times to be poor as shown by the

odds ratio in Table 4.3. This result can partly be explained by the historical background of the Shumba people in Chivi which is beyond the scope of this study. Suffice to note that anecdotal evidence points to the fact that most of the Shumba people in Chivi were displaced from Mashava to pave way for exploration by the Pioneer Column. This finding is in line with one found by Cavendish (1999) in Shindi area of Chivi that the Popi and Muperi people in Shindi were disadvantaged because of historical land policies. Furthermore, this resonates with the assertions of Sen (1999), Mazarire (2003) and Todaro (1997) that poverty has its umbilical cord with the past and unless the umbilical cord is cut poverty perpetuates through generations. An anthropological study into the relationship between poverty and totems in Chivi would reveal more. This study recognizes that poverty is multi-dimensional and therefore needs an interdisciplinary and comprehensive approach to get to the root causes.

4.7.2 Geographical Factors

The study also confirmed the already established stlysied fact about poverty that, geography is an important determinant of poverty. Moreover, its importance does not diminish even at micro level when studies are carried out at district level. There was enough statistical evidence from the collected data that being resident in a village called Mariko increased the probability of being poor at 10% level of significance. Table 4.3 suggests that the odds of being poor increases by 70% for a household in Mariko village in Chivi. Households in Mariko village were 7.71 more times likely to be poor than households from other villages. Table 4.12 shows that poverty incidence in Mariko village was 81%, compared to 62% for Zivuku village. However, Mariko did not have the highest poverty incidence compared to Imbayago and Mafadza, which had 94% and 88% respectively. The decomposition of poverty within villages in Chivi is presented in Table 4.12.

Table 4.11: Decomposition of Poverty by Villages in Chivi, 2015			
Village	**Poverty Incidence**	**Poverty Gap**	**Poverty Severity**
Chitsika	69%	0.42	0.23
Imbayago	94%	0.56	0.33
Mafadza	88%	0.57	0.38
Mariko	81%	0.45	0.25
Musiiwa	88%	0.29	0.14
Mutau	81%	0.51	0.32
Zivuku	62%	0.41	0.21

The distribution of poverty incidences in these villages seems to confirm to the transaction costs theory in that remoteness contributes to the increase in poverty through increase in transaction costs as espoused by Coase (1937). These villages are more than 70 km from the major urban centre so the inhabitants live in enclaves where interaction with rest of the world is limited.

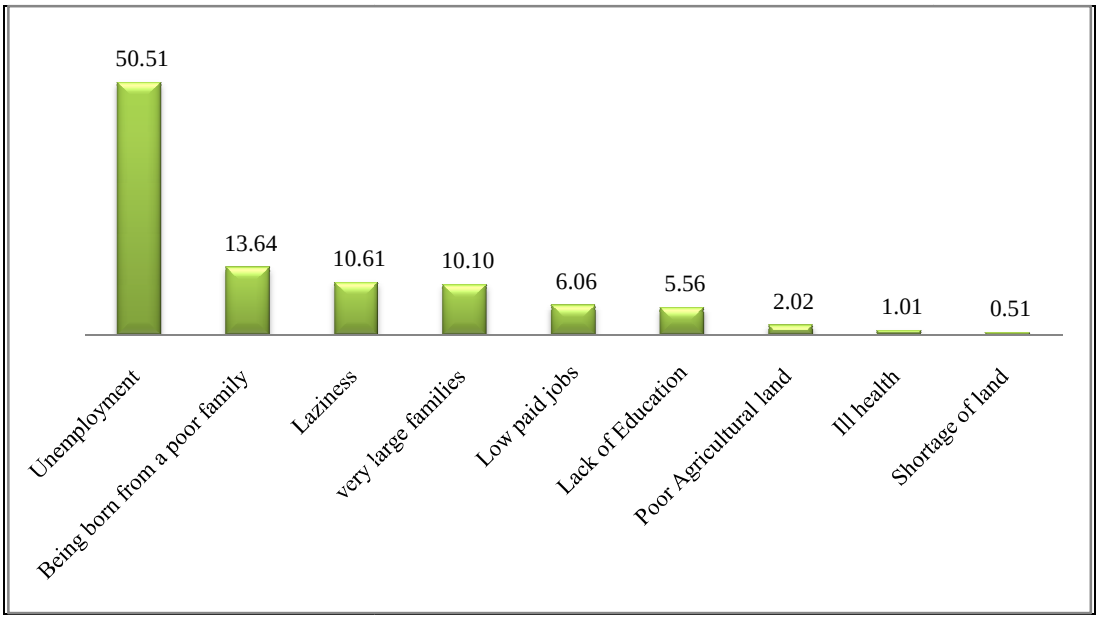
Only half of the households in the villages owned radios, 27% owned television and only 7% had access to newspapers. Though access to information might improve as a result of technological advancement and use of social media, smartphones were beyond the reach of many poor people. Provision of information, especially business information on economic developments in the country and worldwide might improve the poverty situation of the people in Chivi. The government's current drive on the utilization of technology should also embed poverty alleviation by creating the proposed technoparks in rural areas.

4.8 Discussion on Households Perceptions on the Solutions to Poverty

The people in Chivi indicated that there was need for small scale loans in rural areas to support small businesses. However they were very few households that owned any form of household business. Many practiced gardening but again it was for consumption purposes. The few that were engaged in household businesses complained of the nation-wide problem of high bad debts. Among the constraints that were pointed by households was that, the money was not available to them which might reflect the prevailing liquidity constraints. It might be interesting to evaluate the impact of multi-currency policy on rural poverty. However, this subject is left for future

investigations as it goes beyond the scope of this study. The major factors that determine poverty in rural areas were identified as unemployment and being born from a poor family as shown in Figure 4.3. This view on the main causes of poverty in Chivi agrees with the view proffered by Chambers (1983) that poverty feeds on itself where children from poor families propagate poverty.

Figure 4: 3: People's Perceptions about the Main Causes of Poverty in Chivi, %, 2015



Interestingly the poor also recognized that very large families were a major cause of poverty echoing what was found through econometric analysis. The people in Chivi were unanimous that creation of employment is one of the sure ways of ending the scourge of poverty in this area. However, they were also pointing to government that it should provide solutions to the challenges emanating from poverty. Some have resigned to fate and they could only say "*Mwari ndiye anoziva*" (God knows in shona).

The calls for donors specifically CARE International were growing louder and were still growing louder an indication that there were elements of dependency syndrome creeping in. Moreover, government's plate is full of problems with little to no solutions due to lack of fiscal space. However, others were suggesting that the people should form cooperatives and enable the establishment of irrigation schemes.

This section concludes by analyzing how the people of Chivi assessed their own poverty status. The self assessment of households yielded a poverty incidence of 78% as shown in Table 4.13 quite comparable to the 75.5% that was established through the absolute measure. This provides some hope that at least people are not comfortable in their poverty. This assessment agrees with Chambers (1983) who suggested that the poverty that is seen through the lenses of the poor themselves is the real poverty.

Table 4.13: Poverty Status of the People in Chivi - Self Assessment

Poverty Category	Percent
Poor	57.29
Very Poor	21.11
Non Poor	13.07
I don't know	7.54
Other	1.01

4.9 Major Conclusions of the Chapter

On the demographic determinants of poverty in Chivi it was established that:

- The probability of being poor increases with household size, a unit increase in household size increases the poverty model value by 0.47182 units. The odds of being poor increases by 60% with unit increase in household size.
- Evidence from the research suggested that the age of the household head is negatively related to household poverty level. The odds of being poor decreases by 2% per unit increase in the age of the household head. This has lead to the rejection of the hypothesis that households with an older household head are poorer than those headed by the younger ones.
- Household religious beliefs were suggested as one of the demographic factors that determine poverty in Chivi, wherein being Catholic decreases the odds of being poor by 78%.
- There was no enough statistical evidence to suggest that sex of the household head determines poverty therefore the null hypothesis that female headed households tend to be poor was rejected. Evidence from the data seemed to suggest that there was no enough statistical evidence to support the hypothesis that the higher the dependency ratio the higher the poverty levels of the household.

On the human capital factors that determine poverty in Chivi evidence from data suggested that:

- There is enough statistical evidence to support the hypothesis that the higher the level of education the less likely the households are to be poor. The presentation showed that the value of the model decrease by 0.2246 units per unit change in the average age of schooling. The odds of being poor decreases by 20% per unit increase in average years of schooling.
- There was no enough statistical evidence to suggest that poverty of the household was significantly related to the education level of the household head.

On the major agricultural assets that determine poverty the following conclusions were drawn:

- There was a negative relationship between ownership of cattle and household poverty. Additionally, there was enough statistical evidence to suggest that owning four or more cattle decreases the probability of being poor. The odds of being poor decreases by 76% for a unit change in cattle ownership

On the social capital factors that determine poverty:

- Geographical location and household head totem were found to be significant determinants of poverty and inversely related to the probability of being poor.

Chapter Five: Summary, Conclusions and Recommendation

5.0 Introduction

This chapter presents summary of the results, conclusions, recommendations, limitation of the study and areas of further research.

5.1 Summary

The study was aimed at establishing the major demographic factors, human capital factors and agricultural assets that determine poverty in Chivi. The survey was based in 3 wards and seven villages covering 204 households in Chivi. The poverty line consistent with the consumption patterns of the poor was derived and used to classify households as either poor or non poor. Households designated as poor were those whose consumption expenditure was below the poverty line. The poverty incidence for Chivi was estimated at 75.5%, poverty gap was 0.47, and poverty severity index was 0.26 while the chronically poor were 61%.

The Logit binary model was used for econometric modeling using Eviews and Gretl. An inverse relationship was established between the probability of being poor and: the age of household head; household head being Catholic, average years of schooling and ownership of four or more cattle. Household size, geographical location and totem were found to be positively correlated with the probability of being poor. Empirically, it was suggested that sex of the household head was not a significant determinant of poverty. Employment status of the household head was also empirically, not found significantly related to the probability of being poor in Chivi. Similar conclusions were drawn for the dependency ratio, employment dependency ratio and ownership of scotch carts.

The findings of this study suggest that household level characteristics are important determinants of poverty. Poverty in Chivi is determined by demographic, religious beliefs, location, level of education and other social capital factors. A notable finding was that the gender of household did not significantly determine the household poverty status in Chivi. The next section discusses the implications of these findings, theoretically and practically.

5.2 Conclusions

Arguably at national level, increase in population might imply increase in the market size and adequate provision of labour leading to national prosperity; however, the findings of this study imply that at household level increase in household members implies increased competition for scarce resources leading to poverty. This is not surprising in light of low productivity and poor production techniques associated with rural household production. It can also be inferred that low labour productivity was the major problem which manifested through higher poverty levels for larger households. Theoretically, the findings of this study agree with Maulthisian theory of population growth but seem to contradict the Drugery Averse theory. However, it is clear that if labour productivity was enhanced and means of production increased, larger households could have promoted creation of more wealth for the households.

