AN ASSESSMENT OF FACTORS AFFECTING W0MEN'S PARTICIPATION IN INCOME GENERATION ACTIVITIES IN CHONGWE DISTRICT

A Report Presented to the Department of Agricultural Economics and Extension Education of the University of Zambia

BY

MABVUTO F ZULU

In Partial Fulfillment of the Requirement for the Award of the Degree of Bachelor of Agricultural Sciences

ACKNOWLEDGEMENTS

My appreciation for the success of this study is directed to my supervisor, Dr.G.Tembo for the corrections, suggestions, materials he provided and for the insight into my study.

I also extend my gratitude to the entire members of staff in the department for the support, suggestions and contributions.

To the small holder farmers of Chongwe District, I wish to thank them sincerely for their overwhelm support that they provided during data collection because without whom, this study would not have been a success.

Special tribute goes to my family, the Zulus and my fiancée Yvonne, for the financial and moral support during my stay at the University Zambia.

I am indebted to my course mates particularly Lizzen, Henry, Francis, Stanley and Timothy of their critics and encouragement.

I also thank Jones, my level mate at kwacha hostel who helped me with his desktop.

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LIST OF ABBREVIATIONS

CSO	Central Statistical Office
GRZ	Government Republic of Zambia
IGAs	Income Generating Activities
MACO	Ministry of Agriculture and Cooperatives
NGOs	Non Governmental Organizations
SPSS	Statistical Package for Social Sciences
STATA	Statistical / Data Analysis

ABSTRACT

An Assessment of Factors Affecting Women's Participation in Income Generating Activities in Chongwe District

Mabvuto F. Zulu
University of Zambia, 2009

Supervisor:
Dr. Gelson Tembo

This paper analyses factors affecting women participation in income generating activities in Chongwe. The factors affecting women participation in income generating activities can be examined using the probit model regression.

Household size showed a negative and statistically significant relation implying less work outside the home by farm wives as the size of the farm household increases. Distance to the nearest off-farm was statistically significant and had a positive sign. This means that as distance to the nearest off-farm IGA increases, the probability that women will participate increases at a decreasing rate. Income earned by women is positively statistically significant. However, the coefficient is too small but this reveals that as income of the women increases, there is a likelihood that women participation will also increase. Both husband education and that for the women are statistically significant. The positive sign on the coefficient of women education shows that as the education level of women increases, there is a likelihood that their participation will also increase. Land ownership shows a negative correlation between women and their participation.

These findings show that female members of farm households are likely to participate in IGAs if their education is improved. Women should also be encouraged to own land as this showed that land play a role in the decision of females to participate. There should also be an investment in infrastructure that can facilitate women's mobility outside the household as well as can reduce the burden of domestic work. Such infrastructure should include feeder roads which may make it easier for the females to reach and market their produce.

CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.1 Introduction

Zambia has been depending on agriculture as one of its major sectors for economic growth and development. Agriculture is a major source of rural income as 95 percent of rural households practice agriculture (CSO 2003). Zambia's rural population is comprised of 51.2 percent females and most of the rural women work in agriculture and other related activities (CSO 2000). Rural farm women perform several roles of which many are of wider economic importance (Bholpe and Palki, 1998).

In sub-Saharan Africa, women contribute 60-80 percent of the labour for food production both for household consumption and for sale (CSO, 2003). Agriculture is also becoming a predominantly female sector as a consequence of male out-migration. Women have therefore constituted the majority of smallholder farms, providing most of the labour on a daily basis. In Indian social systems, tending animals is considered as an extension of domestic activities (John and Thirunavukkarasu, 2001). Indian women have also devoted much of their time on cattle care, making it a more or less female domain (Veen et, al 1986). In the Zambian set up, the roles of men and women differ markedly. Men clear the land and women undertake most of the remaining farming activities, particularly weeding and processing. Since colonial period men have been most active in cash crop production and other allied income generating activities, while women have been mainly concerned with food and horticultural crops, small livestock and agro-processing.

Recently, there has been an emphasis on poverty reduction in rural areas through agricultural development. The success of these interventions largely depends on full participation of productive and healthy members of the farm households. However, gender differences which arise mainly from the socially constructed relationships between men and women have impeded such interventions (Oakley, 1972). These differences, shaped by religious, economic and cultural determinants affect the distribution of resources and responsibilities between men and women (Moser, 1996).

Women's activities have tended to be home based for biological and cultural reasons. Men and women have also been responsible for their own inputs and have controlled their outputs. Men traditionally own land but this land has to be managed jointly or separately by men and women (Quisambing, 1996). While men and women generally face the same external constraints, they have unequal access to human controlled factors of production. This disparity results in differences in productivity thereby leading to gender gap in agriculture. Evidence also reveals that allocation of production resources such as land, labour and other inputs such as fertilizer is mostly at the discretion of men which has also exacerbated the gender gap in agriculture. Other studies (Quisambing, 1996) have also examined the relative productivity of men and women in agriculture. Most of the findings indicate that women farmers have lower productivity for reasons of poor access to resources and other factors that directly or indirectly affects production. Although women are less productive in farming, the general consensus is that they are not less efficient than men in their use of resources. This suggests that factors may have led to allocative inefficiency as well as the extent to which women could have participated in income generating activities. It is thus important to analyze and disaggregate these factors according to gender in order to formulate policies that may affectively address a farm household.

1.2 Problem Statement

Early field research in agricultural economics concentrated on production analysis and has treated a farm as the logical unit of study (Ellis, 1988). In many rural economies, however, production and consumption are closely linked. Even if such a linkage exists in farm household, individuals do not have equal access to resources. According to Fletschner and Carter (2008) women are restricted in the type of entrepreneurial activities in which they engage subject to their household characteristics. Thus intra-household factors have to be considered for policy formulation. Currently, there are inadequate gender-disaggregated data that may enable policy makers to adequately address women's needs in farm households. Though the association between women and income

generating farm activities needs exploiting, especially when trying to develop rural areas, lack of empirical evidence on the magnitude of female participation in income generating farm activities limits such efforts(Chris and Thirunavukkarasu,2001). Despite many attempts to determine male-female differences in income generating activities of the farm household, relatively few control for individual characteristics such as education and human controlled assets. As a result, biased coefficients that do not address how the male-female differences in income generating activities have been estimated (Quisambing, 1996). Thus, in spite of the many interventions being devised, females continue to be largely excluded from such interventions. The fact that women have not benefited from most policy-based interventions, such as labour-saving technologies, has been echoed by the government (GRZ, 1992)

1.3 Study Purpose

The purpose of this study was to understand factors that affect women participation in income generating activities.

1.3.1 Specific objectives;

- To determine income earned by women
- To determine if gender roles are being practiced in farm households

1.4 Significance of the study

Women's participation in income generating activities decision-making has a significant impact on their status and greater role in society. Their participation is potentially important to bring equality between women and men in order to achieve sustainable development. The findings of this study will contribute to the narrowing of the existing gender gap in agriculture as it will reveal some difficulties as well as opportunities encountered by women in agriculture. The findings of this study also will inform

researchers in their future studies pertaining to income of rural women as they will be able to take the factors identified by this study into consideration.

1.5 Structure of the Report

This research paper is organized as follows. I start by presenting the study introduction and background, statement of the problem, study purpose and study significance in chapter one. I then present a discussion on the literature review in chapter two and chapter three presents the research methodology. I discuss research findings discussed in chapter four and finally, I conclude with chapter five which contains the study conclusions and recommendations.

CHARPTER TWO

LITERATURE REVIEW

2.1 Introduction

The role of women's work in development and poverty reduction continues to be an important area of investigation in developing countries and Zambia in particular (Jahan, 1990; Shirin, 1995; Jordans and Zwatreveen, 1997; Amin and Pebley 1994; Shirin 1995; Hashemi et al 1996; Jordans and Zwartreveen 1997; Mahmud, 2003; Abel et al, 1998). It is recognized that women work more hours than men particularly in farm households, more in agricultural than in non-agricultural economic activities, and more as unpaid family laborers than as managers. Even if they do most of the work, men mostly control their decision making power and ownership of household resources. Institutional services for development target only men. Even when women are targeted such as in micro-credit program, women are often used as a font and men keep control over managing the resources. Thus, it is acknowledged that women are disadvantage group to acquire knowledge on farm and non-farm production systems and technologies from the service sectors. They are disadvantaged because of traditional culture and social norms that confer power and privilege to men. However, some recent studies have observed that women from poor households change their traditional norms and responsibilities at home and involve in post-harvest agricultural activities outside the home due to extreme poverty and food deficiency.

2.2 Female's Role in Agriculture

A study conducted in 1990 identified the role played by women in Zambian agriculture and the impact of this role on the economic well-being of rural households. The study shows that female heads face more severe constraints to increasing cash crop production

than do male heads. The study further showed that female headed households have fewer members and cultivate smaller areas as compared to male headed households. It is also revealed that lack of education and information prevented women's effort to contribute greatly to agricultural production (Kanyangwa, 1990)

According to the World Bank Priority Surveys Report, male-headed households produce more maize compared to female-headed households. The same was reported true for cassava production and that a larger proportion of female heads was engaged in the production of local maize than hybrid maize. Results on livestock and dairy (milking activities) show that male engagement was higher than that for females (World Bank, 1993).

In his study about participation of farm women in agricultural decision-making, Shahnaj Parveen(2007) revealed that women participation in agricultural activities as well as decision-making were not satisfactory. Their participation in making agricultural decisions was enhanced by spousal harmony, sex of children, holding of livestock assets and availability of institutional resources. He therefore concluded that it was necessary to materialize programmes related to crops and livestock exclusively for farm women by various development agencies/stakeholders including government, national and international NGOs and private organizations (Shahnaj, 2007).

According to Udry, plots controlled by women have significantly lower yields than similar plots within the household planted with the same crop in the same year, but controlled by men in the same household. The yield differentials are due to lower input intensity on female managed plots; much less male labour per hector is devoted to plots controlled by women than to similar plots controlled by men. Child labour and unpaid exchange labour is also applied more intensely to plots controlled by men. Finally, all fertilizer is concentrated in plots controlled by men, even though the marginal product of labour diminishes. He further concluded the following as the sources of misallocation of resources;

- Individual's greater incentive to achieve higher output on their own plots than on others
- Imperfection in the intra-household labour allocation process(Udry,1994)

2.3 Females in Income Generating Activities

Hossain et al (2004) in their study on women's participation in economic activities reveals that women are segregated to home-based activities consisting of mainly domestic labour and less economic labour. The study further showed that women's participation in non-agricultural activities and in wage employment has declined. Furthermore, while men leave agriculture and engage in non-farm activities, women remain within the farm sector. This has therefore resulted in substantial disparity in earnings of men and women in the labour market. Male-female income differences are higher in non-agriculture than in agricultural activities. Women earn less because of lack of adequate education. The study therefore concluded that economic activities within the household had weak impact on women empowerment Hossain et al (2004).