While young people are usually regarded energetic and highly productive, this study's findings imply that the young did not have the means of production for them to be productive. This implies that the root cause of poverty among young adults might be lack of productive assets. The findings in this study suggested that ownership of productive assets like cattle decreases the chance of households to be in poverty. It can therefore be suggested that lack of productivity among young adults is at the root of poverty in Chivi. The finding concurs with the lifecycle theory of income that suggests that wealth increases with age up to retirement age where wealth will start to decrease. It therefore becomes very important to create an enabling environment that releases the full potential of young adults so that in future they would become the sources of savings an important element for economic growth and effective poverty alleviation.

The study suggests that poverty can be traced to one's religious beliefs. It is important to further establish which religious beliefs in particular are at the root cause of poverty in Chivi. Religion shapes individuals attitudes and behavior and it is these that defines one's success. Those religions that promotes pattern of behavior that is inimical to economic prosperity for instance: promotion of communal ownership that leads to the tragedy of the commons and encouragement of polygamous relations that lead to very large households can increase household's vulnerability to poverty. This study's finding therefore points to a very important relationship between religious beliefs and poverty. The study's conclusion concurs with Rostow's theory predictions on modern economic development that it required changes in belief systems.

Education is a very important human capital factor in economic development and poverty alleviation in Chivi and essential to increasing labour productivity. As average years of schooling increases, households are better equipped to deal with difficult circumstances they face. Therefore, education breaks the vicious cycle of poverty. Those with higher levels of education have better access to information about markets and inputs than those without. They also appreciate modern production techniques and can easily increase their productivity. Moreover higher levels of education increases household members' access to better opportunities as results of the study suggested. Therefore at the heart of decreasing poverty in rural areas is increase in average years of schooling.

The study suggests that cattle are an important productive asset therefore essential for poverty alleviation. Cattle increase household capability to produce more on their farms as they provide draught power for tillage and transport and cow dung can be an important source of manure. This therefore implies that efforts to build the cattle herd would significantly reduce the levels of poverty in rural areas like Chivi. Cattle can also be a form of an investment which increases household accumulation. Cattle also improve the household livelihoods as they can be an important source of meat and milk for rural households.

In Chivi there was no any other significant form of employment as households rely on agriculture. As already discussed lack of meaningful employment in Chivi except for lowly productive communal agriculture, meant that there was no significant difference between those employed and not employed. In the absence of a vibrant agricultural sector there is nothing from Chivi's rural economy, therefore, there is need to create an alternative economy in the district.

The significance of the totem variable points to historical and anthropological issues that determine poverty. This finding suggests that either a person's genetics or history determines poverty status. A further study into these factors as they relate to the poverty situation in Chivi might bring interesting conclusions. A further multidisciplinary study is suggested.

The geographical variable that was significant suggest that either the people in that village are overcrowded or they do not have enough land for cultivation. It can be that the types of soils in that village are not suitable for agriculture. In light of this there is need to consider analyzing the

land holding patterns in Chivi with the view of finding an equitable distribution of land among households. Some areas which are still occupied might not be suitable for continued human inhabitation.

5.3 Recommendations

Given these high poverty levels in Chivi, government should put poverty alleviation as one of its top priorities. This study suggests rapid rural development focusing on increasing productivity in the agricultural sector. This study has identified provision of draught power as one of the key components in increasing agricultural productivity. Maintaining high education levels is paramount to enabling transmission of technology that promotes high productivity. Large household size should be turned to an advantage by the households in Chivi through increasing labour productivity in their agricultural activities.

In this study it is proposed that appropriate agricultural activities should be identified and promoted for Chivi. Cognizant of the fact that Chivi is a drought prone area it is quite surprising that people in this area favor growing maize regardless of the fact that the probability of failure is very high. To curb the scourge of poverty in Chivi there is need to deal with the psychological factors that hinder them to grow drought resistant crops. It is therefore suggested that government in its input schemes in Chivi should only consider giving drought resistant seeds like sorghum and millet. Ownership of donkeys should also be encouraged since they are drought resistant and are an important source of draught power.

There is need to consider coming up with livestock enhancement programmes for the people of Chivi targeting those with less than four cattle. Oxfam used to run cattle loan scheme which can also be extended to Chivi. The government could give incentives to banks that invest in rural areas for the restocking exercise. TN Bank in Zimbabwe tried to launch a bank product that involves farmers giving their cattle as collateral for them to access finance. This can be extended to also give farmers loans to purchase cattle. This study suggests that supplementary feeding should be introduced in Chivi in times of drought, in light of the fact that cattle were established to be the main catalyst for household emancipation.

To harness the exuberance of young adults and the youth for productive activities there is need to institute measures to increase their productivity in the rural setting. While formal education is

essential for human capital development, it is suggested that vocational training aimed at increasing small scale industrial activity in Chivi should be introduced by government. Activities like leather processing; milk processing and agricultural produce canning could transform the economic landscape of rural Chivi. Even respondents were of the opinion that cooperative could be a solution to the poverty challenges they face.

Maintenance of higher levels of education was reaffirmed as an important cog in poverty alleviation. Government should consider establishing satellite preparatory schools for primary school kids at lower grades who are walking more than 10 km to school. There is need for the communities to consider construction of foot bridges to assist in crossing flooded rivers by children. This can also be a potential project for food for work programme. There is also need for such organizations like Girl Child Network to extent their outreach to places like Chivi such that the rights of children are safeguarded at school.

The respondents have tended to demand answers from government for all their challenges a seeming sign of dependency syndrome. There is need for a massive campaign by government educating the population on the need for them to take responsibility.

This study suggests a multi-pronged approach to the fight against poverty that includes understanding the religious beliefs in Chivi that impact on poverty status of households. Therefore, various religious groupings should be included in poverty alleviation initiatives. Different religious beliefs should be shaped with the view of fighting against poverty. Non Governmental Organisations (NGOs) and government can play an important role in engaging different religious leaders so that they take the fight against poverty to their churches. It will be also in the best interest of these churches that their members move out of poverty.

Geography was established to be an important factor even at micro-level which authorities must take up seriously. Government should seriously consider embarking on the communal area reorientation programme which was supposed to succeed the land reform programme. This would enable government to undo some of the injustices that were perpetuated in the past and cut the umbilical cord of poverty. It is a considered view of this study that communal areas might be after all ripe for land redistribution due to the passage of time since the people were settled there.

In the same stride government should increase the presence of extension services in places like Chivi.

In Chivi there is scope for the provision of financial services through rural banking to enable households to start small business as a way of diversifying the household sources of income. This should be fairly easy in light of the advent of mobile money banking and the programme needs to be supported by government through the Reserve Bank. The study recommends that provision of financial services to rural areas like Chivi is a possible way to reduce poverty in line with economic theory that supply of financial services can spur economic development.

5.4 Limitation of the Study

The anthropological and historical factors are suspected to be some of the unexplained determinants of poverty which were beyond the scope of this study. Like any other crossectional study, this study takes the snap short view of a more complex and dynamic phenomenon like poverty, regular updating of the survey is needed for the results to remain useful over time. While this study provides a useful framework for analysis of rural poverty in Zimbabwe, there might be need to carry out similar studies in rural areas with different geographical characteristics to tackle the poverty issues.

5.5 Area for Further Research

- The Impact of adoption of the multicurrency on poverty in rural areas in Zimbabwe 1999 and beyond;
- Replicating this study in other rural areas and compare results with the findings from this study.
- The anthropological and historical root causes of poverty in Chivi- from pre 1890 to present.
- The role of financial inclusion in poverty alleviation in rural Zimbabwe

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Appendix I – Tests

The data was tested for multicollinearity and normality as shown in Table B1 and Figure B1. There was no serious multicollinearity detected in the data, however the error terms were found not to be normally distributed. The test for heteroscadisticity established that there was no enough statistsical evidence to suggest that there was heteroscasticity in the data, so the data was found to be without heteroscedasticity see Models B1 and B2.

Test for multicollinearity

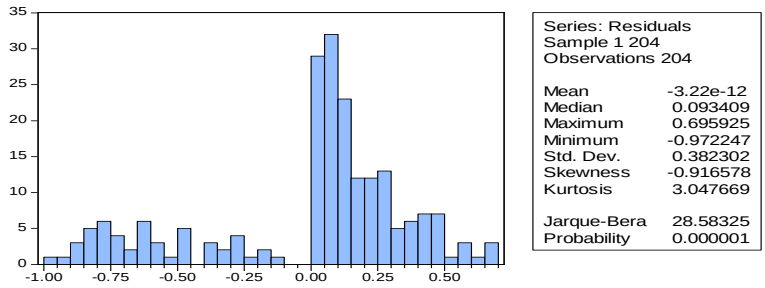
Table B1: Correlation coefficient matrix - Testing for Multi-colinearity

	CTTOWN	DEPR	EMPDR	HHAGE	HHED	HHEMP	HHMSICK	HHSEX	HHSIZE	PROPFML	SCTOWN
CTTOWN	1	-0.14783	0.021569	0.176593	0.003839	0.029487	0.122255	-0.1112	-0.00565	-0.15417	0.12922
DEPR	-0.14783	1	0.060264	0.330096	-0.0687	0.096093	-0.02521	0.095585	0.272731	0.168802	-0.16052
EMPDR	0.021569	0.060264	1	-0.04429	0.044632	-0.19642	-0.07131	-0.1331	0.648786	0.006462	0.049289
HHAGE	0.176593	0.330096	-0.04429	1	-0.47856	0.072909	0.09464	0.266295	0.066734	0.049861	0.003284
HHED	0.003839	-0.0687	0.044632	-0.47856	1	0.018992	-0.0819	-0.32104	0.026933	-0.14615	0.106783
HHEMP	0.029487	0.096093	-0.19642	0.072909	0.018992	1	-0.11271	0.03395	-0.00209	-0.0337	-0.04319
HHMSICK	0.122255	-0.02521	-0.07131	0.09464	-0.0819	-0.11271	1	0.1128	0.027985	0.037408	0.068293
HHSEX	-0.1112	0.095585	-0.1331	0.266295	-0.32104	0.03395	0.1128	1	-0.07562	0.386406	-0.17184
HHSIZE	-0.00565	0.272731	0.648786	0.066734	0.026933	-0.00209	0.027985	-0.07562	1	0.086609	0.077893
PROPFML	-0.15417	0.168802	0.006462	0.049861	-0.14615	-0.0337	0.037408	0.386406	0.086609	1	-0.19372
SCTOWN	0.12922	-0.16052	0.049289	0.003284	0.106783	-0.04319	0.068293	-0.17184	0.077893	-0.19372	1

Among the variables of concern there was no multicollinearity found as most ratios were below 0.8.

Test for Normality – the Jargue-Bera Test

Figure B1: Test for Normality - the Jarque- Bera Test



From the results we rejected the null hypothesis that residuals are normally distributed. This shows that that the residuals are not normally distributed. However, since the normality condition is for convenience we proceeded with regression.

Test for heteroscedasticity

An OLS Model was run with all variables with poverty as a dependent variable.