Boserup's (1970) analysis paid careful attention to such factors as changes in land tenure, type of cultivation, technology, employment, and outside intervention in local productive processes in bringing about changes in men's and women's participation in agricultural production. Boserup began her analysis by distinguishing between male and female farming systems in subsistence agriculture. In the former, food production is carried out by men, with little help from women; in the latter, food production is the domain of women, with little help from men. She suggested that two factors were of particular importance in establishing the prevailing sex differentiation of work: differences in the type of agricultural system, and differences in the patterns of social hierarchy. Female farming systems are generally based on extensive shifting cultivation, whereas male farming systems are usually characterized by intensive plough agriculture. Boserup demonstrated the importance of type of cultivation in influencing the sexual division of

labour by com- paring community survey data from Africa and Asia. Women constituted a much greater proportion of the total family labour force in Africa (extensive shifting cultivation) than in Asia (intensive irrigated agriculture). Boserup also argued that social stratification, as reflected in land-tenure systems and in the composition of the labour force, was of great importance in explaining different patterns in the sexual division of labour. A major difference between shifting and plough agricultural systems is whether land is privately owned. The use of the plough is associated with private appropriation of land as well as the existence of a large class of landless rural families. She argued that, in such a situation, the greater proportion of farm workers may not come from the family but from the rural proletariat.3 Drawing on population census data for four major regions of the world, Boserup then illustrated that where there are few agricultural proletarians, as in Africa and in some parts of Southeast Asia, women make up a high proportion of family workers in agriculture. In contrast, in areas where agricultural wage labourers form a large part of the agricultural labour force, as in the Arab nations and in Latin America, women form a low percentage of the family labour force.

2.3 Conceptual Framework

Smallholder rural household members are faced with different economic opportunities and have to choose amongst them. An understanding of the response of smallholder rural households to changes in economic opportunities is crucial to understanding a family's decision to participate in different income generating activities. Agricultural households in less developed countries make joint decisions over consumption, production and leisure. Household models provide a frame work for analyzing household behavior that integrates these three decisions. Leisure is better termed as home time and it includes family maintenance, reproduction, social obligations and sleep. Production activities include income generating activities such as working on the farm and off-farm. Each of these has an opportunity cost and rationally, a household selects the one with the lowest opportunity cost.

In the classical unitary approach, the household maximizes a single utility function subject to the income constraints. The key difficulty in justifying the unitary household approach is to reconcile the single-utility framework with the existence of multi individuals within the household. Restrictive assumptions have to be made to solve the problem. The traditional unitary approach to household decision making assumes either family members have the same preferences, or individual preferences can be aggregated into a household utility function (Chiappori, 1997). Examples of such aggregation includes the altruistic approach, where the household head cares about the welfare of each household member, and the dictatorial approach, where all other members' preferences are subsumed by the household head's own preference, with the household maximizing the head's utility function subject to household income constraint. Samuelson's household welfare index (1956) and Becker's rotten kid theorem (1981) are probably the first two attempts to formally model and justify the unitary approach. The collective approach argues that the same preference assumption and the systematic aggregation assumption are not realistic. Empirical evidence has consistently rejected the unitary assumptions (for example, Thomas, 1990; Schultz, 1990; Johnson & Rogers, 1993; Quisumbing & Otsuka, 2001; Attanasio & Lechene, 2002). Indeed, "individualism is supposed to lie at the foundation of micro theory, and individualism obviously requires one to allow that different individuals may have different preferences" (Browning, Bourguignon, Chiappori & Lechene, 1994, p1068). A general approach should be developed to depict household decision making before special cases like the unitary models are tested. Keeping the assumption to the minimal, the greatest virtue of the collective approach is its generality. Even though the distinction between the unitary and the collective approach appears to be obvious, Chiappori (1997) specially points out two issues that are likely to be confusing. First, the fundamental discrepancy between the two approaches does not lie with the number of decision makers within the household. As pointed out above, Samuelson and Becker both recognize that there are multi preferences within the household. The unitary approach simply devises restrictive assumptions to simplify the analytical framework. In this sense, the unitary approach is nested within the collective approach. Second, the point of departure between the two approaches does not

lie with the maximization of a unique welfare index. Rather, in the unitary models, the maximand can be interpreted as a utility function; it is independent of prices and incomes—the latter appearing only in the budget constraint (Chiappori, 1997). Once the total expenditure is controlled, income should not affect demand in the unitary model. In all collective models, on the other hand, one the most distinguished feature is that the maximand is price-dependent. The household utility will depend on prices and income, and price and income enter the function only through the household "sharing rule" function.

2.4.1 The Basic Model

In the basic model a two-person household is considered for simplicity. Young children can be added into the model without changing the basic setup by assuming no decision-making power for the children. However, in the reality, older children also have the power to affect household decisions, which is a factor considered in Becker's "rotten kid" theorem. Household consumption is divided into public and private goods. House maintenance is an example of public good, and clothing is an example of private good. However, the distinction between the two types of goods is not always unambiguous. In fact, potentially a lot of the private goods have a public element if family members care about each other. The budget constraint can be presented as;

$$p'(qM + qF) + P'Q = y$$

where y is the total household budget, p and P are vectors of prices for the private and public goods, and qi , $i = M, F$ are male and female private consumptions. Q denotes public expenditure within the household. The two-person household's problem is to maximize the weighted utility function:

$$\mu UM + (1 - \mu)UF$$

where Ui , $i = M, F$ represents husband and wife's preferences, which is a function of $(qA$, qB ,$Q)$. μ is the weight attached to each member's preference. Weights are between 0 and 1, and they sum up to 1. μ captures the household decision-making process and its result. Sometimes it is called the "distribution of power" index (Browning & Chiappori, 1998). It can be seen that when $UM = UF$, or when μ equals 1 or zero, the collective collapses into a unitary model, with the latter case representing a dictatorial scheme of household decision making. Larger μ makes the household utility represent more the husband's preference than the wife's. In the unitary model, μ is exogenously given. In the collective model, as in all bargaining models, μ captures the decision process and is a function of prices, total household income and other variables such as income distribution and marriage market conditions. The outcome of the household decision process is postulated to be efficient. That is, for any price-income bundle, the consumption vector chosen by the household is such that no other vector in the budget set could make both members better off. Without further assumptions except for the typical ones such as U is strictly concave, continuous and increasing in qi , $i = M, F$, and Q, and μ is a differentiable and zero homogeneous function, we can derive testable implications from this very simple model. For example,after controlling for total expenditure, income source should not matter under the unitary framework. No assumptions are needed for the nature of goods or the form of preferences (Bourguignon, Browning & Chiappori, 1994).

CHARPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methods and procedures used to help in the achievement of stated objectives. The chapter also describes the study area, sample used, method of collecting and analysing data.

3.2 Study Site

This study was conducted in Chongwe district, East of Lusaka province. This area was selected because it comprises not only village farmers but also smallholder farmers who have settled there from various urban areas. Therefore, it represents both the village farmers and smallholder farmers. This is a true representative of various household characteristics such as education and levels of knowledge, which are some of the variables of interest to this study.

3.4 Data Collection

For the purpose of the present study, a three-stage stratified random sampling procedure was adopted for the selection of farming camps, villages and households. In the first stage, a sample of three camps namely chainda, kampete, and shellen were selected at random from Chongwe block. In the second stage, villages namely chipela, chishiko, chombwe, mulilanduba, lusoke, kapekele, kapuka and kabeleka were then selected from the camps. The third stage involved the selection of households from the sampled

villages. This was done using simple random sampling. A total of 80 small farm households were surveyed and a structured questionnaire was used to collect primary data. This is because the literacy levels of farmers vary; therefore, administered structured questionnaires helped to obtain accurate information. Secondary data was collected from various relevant publications such as published reports and journals.

3.5 Data Analysis

Data were entered using the Statistical Package for Social Sciences (SPSS). After cleaning, the data were then exported to Stata to generate descriptive statistics and the probit model was later estimated. Microsoft excel was used to organise the output.

According to Feder et al (1995), specifications that can be used to analyse qualitative choice models are the linear probability models, the probit and the logit models (Pindyck and Rubinfield, 1991). However, the logit and probit models are preferred to the linear probability model when quantitative choice models are to be estimated, because the latter suffers from a number of deficiencies.

One of the deficiencies of the linear probability model is that the variance of the disturbance term of the model is heteroscedastic and, in addition, the disturbance term is not normally distributed. Its variance depends on the unknown expected values of the dependant variable. Another deficiency is that it allows the predicted values to fall outside the interval 0 and 1. Even if values between 0 and 1 are viewed as probabilities, negative values or values greater than 1 can not be interpreted (Flinn and Shakya, 1985).

In contrast, logit and probit models are the more defensible approach that takes care of heteroscedastic of the disturbances, as well as restricting predictions to values between 0 and 1. However, since the two models yield similar results in the case of binary choice models (Nayga and Capps, 1992), the choice of one over the other is a matter of convenience. The probit model was chosen for this study.

In the probit model, the probability of observing an individual to participate in income generating activities is defined in terms of a single unobserved index or stimulus and the standard cumulative normal distribution is used to transform the index to the probability value (Falusi, 1976). The relationship is stated algebraically as follows;

$$P = 1/\sqrt{2\pi} \int^{I^*} -\inf \exp \frac{-\upsilon^2}{2} du$$

P is the probability of observing an individual to participate in respective income generating activities. I^* is the level of the index (stimuli). Index I may take on any value between $-\infty$ and $+\infty$, but the transformation process that follows a sigmoid curve ensures that all corresponding probability values lie between 0 and 1 (Tobin, 1958), the stimulus I cannot be observed, but is defined as a linear combination of the observable variables. Thus, the probability of observing female participation in income generating activities can be modelled as in the following probit model;

$$PROB = \beta_0 + \beta_1 X_{it} + \beta_2 X_{2t} + ... + \beta_n X_{nt} + \varepsilon_n$$

Where;

$PROB$ =1 if the individual participated and 0 otherwise

t = 1, 2... t are observations

X nt =the nth explanatory variable for the t th observation. These variables are specified below.

n = 0, 1, 2... n

β = an unknown parameter; n =0, 1... n

The most suitable technique of estimation when using probit or logit models is maximum likelihood. Although this technique requires the use of an iterative logarithm, the procedure ensures the large-sample properties of consistency and asymptotic normality of the parameter estimates, so that the conventional tests of significant are applicable.

3.5.1 Definitions of variables used in the study

The probit model specified for the study included one dependent variable and fifteen explanatory variables. The independent variables included the following ; value of assets, household size, age of spouse, children under 9years, distance to nearest off-farm, access to gender services, access to other services, land ownership, field size, household income, women income, hired labour, husband education, spouse education age of household head and sex of household head .

The value of assets variable was included simply because men usually control more valuable assets on the farm such as tractors etc. household size was added as it is believed that women will have to take care of household tasks when there are many of members. Children under nine years were also included as this may limit women to move out of the household. Land ownership is also believed to affect participation as decisions are over land management are usually made by land owners.

The Breush-pagan test was used to test for possible heteroscedasticity. The Variance Inflation Factor (vif) was used to test for multicollinearity. multicollinearity is said to exist whenever vif is greater than 10. The vif obtained had a mean value of 1.23. This showed that multicollinearity was not present.

CHARPTER 4
STUDY FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents and discusses the study findings. It begins by presenting the sample characteristics of the survey followed by the presentation and discussion of the probit regression results.