Model B1: OLS, using observations 1-204 (n = 188)
Missing or incomplete observations dropped: 16
Dependent variable: Pov

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	0.485706	0.317279	1.5308	0.12783	
Hhsize	0.058655	0.0248248	2.3628	0.01937	**
Depr	0.0981286	0.0976607	1.0048	0.31655	
Hhsex	-0.0206785	0.0792242	-0.2610	0.79443	
Ppfml	0.153785	0.148064	1.0386	0.30058	
HhAge	0.00502344	0.0092388	0.5437	0.58740	
Hhemp	-0.0147551	0.0795476	-0.1855	0.85309	
Empdr	0.0346664	0.0763282	0.4542	0.65033	
Cttown	-0.140456	0.07604	-1.8471	0.06662	*
scown	-0.087256	0.137388	-0.6351	0.52629	
hmsick	-0.0679491	0.0754373	-0.9007	0.36912	
Ayrs	-0.03442	0.0190468	-1.8071	0.07267	*
Hhed	-0.00450225	0.0109607	-0.4108	0.68181	
V1	-0.0156982	0.0981208	-0.1600	0.87310	
V2	0.0954865	0.0639633	1.4928	0.13750	
V3	0.136408	0.11885	1.1477	0.25284	
V4	0.369993	0.156531	2.3637	0.01933	**
V5	-0.0346028	0.109709	-0.3154	0.75288	
V6	0.116845	0.115699	1.0099	0.31410	
R1	0.0575415	0.112932	0.5095	0.61111	
R2	-0.185561	0.128601	-1.4429	0.15105	
R3	0.0214569	0.150149	0.1429	0.88655	
R4	0.106726	0.10982	0.9718	0.33264	
R5	0.101641	0.160636	0.6327	0.52783	
T1	0.149942	0.0998665	1.5014	0.13527	
T2	-0.145435	0.108	-1.3466	0.18006	
T3	0.0365142	0.101295	0.3605	0.71898	
T4	0.166289	0.110994	1.4982	0.13611	
T5	0.0814985	0.158958	0.5127	0.60888	
Hhagesq	-6.6912e-05	8.59945e-05	-0.7781	0.43769	
Empdrsq	-0.00717304	0.00956892	-0.7496	0.45461	
Deprsq	-0.0320503	0.0221712	-1.4456	0.15030	

Mean dependent var	0.755319		S.D. dependent var	0.431046
Sum squared resid	22.69427		S.E. of regression	0.381413
R-squared	0.346828		Adjusted R-squared	0.217030
F(31, 156)	2.672075		P-value(F)	0.000038
Log-likelihood	-68.01346		Akaike criterion	200.0269
Schwarz criterion	303.5931		Hannan-Quinn	241.9880

Breusch-Pagan test for heteroskedasticity

```
OLS, using observations 1-204 (n = 188)
Missing or incomplete observations dropped: 16
Dependent variable: scaled uhat^2

             coefficient    std. error     t-ratio    p-value
  ------------------------------------------------------------
  const       2.76000       0.957245       2.883      0.0045  ***
  Hhsize     âˆ’0.0541547     0.0748976     âˆ’0.7230     0.4707
  Depr       âˆ’0.595348      0.294647      âˆ’2.021      0.0450  **
  Hhsex       0.110580      0.239023       0.4626     0.6443
  Ppfml       0.157693      0.446716       0.3530     0.7246
  HhAge      âˆ’0.0419598     0.0278739     âˆ’1.505      0.1343
  Hhemp       0.317042      0.239999       1.321      0.1884
  Empdr      âˆ’0.368157      0.230286      âˆ’1.599      0.1119
  Cttown      0.0767383     0.229416       0.3345     0.7385
  scown       0.354426      0.414505       0.8551     0.3938
  hmsick      0.106509      0.227598       0.4680     0.6405
  Ayrs        0.0223609     0.0574651      0.3891     0.6977
  Hhed        0.000321834   0.0330690      0.009732   0.9922
  V1          0.528735      0.296035       1.786      0.0760  *
  V2         âˆ’0.0885610     0.192980      âˆ’0.4589     0.6469
  V3         âˆ’0.558589      0.358576      âˆ’1.558      0.1213
  V4         âˆ’1.04083       0.472263      âˆ’2.204      0.0290  **
  V5         âˆ’0.0179299     0.330997      âˆ’0.05417    0.9569
  V6         âˆ’0.0623480     0.349069      âˆ’0.1786     0.8585
  R1         âˆ’0.0668295     0.340722      âˆ’0.1961     0.8448
  R2          0.309926      0.387994       0.7988     0.4256
  R3          0.0509714     0.453007       0.1125     0.9106
  R4         âˆ’0.179441      0.331332      âˆ’0.5416     0.5889
  R5         âˆ’0.693608      0.484648      âˆ’1.431      0.1544
  T1         âˆ’0.683764      0.301302      âˆ’2.269      0.0246  **
  T2          0.174841      0.325842       0.5366     0.5923
  T3         âˆ’0.0565978     0.305612      âˆ’0.1852     0.8533
  T4         âˆ’0.554841      0.334875      âˆ’1.657      0.0996  *
  T5         âˆ’0.583356      0.479584      âˆ’1.216      0.2257
  Hhagesq     0.000408477   0.000259450    1.574      0.1174
  Empdrsq     0.0536391     0.0288699      1.858      0.0651  *
  Deprsq      0.116069      0.0668915      1.735      0.0847  *

  Explained sum of squares = 79.6632

Test statistic: LM = 39.831589,
with p-value = P(Chi-square(31) > 39.831589) = 0.132882
```

The null hypothesis is that there is no heteroscedasticity, we accept the null hypothesis at 5% level of significance and conclude that there is enough statistical evidence to suggest that there was no heteroscedasticity in the data.

Appendix II: Preliminary Data Analysis

These graphs show various simulations that were done to establish the relationship of the variables of concern. The data suggests that the higher the dependency ratio the lower the expenditure per capita as shown in Figure 4.4

Figure 4.4: Household Expenditure per capita by Dependency Ratio, Chivi, 2015

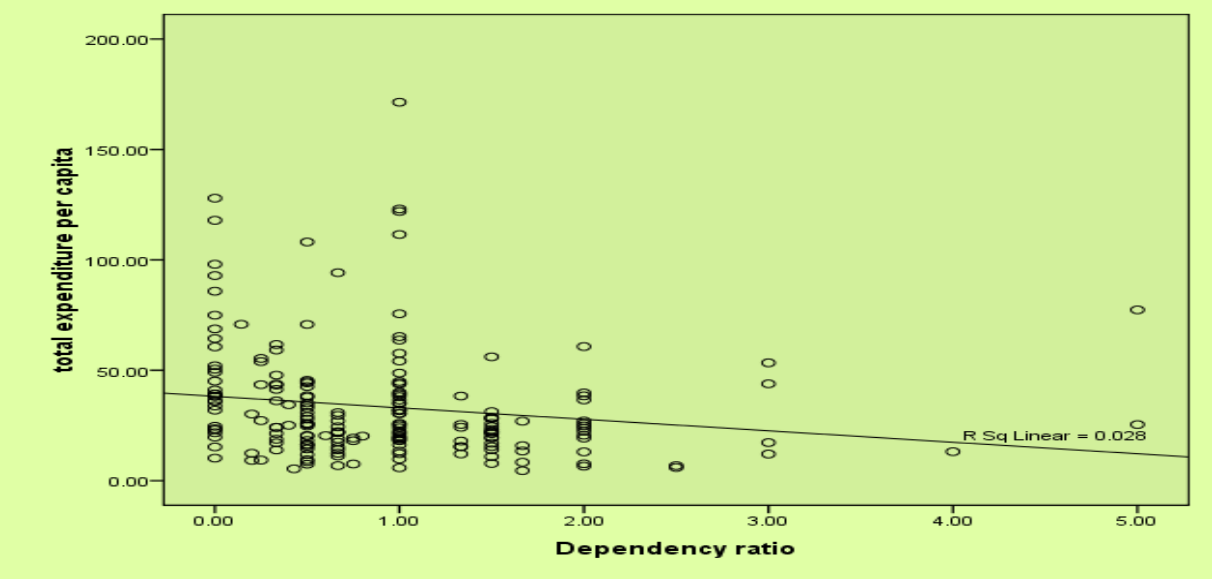


Figure 4.4 shows that there is a negative relationship between household employment dependency ratio and consumption expenditure per capita. The relationship between household head level of education and consumption expenditure was found to be indefinite as depicted in Figure 4.5. However, a positive relationship was established between the household average years of schooling and consumption expenditure as shown in Figure 4.6. This suggests a negative relationship between poverty and average years of schooling.

Figure 4.5: Household Expenditure per capita by Household Head Level of Education, Chivi, 2015

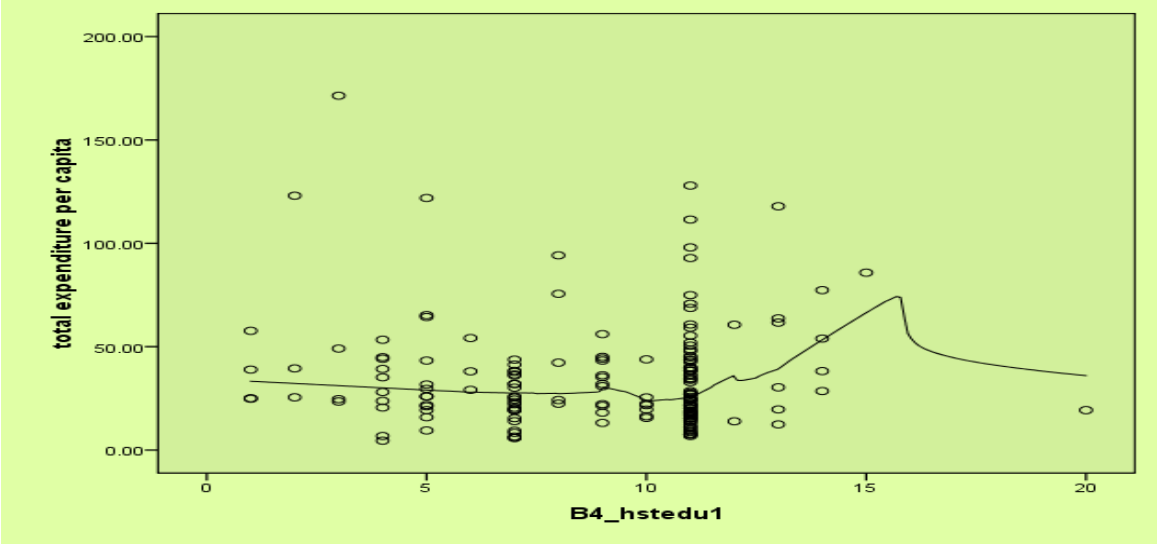


Figure 4.6: Household Expenditure per capita by Household Average Years of Schooling, Chivi, 2015