Table 4.1 Demographic and Economic Characteristics

Variables Description	Households(both participants and non-participants)
Value of assets	K 37,900,000
Household size	5.8
Age spouse	41.1625
Children under 9yrs	2.4125
Distance to nearest off-farm	1.76875
Access to gender services	0.0625
Access to other services	0.4484
Land ownership	0.25
Field size	3.0125
Participation in IGAs	0.3875
Household income	5106900
Women income	654250
Hired labour	0.275
Husband education	2.9625
Spouse education	0.775
Age husband	47.6125
Sex of household head	0.9375

Source: Own survey (2008)

As a prelude to the probit analysis, specific socio-economic characteristics of the sampled respondents were explored. The findings shown in table 4.1 are summarized as below.

The age distribution of both husbands and spouses was also investigated. This is in recognition of the fact that the age of the farmers can sometimes act as a barrier to women participation in IGAs. The findings showed that the average age of spouse was 41.1625 years where as that of the husband was 47.6125 years. The level of education achieved by the women and husbands was also studied. This is because, as a whole, it has been established that there is a strong correlation between the level of education of this group and their ability to participate in income generating activities (Williams and Williams, 1971). The study showed that on average men had higher education (2.9625) than women (0.775). Hired labour on the farm was also studied. This is from the fact that demand for labour tend to increase during peak periods. Labour needs on the farm tend to increase during weeding, harvesting etc. The percentage of hired labour used on the farm was only 27.5%. This shows that most farmers perform farm duties on their on without much of hired labour. Findings on the farm size revealed that the average farm holding was 3.0125 ha of land. From the table, it can be seen that the average value of assets for a household is K 38,000,000. This figure does not reflect the ideal situation of the assets that the farmers are supposed to possess. Household size was also studied. The average household size was found to be 5.8. The family sizes were large in some of the households. This was studied as household size is believed to have an effect on the decision of females to participate in IGAs. The study was also interested in the number of children under the age of 9 years. This was expected to have an effect on the way that women may participate in IGAS. Thus the average number of this age group was noted as 2.4125 from the table. The average distance to the nearest off-farm is shown as 1.77km. The most prominent off-farm activity for women was working on small holder farms and this explains the 1.77km average distance to the nearest off-farm IGA. Access to gender services by women is shown to be 6.25% while access to other services is 44.48%. Women had had access to gender services mainly through women groups and through informal conversation. Most of the land is owned by the men as can be seen that only 25% of the fields were owned by women. Participation in this study was defined in terms

of sale of farm cash crops such as maize and non-farm enterprises such as charcoal. The percentage of women participating in such activities is shown to be 18% from the table. This indicates that few women participate in IGAs as the figure does not exclude female headed households. Average annual income earned by a household is shown to be K5, 000,000. Individual income earned by women is shown as K650000. This figure, when compared to the total household income clearly shows that women do not earn enough income either as on-farm or off-farm.

Table 4.2 Results of the probit model

Variables Description	Parameter Estimates	
Intercept	19.8277	
Value of assets	-6.8e-9 (-2.64e-9)	
Household size	-0.3405(-0.1322)	**
Age of spouse	0.7663 (0.0298)	**
Children under 9yrs	.0096 (0.0037)	
Distance to nearest off-farm	0.5091 (0.1977)	**
Access to gender services	-1.2391 (-0.4434)	
Access to other services	-1.1557 (-0.0593)	
Land ownership	-0.7423(-0.2591)	**
Field size	-O.0287 (0.0111)	
Household income	4.17e-9 (1.62e9)	
Women income	2.12e-6(-8.24e7)	**
Hired labour	1.1683 (-0.0658)	
Husband education	-1.1382(-0.0537)	**
Spouse education	0.3125(0.1213)	**
Age household head	0.0132 (-0.0051)	
Sex household head	9.0510(0.6304)	**
Adjusted R^2	0.5847	
Number of observations	80	

Source: Own survey (2008)

Table 4.2 reports estimation results for the probit model which was reached based on the maximum likelihood and linear regression estimation methods. The linear regression model was fitted so that heteroscedasticiy can be taken care of while multi-collinearity was checked by calculating variance inflation factor (vif). Pseudo R2 from the estimated model is 0.5847 meaning that the model explains 58.47% as the factors affecting women participation while 41.53% is being explained by other factors. The table presents findings pertaining to the factors that impact the likelihood of women to participate in IGAs. The negative and statistically significant variable of household size implies less work outside the home by farm wives as the size of the farm household increases. The likelihood of women to work in IGAs is thus reduced as women have to attend to most household chaos. As can be seen from the table, distance to the nearest off-farm was statistically significant and had a positive sign. This means that as distance to the nearest off-farm IGA increases, the probability that women will participate increases at a decreasing rate. Income earned by women is positively statistically significant. However, the coefficient is too low but this reveals that as income of the women increases, there is a likelihood that women participation will also increase. Both husband education and that for the women are statistically significant. However, the coefficient for husband education has a negative sign meaning that as men increase their education, they tend to monopolize much of the information needed to manage the farm. The positive sign on the coefficient of women education shows that as the education level of women increases, there is a likelihood that their participation in IGAs will also increase. The coefficient on the women education is consisted with the human capital thesis that points to the positive impact of education on earnings and on the ability of individuals to adapt to changes and to engage in a various employment opportunities (Nelson and Phelps;Desran. Falk and Jenkins). Land ownership also shows negatively correlation between women and their participation. The likelihood of women to participate is reduced since much of land used for production purposes is owned by men. Finally, sex of the household head was seen to have a positive impact on the likelihood of women to participate in IGAs.

CHARPTER 5

CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter discusses the conclusions made based on the findings of this study. Recommendations were also included based on the conclusions and results obtained.

5.2 Conclusion

The paper show findings that are likely to affect women participation in income generating activities women. Education of the wife was found to be positively related with the decision to participate either alone or with the husband. Presence of many household members negatively correlated with the decision of the wife to participate alone or jointly by the husband. Value of the assets was seen to have a negatively impact on female participation. Another important factor is women income. The positive impact clearly shows that women with high income are encouraged to participate in IGAs. The demographics data shown in table 4.1 shows that women earn little income as compared to the total income for the household. This clearly shows that women do not earn enough income either as off-farm or own farm. Most of the IGAs performed by women were that of low earning such as local bear brewing and on small holder farms.

5.2 Recommendations

The objective goal of reducing rural poverty cannot be achieved without the consideration of women participation in IGAs. The many factors that affect women participation have been revealed by this study. Thus, it is important that most government policies aimed at improving the welfare of rural population to consider also the potential income that women can yield. This is from the fact that if women income is increased, there is a positive incentive that they will fully participate in the many developmental programs.

The study has revealed that women earn little income as compared to men. This can be seen by the comparison between income earned by women and total household income. Education of spouse is also seen to have an influence in the way women chose to participate in IGA. Thus from what has been concluded, the following recommendations emerge from the study;

1. Promotion of female education to enable women to take part in market activities in the non-agricultural sector where gender disparity in earnings is less.
2. To invest in extension services that will target women as most of the information is being monopolized by men in the households.
3. Investment in infrastructure that can facilitate women's mobility outside the household as well as can reduce the burden of domestic work. Such infrastructure includes improvement of feeder roads which may make it easier for the females to reach and market their produce.
4. Women should be encouraged to own land as the study showed that as men increased the ownership of land, women participation also reduces. Thus, if women owned land, there is a likelihood that they will increase in cultivation of cash crops rather than subsistence crops only.

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APPENDICES

Appendix 1: Household Survey Questionnaire

Questionnaire serial number: |__|__|__|

An Intra-Household Assessment of Factors Affecting Women Participation in Income Generating Activities In Chongwe

Department of Agricultural Economics and Extension Education
The University of Zambia

Household identification

1.1 District name: _____

1.2 Block name: _____

1.3 Camp code **ward** |___| Camp name: _____

1.4 Village name:_____ Chiefdom:

1.5 Household code **hh** |___|___|___| Name of household head **head**:_____

1.6 a) Year household head was born **yob** |___|___|___|___|
b)Sex of household head **sex** |___|
(1=Male; 2=Female)

1.7 Is the household head the main respondent?
Rown |___|
1 = Yes→ Go to question 1.9

2 = No

1.8 a) Name of main respondent **resp**_____ b) Relationship to head **rship** |___ |___| (Codes at bottom of Table 2.1)

1.9 Does this household participate in farm and off-farm IGAs?
1 = Yes 2 = No → Fill in questions 1.10 through 1.12 and **End interview**

2. Demographics

oduction: I now would like to ask you a few questions about each of the members of your household.

an you please me the names of ndividuals who e been members his household the 3 years?			5.When was ... born?		6.What is/was ...'s marital status?	7.What is/was the highest level of education attained by ...	8.What is/was ...'s relationship to the head?	9.Was ... a member of this household in 2003?	10.Is...a member of this household now?	11.If **DM08=2**, why not?	12.Did ... provide farm labour the past 12 months?	13.Has ... been chronically ill the past 12 months?
	3.Member name	4.What is ...'s sex? 1=Male 2=Female	Month ***Codes below***	Yr	1=Single/under-age 2=Monogamously married 3=Polygamous married 4=Divorced/ separated 5=Widowed	***See code below***	***See code below***	1=Yes 2=No	1=Yes→ **DM10** 2=No→ **DM09, then Next member**	1=Left to look for job 2=Married away 3=Left due to illness 4=Left for other reasons 5=Deceased	1=Yes 2=No	1=yes 2=no
		DM01	**DM02**	**DM03**	**DM04**	**DM05**	**DM06**	**DM07**	**DM08**	**DM09**		

n born codes 2)			**Level of education codes (DM05):**			**Relationship to head codes (DM06):**		
	7=July		0=None	5=Std 4; Grade 5	11=Form 4; Grade 11	1=Head	7= Nephew/Niece	11=Unrelated
	8=August		1=Sub A; Grade 1	6=Std 5; Grade 6	12=Form 5; Grade 12	2=Spouse	8= Son/daughter-in-law	55=Farm manager
	9=September		1=Sub B; Grade 1	7=Std 6; Grade 7	13=Form 6	3=Own child	9= Grandchild	
	10=October		2=Std 1; Grade 2	8=Form 1; Grade 8	14=College Student	4=Step child	10=Other relation (Specify)	
	11=November		3=Std 2; Grade 3	9=Form 2; Grade 9	15=Tertiary Certificate	5= Parent		
	12=December		4=Std 3; Grade 4	10=Form 3; Grade	16=Bachelors degree	6= Brother/Sister		

3. Household Assets

ntroduction: am now going to ask you questions whether or not your household owns the following items / services

ssets	Does this household own an / a ...? 1=yes 2=no>>next asset	How many....does the household own now ?	When did the household last acquire any....?	What was the value of...at the time of purchase?(latest asset) (gift=0)	For how much would you sell all . . . Now?	Who owns most of...?	Do the female members of this household own.....which is in working condition. 1=yes 2=no
ough							
op sprayer							
azier							
cycle							
otor cycle							
otor vehicle							
actor							
elevision							
VD/VCR							
adio							
ammer mill							
ectric iron							
on-electric on							
efrigerator							
eep freezer							
ellular phone							
atellite dish ecorder							
ewing achine							
ectric stove							
as stove							
on-residential uilding							
cotch cart							
omputer							
oe							
xe							
unting gun							
able(dinning)							
ed							
lattress							
ck							
ammer							
novel							
/heel barrow							
and driven actor							
/ater pumps							
and hammer ill							
nellers							

1. How many agricultural fields do you own?

2. What is the size of your fields? Yes=1, no=2

3. Do the female members of this household own any of the fields you have told me about? Yes=1, no=2

5. I now would like to ask a few questions about each of the fields that you have just told me about, 2007/08 cropping season.