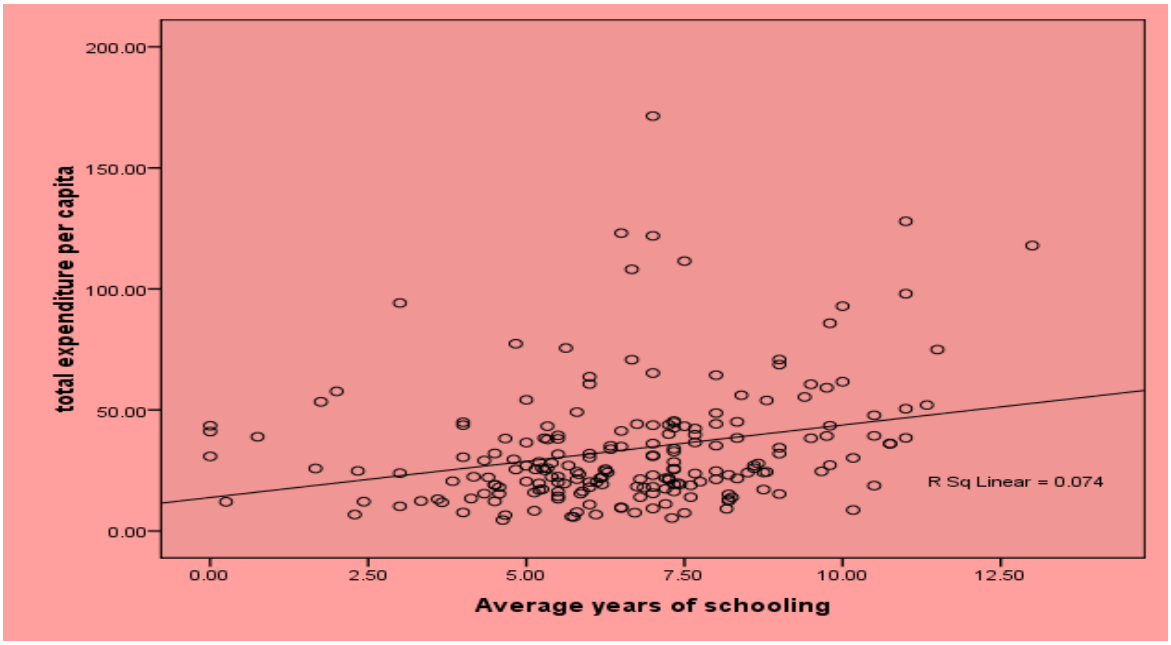


Figure 4.7: Household Expenditure per capita by Employment Dependency Ratio, Chivi, 2015

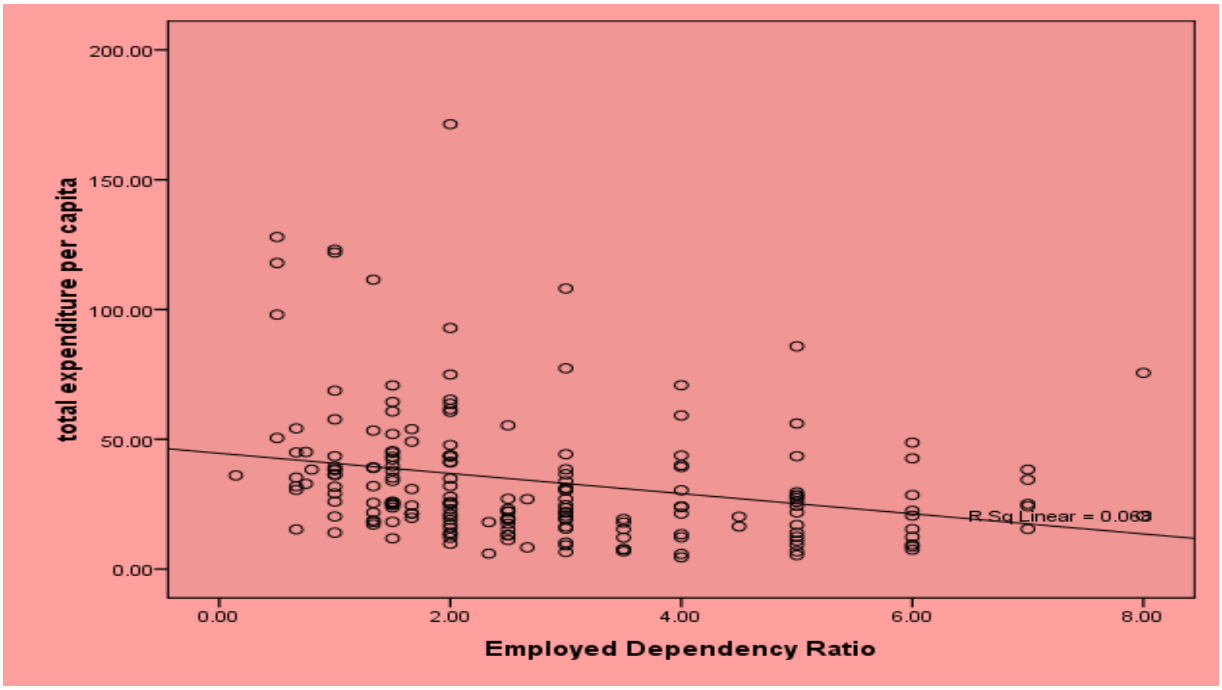


Figure 4.7 depicts an inverse relationship between employment dependency ratio and household consumption per capita in Chivi.

Appendix III: Estimation of the Model

The model was estimated using Gretl through iteration. The general model contained all the variables that were under investigation. Using the p-value statistic a variable was not significant at 10% level of significance, was removed from the model.

The general model was given by:

$$\log it(p) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 - \beta_6 x_6 + \beta_7 x_7 + ... + \mu$$

Where: $\beta_0 = C$ = Constant

β_1..... = estimated coefficients

x_1 =are the variables.

μ = is the error term.

The dependent variable was **Pov**= which took the value of 1 if household is poor and 0 if it is not poor.

Twelve variables were entered into the general model:

1. **Hhsize-** Household size
2. **Depr-** Household dependency ratio
3. **Hhsex-** Gender of the household head-
4. **Ppfml-** Proportion of female household members
5. **Hhage**-Age of the household head
6. **Hhemp-** Employment status of the household head
7. **Empdr-**Employment dependency ratio
8. **Cttown-**Number of cattle owned by the household
9. **Scown-**Ownership of scotch car, the variable took the value of 1 if the household own a scotch cart and zero otherwise.
10. **Hhed-** Education level of household head
11. **Ayrs-** Average years of schooling for the household-
12. **Hmsick -** Health status of household members-

13. **Hhagesq-** household head age squared.
14. **Empdrsq-**employment dependency ratio squared
15. **Deprsq-** dependency ratio squared.
16. **V1-** Location variable – took the value of 1 if the household was located in Chitsika village and zero otherwise. The sample had seven villages so, 6 dummies for location were created.
17. **V2**- a Location variable that took the value of 1 if household is located in Imbayago village and 0 otherwise.
18. **V3-** a Location variable that took the value of 1 if household is located in Mafadza village and zero otherwise.
19. **V4-** a Location variable that took the value of 1 if household is located in Mariko village and zero otherwise.
20. **V5-** a Location variable that took the value of 1 if household is located in Musiiwa village and zero otherwise.
21. **V6-** a Location variable that took the value of 1 if household is located in Mutau village and zero otherwise.
22. **R1-** Religious beliefs variable- took the value of 1 if the household religious beliefs follow Christian Pentacostal and zero otherwise.
23. **R2-** Religious beliefs variable- took the value of 1 if the household religious beliefs follow Christian Catholic and zero otherwise.
24. **R3-** Religious beliefs variable- took the value of 1 if the household religious beliefs follow Christian Protestants Catholic and zero otherwise.
25. **R4-** Religious beliefs variable- took the value of 1 if the household religious beliefs follow Christian Apostolic Sects and zero otherwise.
26. **R5-** Religious beliefs variable- took the value of 1 if the household religious beliefs follow Traditional beliefs and zero otherwise.
27. **T1 –** This was a social capital variable that took a value of 1 for one being of Shumba (lion) and zero, otherwise. Other social capital variables were created for other totems which were represented in the sample.
28. **T2-**this was a social capital variable that took the value of 1 if one is of Moyo totem and zero otherwise.

29. **T3-** this was a social capital variable which took the value of 1 for one being of Ngara totem and zero otherwise.
30. **T4-**this was a social capital variable that took the value of 1 if one is of Shava totem and zero otherwise.
31. T5- this was a social capital variable that took the value of 1 if one is of Shoko totem and zero otherwise.

Through the process of iteration parsimonious model was established as the one presented in the report. All those variables that were insignificant at 10% were removed from the model and the model was estimated again. It was also considered to enter the squared dependency ratio and squared employment dependency but the variables remained insignificant even at 10% level. They were also dropped because they caused multicollinearity in the model. After reaching a parsimonious level, those variables that were initially rejected were alternatively included until a more acceptable model was established. The Models below shows how the estimation procedure was followed using Gretl model.

App III.1 : Model 1 : Generalised Model with 31 variables

Model 1: Logit, using observations 1-203 (n = 188)
Missing or incomplete observations dropped: 15
Dependent variable: Pov
Standard errors based on Hessian

	Coefficient	*Std. Error*	*z*	*p-value*	
Const	-1.2603	2.80045	-0.4500	0.65269	
Hhsize	0.953171	0.303674	3.1388	0.00170	***
Depr	0.292626	0.827852	0.3535	0.72373	
Hhsex	-0.0481223	0.716104	-0.0672	0.94642	
Ppfml	1.06904	1.39819	0.7646	0.44452	
HhAge	0.0654737	0.0783838	0.8353	0.40355	
Hhemp	-0.323687	0.65686	-0.4928	0.62217	
Empdr	0.251083	0.635579	0.3950	0.69281	
Cttown	-1.31704	0.595025	-2.2134	0.02687	**
Scown	-0.00483707	1.11627	-0.0043	0.99654	
Hmsick	-0.201377	0.610062	-0.3301	0.74133	
Ayrs	-0.3617	0.169296	-2.1365	0.03264	**
Hhed	-0.0838915	0.101543	-0.8262	0.40871	
Hhagesq	-0.000738365	0.00073013	-1.0113	0.31188	
Empdrsq	-0.103906	0.0839	-1.2384	0.21555	
Deprsq	-0.203003	0.169947	-1.1945	0.23228	
V1	-0.403124	0.804406	-0.5011	0.61627	

V2	1.34252	0.688989	1.9485	0.05135	*
V3	1.1227	1.16359	0.9649	0.33462	
V4	3.71018	1.63742	2.2659	0.02346	**
V5	-0.740539	0.978858	-0.7565	0.44933	
V6	1.3831	0.925395	1.4946	0.13502	
R1	0.248738	0.984651	0.2526	0.80057	
R2	-1.37766	1.0903	-1.2636	0.20639	
R3	-0.447823	1.17435	-0.3813	0.70295	
R4	0.93015	0.99059	0.9390	0.34774	
R5	1.51901	1.85719	0.8179	0.41341	
T1	1.63782	0.902066	1.8156	0.06943	*
T2	-0.994344	0.859968	-1.1563	0.24758	
T3	0.93637	0.86191	1.0864	0.27731	
T4	3.01782	1.38417	2.1802	0.02924	**
T5	1.08053	1.62901	0.6633	0.50714	

Mean dependent var	0.755319	S.D. dependent var	0.431046
McFadden R-squared	0.409474	Adjusted R-squared	0.103564
Log-likelihood	-61.77266	Akaike criterion	187.5453
Schwarz criterion	291.1115	Hannan-Quinn	229.5064

Number of cases 'correctly predicted' = 163 (86.7%)
f(beta'x) at mean of independent vars = 0.431
Likelihood ratio test: Chi-square(31) = 85.667 [0.0000]