				Ask only if FD03<24												
				Seed					**Fertilizer**					Crop harvested		
iel its; acr m	2.What main crop or use did you put this field to in 2007/08? ***Codes below***	3.Main tillage method used *Codes below*	4.Was tillage done before rainy season? 1=Yes 2=No	5.Variety used 1=Local 2=Improved (specify)	6.Main reason for using this variety *Code below*	7.Qty of seed planted (kg)	8.Main source and mode of access *Codes below*	9.Price (K/kg) *Enter '99' if not appl.*	10.Qty of basal dress fert applied (kg) *Enter '0' if none*	11.Qty of top dress fert applied (kg) *Enter '0' if none*	12.Main source and mode of access *Codes below*	13.Avg price of fert (K/kg)	14.Did the hh apply manure in this field? 1=Yes 2=No	15.Qty (No of nits)	16.Unit *Codes below Table 5.1*
EL	**FD03**	**FD04**	**FD05**	**FD06**	**FD07**	**FD08**	**FD09**	**FD10**	**FD11**	**FD12**	**FD13**	**FD14**	**FD15**	**FD16**	**FD17**
)															

e of field (FD03)	**Tillage method (FD04)**	**Main mode of access and source of inputs (FD09; FD13)**	**Why this seed variety (FD07)**

Sorg m illet ce Sunf wer Grou nuts Soya ans8 eed tton	10=Virg. tobacco 11=Burley tobacco 12=Mixed beans 13=Bambara nuts 14=Cowpeas 15=Velvet Beans 16=Coffee	18=Cassava 19=Kenaf 20=Cashew nut 21=Other crops 22=Paprika 23=Garden	25= Natural fallow 26=Rented/lent out 27=Orchard 28=Virgin 29=Other (specify) 50=New field	2=Planting basins 3=Zero tillage 4=Plowing with ADP 5=Plowing with MP 6=Ripping with ADP 7=Tripping with MP 8=Ridging 9=Mounding	friends/relatives 3=Cash purchase: friends/relatives 4=Barter: friends/relatives 5=Loan: friends/relatives 6=Cash purchase: private retailer 7=Barter: private retailer 8=Loan: private retailer	10=Cash purchase: NGO(s) 11=Barter: NGO(s) 12=Loan: NGO 13=Govt fert support prog. 14=Govt food security pack 15=Loan from Outgrower 16=Other (specify)	2=Early maturing 3=Drought tolerant 4=Good taste 5=Good milling quality 6=Good grain colour 7= Only one available 8=Other (specify)

6. Household daily expenditure and consumption		
Introduction: I would now like to find out how much the household spends on different items		
6.01.How much was spent on the following items(amount in kwacha) in the past 12 months	Cash (kwacha)	In – kind(kwacha)
1.School fees		
2.School uniforms		
3.Private tuition		
4.Books / stationery		
5.Other school expenses		
6.Medicines		
7.Fees to medical personnel		
8.Traditional healer		
9.Payments to hospital		
10.Clothing and footwear		
6.02.How much was spent on the following items		
1.Chitenges		
2.Clothing		
3.Tailoring charges		
4.Footwear(shoes, sandals etc)		
6.03How much was spent on the following housing expenses		
1.rent		
2.Water		
3.Electricity		
4.Candles		
5.Paraffin		
6.Diesel		
7.Charcoal		
8.Firewood		
9.talk time		
10.Cosmetics		
11.Hair dressing		
12.Entertainment		

15.Toiletries(soap, washing paste etc)		
6.04.How much money was spent on persons in urban areas?		
6.05How much money was spent on cable pay(ZNBC,M-NET etc)?		
6.07How much was spent on remittances during the last 12 months?		
6.08How much was spent on transport to and from work?		
6.09How much was spent on transport to and from school?		

Now I would like to find out about how much this household spent on food and / consumed

6.10How much was spent on the following items

Item	Amount(kwacha)
1.Breakfast meali meal	
2.Roller meali meal	
3.Hammer mealed meal	
Household consumption Continues…….	
4.Maize grain	
5.Grinding expenses	

Information on food consumption during the last one month

6.11How much was spent on/consumed from own produce during the last one month?	Cash purchases	Own produce	received
1.Maize grain			
2.Cassava			
3.Millet			
4.Sorghum			
5.Rice			
6.Sweet potatoes			
7.Irish potatoes			
8.Groundnuts			
9.Kapenta			
10.Fish(fresh/dried)			
11.Goat meat			
12.Pig meat			
13.Game meat			
14chicken			
15.Beans(dried / fresh)			
16.Tomato			
17.Sheep meat			
18.Onions			
19.Bread (rolls,buns,fritters)			
20.Fruits			
21.Eggs			
22.Milk			
23.Butter			
24.Sugar			
25.Salt			
26.Cooking oil			
27.Tea			

7. HOUSEHOLD ACCESS TO FACILITIES

Introduction: I am now going to ask you questions about distances to various facilities

	7.1.Do you know where the nearest …is located? Yes=1 No=2>> next facility	7.2.How far is it to the nearest…. ?(km)	7.3.Do you use this facility? Yes =1 No=2>>Q6	7.4.Normaly,by what means do you get there? On foot=1 Bicycle=2 Motorbyke=3 Scorch cart=4 Public transport=5 Personal vehicle=6 Other(specify)…7	7.5.Normally how long does it take to get there?less than 10min…1 Between 10-20min….2 Between 20-30min…..3 Between 30-1hour Above 1hour	7.6.Do the women have access to… 1=yes 2=no
1.Food market						
2.Post office/postal agency						
3.Community school						
4.Lower basic school(1-4)						
5.Middle basic school(1-7)						
6.Upper basic school (1-9)						
7.High school (10-12)						
8.Secondary school(8-12)						
9.Health facility(clinic,health post ,hospital)						
10.Hammer mill						
11.Input market(for seeds,fertilizer,agricultural implements)						
12.Police station						
13.Bank						
14.Public transport(road ,or rail)						
15.Public phone						
16.Off-farm income generating activity(specify)						