App III.2: Test for Multicollinearity

A test of Multicollinearity was run and these were the results:

```
Variance Inflation Factors

Minimum possible value = 1.0
Values > 10.0 may indicate a collinearity problem

      Hhsize    2.681
        Depr    8.440
       Hhsex    1.762
       Ppfml    1.363
       HhAge   36.856
       Hhemp    1.319
       Empdr   22.162
      Cttown    1.340
       scown    1.344
      hmsick    1.379
        Ayrs    2.454
        Hhed    2.571
     Hhagesq   36.282
     Empdrsq   19.249
      Deprsq    6.312
          V1    2.398
          V2    1.553
          V3    1.811
          V4    1.290
```

```
V5     1.854
V6     1.857
R1     3.298
R2     2.629
R3     2.139
R4     3.500
R5     1.837
T1     2.579
T2     1.369
T3     1.681
T4     1.773
T5     1.488

VIF(j) = 1/(1 - R(j)^2), where R(j) is the multiple correlation coefficient
between variable j and the other independent variables
```

Variables which caused multicollinearity were dropped; these were HHAGESQ, EMDPRSQ and DEPRSQ. The resultant model is shown in Model 2

App III.3 Model 3: Estimation with 29 variable

Model 3: Logit, using observations 1-203 (n = 188)
Missing or incomplete observations dropped: 15
Dependent variable: Pov
Standard errors based on Hessian

	Coefficient	*Std. Error*	*z*	*Slope**
Const	1.30604	2.10801	0.6196	
Hhsize	1.04723	0.292962	3.5746	0.0944615
Depr	-0.645569	0.408151	-1.5817	-0.0582314
Hhsex	0.108953	0.6708	0.1624	0.00967604
Ppfml	1.18958	1.32314	0.8991	0.107302
HhAge	-0.0104047	0.0198095	-0.5252	-0.000938518
Hhemp	-0.437492	0.643037	-0.6804	-0.0356502
Empdr	-0.428914	0.226989	-1.8896	-0.0386888
Cttown	-1.42825	0.584539	-2.4434	-0.175785
Scown	-0.266728	1.03834	-0.2569	-0.0264321
Hmsick	-0.316056	0.56489	-0.5595	-0.0304038
Ayrs	-0.423517	0.159605	-2.6535	-0.0382019
Hhed	-0.0533078	0.0941905	-0.5660	-0.00480845
V1	-0.519812	0.772271	-0.6731	-0.0519504
V2	1.22727	0.684651	1.7926	0.110702
V3	0.93582	1.12027	0.8354	0.0638054
V4	3.93879	1.59581	2.4682	0.113857
V5	-0.653128	0.960658	-0.6799	-0.0712143
V6	1.17651	0.890735	1.3208	0.0758407
R1	0.38575	0.96927	0.3980	0.0325568
R2	-1.18904	1.06	-1.1217	-0.149878
R3	-0.0300544	1.14654	-0.0262	-0.00273847
R4	1.11296	0.978295	1.1377	0.0892073

R5	1.43623	1.836	0.7823	0.0800764
T1	1.88067	0.887869	2.1182	0.13007
T2	-0.864609	0.843347	-1.0252	-0.10246
T3	1.15902	0.828769	1.3985	0.0770388
T4	2.97229	1.35859	2.1878	0.13177
T5	1.51547	1.59229	0.9518	0.0813415

Mean dependent var	0.755319	S.D. dependent var	0.431046
McFadden R-squared	0.392310	Adjusted R-squared	0.115079
Log-likelihood	-63.56814	Akaike criterion	185.1363
Schwarz criterion	278.9931	Hannan-Quinn	223.1635

*Evaluated at the mean
Number of cases 'correctly predicted' = 163 (86.7%)
f(beta'x) at mean of independent vars = 0.431
Likelihood ratio test: Chi-square(28) = 82.076 [0.0000]

The previous discussed procedure was followed until a parsimonious model was reached

App III.4: Model 4- Estimation with Twenty five Variables

Model 4: Logit, using observations 1-203 (n = 188)
Missing or incomplete observations dropped: 15
Dependent variable: Pov
Standard errors based on Hessian

	Coefficient	*Std. Error*	*z*	*Slope**
Const	-2.94485	1.51127	-1.9486	
Hhsize	0.918295	0.263993	3.4785	0.101325
Depr	-0.278347	0.327128	-0.8509	-0.0307128
Hhsex	0.132962	0.621322	0.2140	0.0144126
Ppfml	1.51759	1.21035	1.2538	0.167452
HhAge	0.00254742	0.0155699	0.1636	0.000281083
Hhemp	-0.139997	0.60652	-0.2308	-0.0149748
Empdr	-0.364658	0.206054	-1.7697	-0.0402364
Cttown	-1.54649	0.542795	-2.8491	-0.229456
Scown	-0.679441	0.94905	-0.7159	-0.0931266
Hmsick	-0.396324	0.52295	-0.7579	-0.0471277
V2	1.40725	0.658103	2.1383	0.155277
V3	1.3809	1.00194	1.3782	0.103645
V4	2.79271	1.36597	2.0445	0.130121
V5	0.188638	0.822709	0.2293	0.0197804
V6	1.40273	0.814636	1.7219	0.105977

R1	0.0046065	0.913241	0.0050	0.000507891
R2	-1.40616	0.972205	-1.4464	-0.219566
R3	-0.204905	1.0864	-0.1886	-0.0241044
R4	0.907925	0.906637	1.0014	0.0909278
R5	0.767217	1.60648	0.4776	0.0657365
T1	1.59876	0.703969	2.2711	0.140136
T2	-0.948096	0.764439	-1.2403	-0.137057
T3	0.810711	0.716596	1.1313	0.0726231
T4	2.30483	1.16152	1.9843	0.143485
T5	1.05151	1.43516	0.7327	0.0815151

Mean dependent var	0.755319	S.D. dependent var	0.431046
McFadden R-squared	0.329461	Adjusted R-squared	0.080909
Log-likelihood	-70.14253	Akaike criterion	192.2851
Schwarz criterion	276.4326	Hannan-Quinn	226.3785

*Evaluated at the mean
Number of cases 'correctly predicted' = 152 (80.9%)
f(beta'x) at mean of independent vars = 0.431
Likelihood ratio test: Chi-square(25) = 68.9272 [0.0000]

App III.5: Model 5-Estiomation with Twenty one Variables

Model 5: Logit, using observations 1-203 (n = 188)
Missing or incomplete observations dropped: 15
Dependent variable: Pov
Standard errors based on Hessian

	Coefficient	*Std. Error*	*z*	*Slope**
Const	-2.33411	1.34079	-1.7408	
Hhsize	0.886791	0.258291	3.4333	0.10152
Depr	-0.268479	0.325092	-0.8259	-0.0307355
Hhsex	0.0286177	0.594025	0.0482	0.00326372
Ppfml	1.56864	1.17419	1.3359	0.179578
HhAge	0.000411047	0.0148681	0.0276	4.70565e-05
Hhemp	-0.138713	0.60626	-0.2288	-0.0154052
Empdr	-0.322227	0.200658	-1.6059	-0.0368885
Cttown	-1.56798	0.534056	-2.9360	-0.240256
Scown	-0.625933	0.922324	-0.6786	-0.0872375
Hmsick	-0.403784	0.513452	-0.7864	-0.0498197
V2	1.40908	0.646695	2.1789	0.161311
V3	1.07302	0.941282	1.1400	0.0908851
V4	2.54114	1.29898	1.9563	0.131591
V5	0.0858039	0.792331	0.1083	0.00960083
V6	1.24339	0.817312	1.5213	0.101748
R2	-1.76399	0.636749	-2.7703	-0.302133

R3	-0.570088	0.772565	-0.7379	-0.0775032
R5	0.419642	1.49985	0.2798	0.0418807
T1	1.50373	0.671052	2.2409	0.138464
T2	-0.98598	0.733389	-1.3444	-0.148422
T3	0.800161	0.704128	1.1364	0.0747298
T4	2.30268	1.14553	2.0101	0.149332
T5	0.926918	1.43686	0.6451	0.0779032

Mean dependent var	0.755319	S.D. dependent var	0.431046
McFadden R-squared	0.316565	Adjusted R-squared	0.087133
Log-likelihood	-71.49145	Akaike criterion	190.9829
Schwarz criterion	268.6575	Hannan-Quinn	222.4537

*Evaluated at the mean
Number of cases 'correctly predicted' = 151 (80.3%)
f(beta'x) at mean of independent vars = 0.431
Likelihood ratio test: Chi-square(23) = 66.2294 [0.0000]

App III.6: Model 6-Estimation with Twenty Variables

Model 6: Logit, using observations 1-203 (n = 188)
Missing or incomplete observations dropped: 15
Dependent variable: Pov
Standard errors based on Hessian

	Coefficient	*Std. Error*	*z*	*Slope**
Const	-1.55625	1.20486	-1.2916	
Hhsize	0.840448	0.250451	3.3557	0.0989782
Depr	-0.233008	0.315325	-0.7389	-0.027441
Hhsex	-0.185583	0.571642	-0.3246	-0.0224017
Ppfml	1.66216	1.14513	1.4515	0.195749
HhAge	-0.00351144	0.0144838	-0.2424	-0.000413537
Hhemp	-0.332679	0.567258	-0.5865	-0.0364711
Empdr	-0.27525	0.193893	-1.4196	-0.0324158
Cttown	-1.49438	0.504666	-2.9611	-0.231398
Scown	-0.566986	0.848323	-0.6684	-0.079646
Hmsick	-0.490044	0.507529	-0.9655	-0.0631176
V2	1.16747	0.618381	1.8879	0.137491
V4	2.18722	1.27885	1.7103	0.128622
R2	-1.75597	0.617993	-2.8414	-0.306023
R3	-0.646767	0.756306	-0.8552	-0.0921855
R5	0.985508	1.482	0.6650	0.0845342
T1	1.28956	0.644679	2.0003	0.125564
T2	-0.952984	0.717226	-1.3287	-0.145666
T3	0.709981	0.668218	1.0625	0.0698683
T4	1.95983	1.0698	1.8320	0.140818

T5	1.46423	1.35725	1.0788	0.107142

Mean dependent var	0.755319	S.D. dependent var	0.431046
McFadden R-squared	0.300763	Adjusted R-squared	0.100010
Log-likelihood	-73.14449	Akaike criterion	188.2890
Schwarz criterion	256.2543	Hannan-Quinn	215.8260

*Evaluated at the mean
Number of cases 'correctly predicted' = 148 (78.7%)
f(beta'x) at mean of independent vars = 0.431
Likelihood ratio test: Chi-square(20) = 62.9233 [0.0000]

App III.7 Model 7-Estimation with Twenty One Variables

Model 7: Logit, using observations 1-203 (n = 188)
Missing or incomplete observations dropped: 15
Dependent variable: Pov
Standard errors based on Hessian

	Coefficient	*Std. Error*	*z*	*p-value*	
Const	-2.10922	1.2868	-1.6391	0.10119	
Hhsize	0.887767	0.25691	3.4556	0.00055	***
Depr	-0.254717	0.322897	-0.7888	0.43020	
Hhsex	-0.0395651	0.589878	-0.0671	0.94652	
Ppfml	1.7222	1.16204	1.4821	0.13833	
HhAge	-0.00284011	0.0146144	-0.1943	0.84591	
Hhemp	-0.124881	0.595216	-0.2098	0.83382	
Empdr	-0.305743	0.198449	-1.5407	0.12340	
Cttown	-1.6532	0.524564	-3.1516	0.00162	***
Scown	-0.42972	0.877472	-0.4897	0.62433	
Hmsick	-0.425945	0.510643	-0.8341	0.40421	
V2	1.34375	0.640334	2.0985	0.03586	**
V4	2.39544	1.29282	1.8529	0.06390	*
V6	1.03531	0.784146	1.3203	0.18673	
R2	-1.82958	0.63048	-2.9019	0.00371	***
R3	-0.646349	0.766278	-0.8435	0.39895	
R5	0.421166	1.55885	0.2702	0.78702	
T1	1.453	0.671065	2.1652	0.03037	**
T2	-0.981031	0.720188	-1.3622	0.17314	
T3	0.844315	0.685135	1.2323	0.21782	
T4	2.1801	1.11122	1.9619	0.04977	**
T5	1.48476	1.30449	1.1382	0.25504	

Mean dependent var	0.755319	S.D. dependent var	0.431046
McFadden R-squared	0.309603	Adjusted R-squared	0.099290

Log-likelihood	-72.21977	Akaike criterion	188.4395
Schwarz criterion	259.6413	Hannan-Quinn	217.2878

Number of cases 'correctly predicted' = 149 (79.3%)
f(beta'x) at mean of independent vars = 0.431
Likelihood ratio test: Chi-square(21) = 64.7727 [0.0000]

Reasons variables were dropped

Sequential elimination using two-sided alpha = 0.10

Dropping Hhsex	(p-value 0.947)
Dropping Ppfml	(p-value 0.113)

Test on Model 7:

Null hypothesis: the regression parameters are zero for the variables
Hhsex, Ppfml
Test statistic: F(2, 166) = 1.26012, p-value 0.286319
Omitting variables improved 3 of 3 model selection statistics.

App III.8: Model 8-Estimation with Nineteen Variables

Model 8: Logit, using observations 1-203 (n = 188)
Missing or incomplete observations dropped: 15
Dependent variable: Pov
Standard errors based on Hessian

	Coefficient	*Std. Error*	*z*	*Slope**
Const	-1.27517	1.13814	-1.1204	
Hhsize	0.880811	0.248151	3.5495	0.104545
Depr	-0.142375	0.315457	-0.4513	-0.0168988
HhAge	-0.001339	0.0139523	-0.0960	-0.000158929
Hhemp	-0.157487	0.580163	-0.2715	-0.0180688
Empdr	-0.299482	0.196449	-1.5245	-0.035546
Cttown	-1.70789	0.521321	-3.2761	-0.27457
Scown	-0.796935	0.803803	-0.9915	-0.120412
Hmsick	-0.419921	0.504859	-0.8318	-0.0538001
V2	1.30074	0.643265	2.0221	0.154387
V4	2.37344	1.32982	1.7848	0.133885
V6	0.908863	0.760523	1.1951	0.0843114
R2	-1.84589	0.610015	-3.0260	-0.32769
R3	-0.488507	0.729643	-0.6695	-0.0670466
R5	0.396033	1.40269	0.2823	0.0413683
T1	1.33763	0.650715	2.0556	0.130513
T2	-0.934703	0.720168	-1.2979	-0.143157

T3	0.633128	0.662924	0.9551	0.06403
T4	2.0159	1.05027	1.9194	0.144356
T5	1.36672	1.28091	1.0670	0.103955

Mean dependent var	0.755319	S.D. dependent var	0.431046
McFadden R-squared	0.297190	Adjusted R-squared	0.105997
Log-likelihood	-73.51821	Akaike criterion	187.0364
Schwarz criterion	251.7653	Hannan-Quinn	213.2621

*Evaluated at the mean
Number of cases 'correctly predicted' = 148 (78.7%)
f(beta'x) at mean of independent vars = 0.431
Likelihood ratio test: Chi-square(19) = 62.1759 [0.0000]

App III.9: Model 9-Estimation with Thirteen Variables

Model 9: Logit, using observations 1-203 (n = 188)
Missing or incomplete observations dropped: 15
Dependent variable: Pov
Standard errors based on Hessian

	Coefficient	*Std. Error*	*z*	*Slope**
Const	1.24382	1.23036	1.0109	
Hhsize	0.914457	0.255931	3.5731	0.0946406
Depr	-0.622214	0.331188	-1.8787	-0.0643952
Empdr	-0.305066	0.198511	-1.5368	-0.0315724
Cttown	-1.80363	0.514147	-3.5080	-0.265747
Ayrs	-0.430125	0.12804	-3.3593	-0.0445152
V2	1.3974	0.648906	2.1535	0.144622
V4	3.38584	1.32734	2.5508	0.127826
V6	1.34664	0.749815	1.7960	0.0962548
T1	1.4965	0.611396	2.4477	0.124247
T3	1.14752	0.666633	1.7214	0.088484
T4	2.96091	1.13166	2.6164	0.152414
T5	2.13112	1.33729	1.5936	0.111058
R2	-1.71455	0.623991	-2.7477	-0.271684

Mean dependent var	0.755319	S.D. dependent var	0.431046
McFadden R-squared	0.342817	Adjusted R-squared	0.208982
Log-likelihood	-68.74538	Akaike criterion	165.4908
Schwarz criterion	210.8009	Hannan-Quinn	183.8487

*Evaluated at the mean
Number of cases 'correctly predicted' = 161 (85.6%)
f(beta'x) at mean of independent vars = 0.431

Likelihood ratio test: Chi-square(13) = 71.7215 [0.0000]

Reasons for Dropping variables
Sequential elimination using two-sided alpha = 0.10

Dropping scown	(p-value 0.624)
Dropping V1	(p-value 0.622)
Dropping R5	(p-value 0.596)
Dropping hmsick	(p-value 0.486)
Dropping Hhemp	(p-value 0.529)
Dropping V5	(p-value 0.481)
Dropping HhAge	(p-value 0.441)
Dropping Hhed	(p-value 0.439)
Dropping R3	(p-value 0.367)
Dropping V3	(p-value 0.289)
Dropping T2	(p-value 0.198)

Test on Model 10:

Null hypothesis: the regression parameters are zero for the variables
HhAge, Hhemp, scown, hmsick, Hhed, V1, V3, V5, R5, T2, R3
Test statistic: F(11, 163) = 0.588253, p-value 0.836583
Omitting variables improved 3 of 3 model selection statistics.

Reasons for eliminating variables ‘

Sequential elimination using two-sided alpha = 0.10

Dropping T5	(p-value 0.118)
Dropping T3	(p-value 0.141)

Test on Model 10:

Null hypothesis: the regression parameters are zero for the variables
T3, T5
Test statistic: F(2, 178) = 2.39242, p-value 0.0943416
Omitting variables improved 2 of 3 model selection statistics.

App III.4: Model 11-Estimation with Eleven, Variables

Model 11: Logit, using observations 1-203 (n = 191)
Missing or incomplete observations dropped: 12
Dependent variable: Pov
Standard errors based on Hessian

	Coefficient	*Std. Error*	*z*	*Slope*[*]
Const	0.2921	0.945212	0.3090	
Hhsize	0.744741	0.210095	3.5448	0.0966993
Empdr	-0.254888	0.187998	-1.3558	-0.0330953
Cttown	-1.49297	0.462082	-3.2310	-0.24987
Ayrs	-0.233315	0.0957567	-2.4365	-0.0302943
V2	1.2327	0.672831	1.8321	0.160057
V4	2.31135	1.19635	1.9320	0.146961
V6	1.31724	0.729554	1.8055	0.121304
R2	-1.48951	0.607086	-2.4535	-0.266272
T1	0.85504	0.505096	1.6928	0.0974705
T4	1.51707	0.814664	1.8622	0.134732

Mean dependent var	0.748691	S.D. dependent var	0.434906
McFadden R-squared	0.279777	Adjusted R-squared	0.177622
Log-likelihood	-77.55352	Akaike criterion	177.1070
Schwarz criterion	212.8820	Hannan-Quinn	191.5976

[*]Evaluated at the mean
Number of cases 'correctly predicted' = 157 (82.2%)
f(beta'x) at mean of independent vars = 0.435
Likelihood ratio test: Chi-square(10) = 60.2526 [0.0000]

App III.12: Model 12-Estimation with TenVariables

Model 12: Logit, using observations 1-203 (n = 191)
Missing or incomplete observations dropped: 12
Dependent variable: Pov
Standard errors based on Hessian

	Coefficient	*Std. Error*	*z*	*p-value*	
Const	3.42336	1.12265	3.0494	0.00229	***
Ayrs	-0.296738	0.0976161	-3.0398	0.00237	***
Cttown	-1.05968	0.440964	-2.4031	0.01626	**
Empdr	0.254944	0.131449	1.9395	0.05244	*
HhAge	-0.0174942	0.0116505	-1.5016	0.13320	
V2	0.93225	0.59653	1.5628	0.11810	
V4	2.26567	1.16586	1.9433	0.05197	*
V6	0.590364	0.673963	0.8760	0.38105	
R2	-1.69487	0.570538	-2.9707	0.00297	***
T1	0.935225	0.491758	1.9018	0.05720	*
T4	0.837748	0.762705	1.0984	0.27203	

Mean dependent var	0.748691	S.D. dependent var	0.434906
McFadden R-squared	0.214664	Adjusted R-squared	0.112510
Log-likelihood	-84.56478	Akaike criterion	191.1296

Schwarz criterion	226.9046	Hannan-Quinn	205.6201

Number of cases 'correctly predicted' = 153 (80.1%)
f(beta'x) at mean of independent vars = 0.435
Likelihood ratio test: Chi-square(10) = 46.23 [0.0000]

App III.4: Model 13-Estimation of Nine Variables

Model 13: Logit, using observations 1-203 (n = 191)
Missing or incomplete observations dropped: 12
Dependent variable: Pov
Standard errors based on Hessian

	Coefficient	*Std. Error*	*z*	*Slope**
const	3.67931	1.09827	3.3501	
Ayrs	-0.301137	0.0981683	-3.0676	-0.0467559
Cttown	-1.10213	0.437575	-2.5187	-0.201386
Empdr	0.266414	0.129802	2.0525	0.0413648
HhAge	-0.0198932	0.0114045	-1.7443	-0.00308872
V2	0.898411	0.594957	1.5100	0.139492
V4	2.18479	1.16807	1.8704	0.17832
V6	0.563322	0.675159	0.8344	0.0763448
R2	-1.74773	0.5784	-3.0217	-0.359504
T1	0.863675	0.49135	1.7578	0.118752

Mean dependent var	0.748691	S.D. dependent var	0.434906
McFadden R-squared	0.208317	Adjusted R-squared	0.115449
Log-likelihood	-85.24831	Akaike criterion	190.4966
Schwarz criterion	223.0194	Hannan-Quinn	203.6698

*Evaluated at the mean
Number of cases 'correctly predicted' = 153 (80.1%)
f(beta'x) at mean of independent vars = 0.435
Likelihood ratio test: Chi-square(9) = 44.863 [0.0000]

App III.14: Model 14-Estimation of Nine Variables

Model 14: Logit, using observations 1-203 (n = 191)
Missing or incomplete observations dropped: 12
Dependent variable: Pov
Standard errors based on Hessian

	Coefficient	*Std. Error*	*z*	*Slope**
const	0.415419	0.938706	0.4425	
Ayrs	-0.230426	0.0948274	-2.4299	-0.0313206

Cttown	-1.44059	0.453976	-3.1733	-0.247833
Hhsize	0.555339	0.145094	3.8274	0.0754845
V2	1.06174	0.647971	1.6386	0.144317
V4	2.36324	1.1877	1.9898	0.156431
V6	1.09314	0.704513	1.5516	0.112007
R2	-1.54529	0.607716	-2.5428	-0.287259
T1	0.873783	0.505911	1.7271	0.104225
T4	1.36367	0.801127	1.7022	0.1321

Mean dependent var	0.748691	S.D. dependent var	0.434906
McFadden R-squared	0.271200	Adjusted R-squared	0.178332
Log-likelihood	-78.47706	Akaike criterion	176.9541
Schwarz criterion	209.4769	Hannan-Quinn	190.1273

*Evaluated at the mean
Number of cases 'correctly predicted' = 158 (82.7%)
f(beta'x) at mean of independent vars = 0.435
Likelihood ratio test: Chi-square(9) = 58.4055 [0.0000]

App III.15: Model 15-The Parsimonious Model

Model 15: Logit, using observations 1-204
Dependent variable: Pov
Standard errors based on Hessian

	Coefficient	*Std. Error*	*z*	*p-value*	
const	2.24743	1.08537	2.0707	0.03839	**
Ayrs	-0.224598	0.090854	-2.4721	0.01343	**
Cttown	-1.44337	0.441167	-3.2717	0.00107	***
HhAge	-0.024683	0.0112036	-2.2031	0.02759	**
Hhsize	0.471815	0.131648	3.5839	0.00034	***
R2	-1.51035	0.600746	-2.5141	0.01193	**
T1	0.821202	0.490825	1.6731	0.09431	*
V4	2.04204	1.1829	1.7263	0.08429	*
V2	0.90808	0.611567	1.4848	0.13759	

Mean dependent var	0.754902	S.D. dependent var	0.431203
McFadden R-squared	0.250800	Adjusted R-squared	0.171578
Log-likelihood	-85.11256	Akaike criterion	188.2251
Schwarz criterion	218.0882	Hannan-Quinn	200.3053

Number of cases 'correctly predicted' = 165 (80.9%)
f(beta'x) at mean of independent vars = 0.431
Likelihood ratio test: Chi-square(8) = 56.9841 [0.0000]

Appendix IV: Research Instruments

App IV.1: Introduction Letter

Research Topic:

Poverty Determinants in Chivi District, Masvingo Province, Zimbabwe – An Application of Econometric Modeling Techniques on Household Data, 2015.

Dear Sir/ Madam

My name is Phillip Chitsika – ID – 12064007-A-12, a student at the University of Zimbabwe Faculty of Social Studies, Department of Economics studying Masters in Economics. I am carrying survey on the determinants of poverty in Chivi district in fulfillment of requirements of my studies. This study is for academic purposes only and the information collected shall be used for academic purposes. We are not going to require your name or any other details that would lead to identification of your household. The responses you are giving will remain anonymous shall never be used for any other purpose except for this study.

I therefore request your indulgence and permission to take about an hour answering the set of questions I have pertaining your views regarding poverty in this area and what you propose as solutions.

I would like to thank you in advance for affording me an opportunity to talk to you and your views are cherished.

If you have any questions and clarification regarding this study please do not hesitate to contact the undersigned or my supervisor Dr Clever Mumbengegwi on +263712207963.

Yours Faithfully,

Phillip Chitsika

Masters Economics Student -University of Zimbabwe -Economics Department

phillipchitsika@gmail.com +263772421657

App IV.2: Household Questionnaire

Identification

O1. Village Name _____O2.Ward _____O3Household No_____

A. Household Characteristics

- Characteristics of household members (age, sex, marital status, relationship to head of household, orphan hood, *etc.*);

A1. What is the totem of the household Head? 1. Shumba 2. Moyo 3. Ngara 4. Shava 5. Shoko 6. Moto 7. Gumbo 8. Zhou 9. Nyati 10. other	**A2. What is the family's religion** *1. Christian – Pentecostal* *2. Christian Catholic* *3. Christian – Protestant* *4. Christian – Apostolic Sects* *5. Traditional* *6. Other*

A3.Who usually live and eat here? Household Member Code (Circle 1 for household head.)	**A4**.Sex of the member +of household 1. Male 2. Female	**A5**.What is the orphan-hood status of the following member of the households? 1. Mother dead 2. Father dead 3. Both Parents dead. 4. Both parents alive	**A6**.Relationship *to household Head* *1. Head* *2. Husband* *3. Wife* *4. Son/ daughter* *5. Grand child* *6. Niece/Nephew* *7. Sister/ Brother* *8. Son/ daughter in law* *9. Grandmother / grandfather* *10. Father / mother in law* *11. Other relative* *12. Servant/ maid/relative of servant* 13. *Other (specify)_*	**A7**.Age in years of each member of household.	***A8**.Marital status* *1- Single (never married)* *2- Widowed* *3- Divorced* *4- Cohabiting* *5- Married monogamous* *6- Married polygamous* *7- Other*	**A9**. Does () spouse live in this household now? 1. Yes 2. No. ***If no go to A10.***	**A10**. If not where does the spouse live 1. In urban area employed. 2. In urban area unemployed 3. Outside the country employed 4. In rural areas employed 5. In rural areas unemployed
01							
02							
03							
04							
05							
06							
07							
08							

Household Member Code (Circle 1 for household head2)	**A11**.What was the age of () when his father died? (State in years)	**A12**.What was age of () when his mother died (state in years)
01		
02		
03		
04		
05		
06		
07		

A13. Were there any members of household who recently left the household? 1. Yes ; 2. No--- (Circle the answer)
A14. If yes what was the main reason?
A15. For how long has this household has been settled here?

08		

B. Education

B1. What is the **distance** to the nearest **primary school?**	
B2. What is the **distance** to the nearest **secondary school?**	

Household Member Code	**B3.**Has () ever been to school ? 1. Yes 2. No	**B4.**What is the highest level of education attained?		**B5.**Is () able to read and write in Shona? 1.Yes ; 2. No.	**B6.**Is () able to read and write in English? 1.Yes ; 2.No	**B7.**Is () Currently attending school? 1.Yes; 2.No	**B8.**What is the approximate time does () takes to the school? In (minutes)	**B9.**Who is responsible for paying the school fees of ()? 1.*Parents* *2.Relative* *3.BEAM* *4.Other Gvt Assistance* *5.NGOs* *6.Self* *7.Other_(Specify)*	**B10.**If () is not in school, what is the main reason? 1. *Has completed form 4.* *2. Cannot afford school fees.* *3. Poor health* *4. School too far* *5. Not allowed to go school due to religious/ cultural reasons.* *6. Too young* *7.Too Old* *8. Other.*
01			0. Grade zero 1.Grade1 2. Grade2 3. Grade 3 4. Grade 4 5. Grade 5 6. Grade 6 7. Grade 7 11. Form 4 12. Form 5 13. Form 6 14. Certificate/ Diploma from College 15. Degree from						
02									
03									
04									
05									
06									
07									
08									

Household Member Code (Circle 1 for household head.)	**B11**.Did () leave school? 1.Yes; 2.No	**B12**.If yes, what was the main reason. 1.financial constraints 2.school too far 3.pragnancy 4.ill health 5.assist with household labour 6.religious beliefs 7.other specify	**B13**.Did () receive any assistance for education from 1.parents 2.relatives 3.both 4.none
01			
02			
03			
04			
05			
06			

B14. What is the view of the household regarding the importance of education?

B15. What are the two major challenges those who go to school face?

B16.What are the suggested solutions to the challenges noted?

07			
08			

C. Health, HIV- AIDS

C1. What is the **distance** to the nearest **health centre/ clinic?**	
C2. What is the **distance** to the nearest **General Hospital?**	

Household Member Code	**C3.**Has () ever been fallen sick during the last month **1.**Yes **2.**No	**C4.**If yes what was the type of disease? *1.diarrhoae* *2.coughing* *3.fever* *4.sever headaches* *5.High blood pressure* *6. High Sugar* *7.Heart problems* *8.strange sickness* *9.terminally ill – ill for a long time* *10.physical dislocation/ due to accident/ violence*	**C5.**Where did () seek treatment? *1.Did not seek any treatment* *2. Used traditional remedies without any consultation.* *3.traditional healer* *4. council clinic/hospital* *5.government clinic/ hospital* *6. private hospital* *7.apostolic healers*	**C6**.Why () did not seek any treatment from a health facility? 1. Facility too far. 2.Lack financial resource 3. Home treatment sufficient 4. Illness not serious. 5. Illness chronic 6.Religious reasons	**C7**.What is the approximate distance to the clinic? In (km)	**C8.**Is () permanently disabled 1.Yes 2.No	**C9.**What is the type of disability? 1.physical 2. Mental 3.Both	. **C10.** If () visited the hospital/ clinic did he get treatment? 1. Yes was given the medication 2. Yes was given prescription and bought the medication. 3. Could not get any treatment. 4. Did not have money to buy medication. 5. Could not get any help
01								
02								
03								
04								
05								
06								
07								
08								

Household Member Code (Circle 1 for household head.)	**C11**.Did () fail to engage in his main activity due to illness in the last month? 1.Yes; 2.No	**C12**.If yes, for how long was he not able to engage in his main activity? (In days).
01		
02		
03		
04		
05		
06		

C13. What is the major challenge regarding the health of your household?

C14. What are the suggested solutions to the raised challenges?

C15.What do you think is the major cause of the challenges you face regarding your household health?

07		
08		

D. Employment (Income from employment and household business)

D1. What is the main **employment** activity in the area**?**	
D2. From what does this household rely for its income**?**	

Household Member Code	**D3.**What was'() main activity in the last twelve months *1.Employer 2.communal farmer 3.own account worker 4.unpaid family worker 5.paid employee permanent 6. paid employee non-permanent 7.food for work employee 8.unemployed 9.student 10.homemaker 11.retrenched with pension 12.retrenched without pension 13.disabled 14.too old/ sick 15.other*	**D4.**what was () the main occupation in the last 12 months Describe in minimum two words.	**D5.**In what sector was ()'s main activity? *1.private 2. central government 3.local government 4.parastatal 5.cooperative 6.NGOs 7.other*	**D6**.How many people were employed in the establish ment of () \'s main activity? State the number ()	**D7.** What was the status of the business? 1.licenced 2.Registered 3.both 4.None	**D8.**In what type of industry was () usually working during the last 12 months? *1.agriculture/fis hing/ hunting 2mining quarrying 3.manufacturing 4.electricity gas/ water 5.construction 6.wholesale/reta il/hotel 7transport 8.communicatio n 9.finance/ insurance/ real estate 10.community social and personal services. 11.Other*	**D9.**What was () income in **Cash** from the main activity last month?	***D*10.** What was () income in **Kind** from the main activity last month? $
01								
02								
03								
04								
05								
06								
07								
08								

Household Member Code	**D11.**What was'() main activity in last seven days *1.Employer* *2.communal farmer* *3.own account worker* *4.unpaid family worker* *5.paid employee permanent* *6. paid employee non-permanent* *7.food for work employee* *8.unemployed* *9.student* *10.homemaker* *11.retrenched with pension* *12.retrenched without pension* *13.disabled* *14.too old/ sick* *15.other*	**D12.**what was () skill level? *1.Proffesional* *2.Skilled* *3.semi-skilled* *4.uunskilled* *5.don't know*	**D13.**Does () have any income from rent? *1.Yes* *2.No*	**D14**.If yes what was the estimated income from rent in the last 12 months?	**D15.** Did () had a household business in the last 12 months? *1.Yes* *1.No*	**D16.**What was household business in at least two words.	**D17**.If yes, what was the estimated income from household business in the last 12 months?	**D18.**What was () income in **Cash** from household business in the last month? State in USD$	**D19.**What was () income in **Kind** from household business in the last month? State in USD
01									
02									
03									
04									
05									
06									
07									
08									

D20.Main Constraints

1. Credit/ Capital/ inputs; 2. Technology; 3. Transport; 4. No Access to market facilities; 5. Irregular supply of input; 6. Regulation; 7. Not enough buyer; 8. No constraint; 9. Bad Debts; 10. Theft; 11. Don't Know.

D21. What are the suggested solutions to the main constraints?

D22.What do you think is the major cause of the challenges you face regarding your household business?

E. **Household Consumption Expenditure**

Food items	**E1**.How much was spend/ consumed in on this item the last month (quantities)	**E2.** How much was spend/ consumed on this item in the last month (US$)	**E3.** How much was consumed of own produce in quantities	**E4**.Indicate the value	**E5**.How much was received from spouses/ relatives/ children outside the household last month (Quantities)	**E6.** How much was received from spouses/ relatives/ children outside the household last month (Value $)
Cabbages						
Dried_tinned vegetables						
Onions						
Pumpkins						
Rape_Covo_Chomoulier						
Muboora_nyeve_etc						
Tomatoes						
Beetroots						
Carrot						
Mango						
Avocado peas						
Sugar						
Coffee						
Tea						
NonAlcoholic Beverages						
Alcoholic Beverages						
Eggs						
Beef						
Pork						
Chicken						
Fresh Fish						
Matemba						
Madora						
Meat from wild animals						
Milk						
Cheese						
Bread						
Flour						
Green mealies						
Maize meal grain						
Millet						
Rapoko						
Sorghum						
Sweet potatoes						
Potatoes						
Corn –soya-blend						
Breakfast Cereals						
Spaghetti						
Beans						
Rice						
Groundnuts						
Peas						
Roundnuts						
Butter_margarine						
Cooking oil						
Penut_Butter						
Salt						
Salad Cream						
Honey						
Soup						
Sugar cane						
Ice cream						
Jam						
Insects						
Mashroom						
Other_foods						

Non-Food items	**E7.**.How much was spent/ consumed in the last month in US$
Water (month)	
Electricity	
Firewood	
Other fuel	
Candle	
Diesel	
Gas	
Matches	
Paraffin	
Petrol	
Rent	
Airtime in the last month	
Domestic wages	
Personal care effects (perfume, hairdressing	
Jewelry watches rings and precious stones	
Tobacco	
Expenditure in hotels	
Recreational, Entertainment and Cultural Activities	
Payment of Medical Aid	
Payment of funeral cover	
Interest on housing / other loans	
Other	

Non-Food items	**E8.** How much was spent/ the last three months (US$)
Transport	
Communication	
Transport to school	
School fees/ levies for ECD	
School fees levies for primary education	
School fees levies for secondary education	
College/ University tuition fees	
School Uniforms	
School shoes	
Stationery for school	
Education books	
Boarding fees	

Non-Food items	**E9.** How much was spent in the last twelve months (US$)
Operation of personal equipment (tyres,etc	
Furniture	
Clothing	
Footwear	
Repair and maintenance of house	
Domestic wages	
Funeral expenses	
Medicines	
Fees paid to doctors/ faith healers/ traditional healers	
Hospital/ Clinic/ Maternity fees	
Fees paid for medical/ laboratory tests	
Expenditure on financial / legal services	

Non-Food items	**E10**.How much was spent in last five years. (US$)
Purchase of motor cars, bicycles, vans, motorcycles etc	
Purchase of wheelbarrow / scotch cart	
Household Textiles and Furniture	
Household Utensils	
Household operations	
Radio, TV, Cameras	

F. Housing Amenities (water energy, sanitation and assets)

F1. What is the **primary** construction material for the main housing unit's roof?		1. Thatched	4. Corrugated Iron
		2. Asbestos	
		3. Tiled	5. Other

F2. What is the **primary** construction material for the main housing unit's floor?		1. Concrete	4. other
		2. Mud	
		3. Tiled	

F3. What is the **primary** construction material for the main housing unit's walls?		1. Bricks/ stones	4. Wood
		2. pole and dagga	5.Bricks/stones plastered with cement
		3. Asbestos/ Iron sheets	6. Other

F4. What is the General Conditions of the best structure? (observe)		1New or well maintained	4. Worn out
		2. used but maintained	
		3. used and running down	

F5. How many rooms are occupied by the household**?**	

What is the **source of** drinking water?		1. piped water inside the house	4. well unprotected
		2. piped water outside the house	5.river/stream/dam/open water
		3. protected well or borehole	6. other
F6. During the rainy season			
F7. During the dry season			
F8. During the most of the year			
F9. How far is the **source of** drinking from the house in km?			

F10. What type of toilet facility does your household usually use?		1.flush toilet	4. none
		2. Blair toilet	
		3. pit latrine	

F11. What is the main **source of** lightning?		1. paraffin	4. generator/ gas
		2. electricity, main power	5.from fire when cooking
		3. solar power	6. candles
			7.Other

F12. What is the main **source of** cooking fuel?		1. firewood	4. generator/ gas
		2.charcoal	5.solar power
		2. paraffin	6. crop residues/dung
		3. electricity, main power	7.Other

F13. How far is the **source of** firewood in km?	

F14. Who is the person usually responsible for fetching firewood? Indicate the person code..	

G. Agricultural Activities

G1. Does this household have any land for cultivation ? 1. Yes 2. No	
G2. If yes what is the approximate size? In (ha)	

G3. What is the major concern regarding the agricultural land?		1.Size too small	4. Land is located in a swampy area
		2. Land not suitable for crop cultivation	5. land is under dispute
		3. land located in hilly area	6. I do not own the land I use

G4. What is the major constraint for cultivation?		1.lack of labour	4. lack of fertiliser
		2. lack of draught power	5. lack of seed, fertilizer and draught power
		3lack of seed	6. None

G5. How did the household prepare their land last season?		1.by hoe	4. did not prepare land
		2. by animal draught power	
		3. by mechanized draught power	

Does this household own any of the following ?	**G6**. 1. Yes 2. No	**G7. Indicate number?**
Cattle		
Goats		
Sheep		
Pigs		
Donkeys		
Poultry/ chicken/ducks/birds		
Rabbits		
other		

G8. How much income did the household get from agricultural activities in the last twelve months include gardening activities and items used for own consumption**?**	

In the last season did the household grew any of the following?	G9 . 1. Yes, 2 No	G10. What was the estimated harvest in kgs	G11. How much was used for own consumption	G12. How much was sold? In kgs	G13. At what price were the crops sold per kg.
Maize					
Millet					
Sorghum					
Groundnuts					
Roundnuts					
Beans					
Cowpeas					
Sunflower					
Wheat					
Soyabeans					
Tea					

Cotton					
Tobacco					

G14.What are the two main constraints faced in your agricultural activities (circle)
1. Credit/ Capital/ inputs; 2. Lack of draught power; 3. Transport; 4. No Access to market facilities; 5. Irregular supply of input; 6. Drought; 7. Not enough buyer; 8. No constraint; 9.Theft; 10. No enough land.

G15. What are the suggested solutions to the main constraints?

Does this household own any of the following?	**G16.** 1. Yes, 2. No	**G17.** Is it fully functional 1. Yes 2. No.
Radio		
Television		
Car		
Bicycle		
Scotch cart		
Wheel barrow		
Plough		
Tractor		

G18. Does this household have access to a newspaper? 1. Yes 2. No	

G19. How far is the household from the nearest bus stop in km?	

G20. How is the household connected to the main road?		1.Earth road- foot path	4. Wide mart - surfaced
		2. Gravel road- graded road	5. Other
		3. Narrow Mart – single lane	

G21.What are the major challenges regarding transportation for this household?

G22. What are the suggested solutions to the major challenges?

H. Household Perceptions

H1. How do you identify a household as poor		1.shortage of land for farming	5. failure to send children to school
		2. lack of food	6. lack of cattle
		3. lack of clothes	7.begging tendencies
		4.pooor health appearances	8.malnourished children

H2. In your opinion what are the main causes of poverty?		1.umemployment	6. laziness
		2.low paid jobs	7.lack of education
		3.very large families	8.ill health
		4.being born from a poor family	9.poor agricultural land
		5.drought	10.shortage of land

H3. What are the suggested solutions to the challenge of poverty in this area?

H4. How do you categorise your household ?		1.Poor	4. I don't know
		2. Very Poor	5. Other
		3. Non Poor	
H5. Why ?			

END of Questionnaire

Thank you very much!

App IV.2: Institutional Questionnaire

Institutional Questionnaire – Markets

Identification

Q1. Name of Centre _____O2.Ward _____

Food items	**Q2** Is the item available 1. Yes; 2. No	**Q3.** Local Unit of measurement (kg/ ml/ etc)	**Q4.** Price
Cabbages			
Dried_tinned vegetables			
Onions			
Pumpkins			
Rape_Covo_Chomoulier			
Muboora_nyeve_etc			
Tomatoes			
Beetroots			
Carrot			
Mango			
Avocado peas			
Sugar			
Coffee			
Tea			
NonAlcoholic Beverages			
Alcoholic Beverages			
Eggs			
Beef			
Pork			
Chicken			
Fresh Fish			
Matemba			
Madora			
Meat from wild animals			
Milk			
Cheese			
Bread			
Flour			
Green mealies			
Maize meal grain			
Millet			
Rapoko			
Sorghum			
Sweet potatoes			
Potatoes			
Corn –soya-blend			
Breakfast Cereals			
Spaghetti			
Beans			
Rice			
Groundnuts			
Beans			
Groundnuts			
Peas			
Roundnuts			
Butter_margarine			
Cooking oil			
Penut_Butter			
Salt			
Salad Cream			
Honey			
Soup			
Sugar cane			
Ice cream			
Jam			
Insects			
Mashroom			
Other_foods			
Soap			
Paraffin			