8.Livestock and Poultry Ownership

I am now going to ask you questions on livestock and poultry ownership

Does nber of sehold n any . .	2.Now 1=yes 2=no	3.Past 12 months	4.Number of . . . owned	5.What is the current value of . . . ?(kwacha)	6. How many . . . were consumed past 12 months?	7. How many . . . were received as gifts past 12 months?	8.How many . . .were sold in the last 12 months	9.Value of . . . sales(kwacha)	10. How many were purchased past 12 months?	11.Value of purchases(kwacha)	12. Do female members of this household own any . . .? 1=yes 2=no
Cattle											
Goats											
Pigs											
Sheep											
.Does y ember of is ousehold vn y…?											
Chicken											
Ducks nd geese											
Quails											
Guinea owls											
. Any ther oultry specify… ….)											

9. Dependence/income

ill in the following table income earned by farm members between July 2007 and June 2008.

List all income-earning embers of the household/farm e. those with **DM08=1** in Table 1 above)		2. How much income did … earn from selling fruits and vegetables (ZMK)? *Add across all F & V. Enter '0' if none*	3. How much income did … earn from other farm activities (ZMK)? *Add across all other farm activities. Enter '0' if none*	4.How much income did … earn from off-farm activities (ZMK)? *Add across ff-farm all ctivities. Enter 0' if none*	***Ask only if IN03≠0*** 5. What was …'s most important off-farm activity? ***See codes below***
MID	**Name**	**IN01**	**IN02**	**IN03**	**IN04**

Off-farm income sources (IN04)

1=on smallholder farm
2=on commercial farm
3=in factory
4=in a mine
5=other industrial work
6=teacher
7=other civil servant
8=clerk
9=shop attendant
21=agricultural trading
22=livestock trading
23=retailer/shop owner
24=hawker/vendor/marketer
25=firewood/charcoal production
26=carpentry
27=builder
28=local brewing
30=ag services (e.g. ploughing, planting, spraying)
31=milling
32=oil processing
33=agro-processing
34=tailor
35=bicycle repair
36=weaving
37=blacksmithing
39=fishing and selling
40=precious stone mining (small scale)
41=other (specify)

10. Crop sales and stocks

I now would like to ask a few questions about each of the crops that we have just been discussing, this time in reference to stock holding and sales, ***2008 harvest and 2003 harvest***

	2008 harvest					***2003 harvest***			
	Crop stocks from this year's harvest					Quantity of … harvested in 2004			
Crop *des* *low*	2.Does the household still have this crop in stock? 1=Yes 2=No→CT05	3.Qty of … in stock now (No. of units)	4.Unit *Codes below*	5.How many more months will you have … in stock	6.Do the female members take part in the marketing of… 1=yes 2=no	7.Did the household produce this crop in 2002/03? 1=Yes 2=No→Next crop	8.Qty of … harvested (No. of units)	9.Unit *Codes below*	10.How long did stocks of … last from 2003 harvest? (months)
ROP	**CT01**	**CT02**	**CT03**	**CT04**	**CT05**	**CT06**	**CT07**	**CT08**	**CT09**

Crop codes (Crop)			**Unit codes (CT03; CT08; CT12; FD17)**	
1=Maize	9=Irish potato	17=Sweet potatoes	1=90 kg bag	9=Muchumbu
2=Sorghum	10=Virg. tobacco	18=Cassava	2=50 kg bag	10='Ka BP'
3= Millet	11=Burley tobacco	19=Kenaf	3=25 kg bag	11=Crate
4= Rice	12=Mixed beans	20=Cashew nut	4=10 kg bg	12=Tonne
5=Sunflower	13=Bambara nuts	21= Vegetable gardens	5=20 litre tin	13=Box
6=Groundnuts	14=Cowpeas	22=Paprika	6=5 liter gallon	14=Number
7=Soyabeans	15=Velvet Beans	23= Guar	7=MEDA	15=Kilogram
8=Seed cotton	16=Coffee	24=Other crops	8=Bunch	

1.Family and hired labour used in crop production

m now going to ask you questions relating to labour used in the fields

.Large field	2.Field/ marketing activity	3.Labour category	Family labour			Hired labor			
			4.Used this **LB01**? 1=Yes 2=No→***LB05***	5.Number of people	6.Duration (No.of days)	7.Used this **LB01**? 1=Yes 2=No→*Next* ***LB01***	8.Number of people	9.Duration (No.of days)	10.Payment rate (K/person/ day)
ield	**ACT**	**LB01**	**LB02**	**LB03**	**LB04**	**LB05**	**LB06**	**LB07**	**LB08**
	1= Land preparation	1=Men							
		2=Women							
		3=Children							
	2= Planting	1=Men							
		2=Women							
		3=Children							
	3= Weeding	1=Men							
		2=Women							
		3=Children							
	4= Chemical application	1=Men							
		2=Women							
		3=Children							
	5= Fertilizer application	1=Men							
		2=Women							
		3=Children							
	6= Harvesting	1=Men							
		2=Women							
		3=Children							
	7= Threshing	1=Men							
		2=Women							
		3=Children							
	8=Packaging	1=Men							
		2=Women							
		3=Children							
	9= Taking orders; sales decisions	1=Men							
		2=Women							
		3=Children							
	10=Keeping records	1=Men							
		2=Women							
		3=Children							
	Tending animals	1=men							
		2=women							
		3=children							
	Business	1=men							
		2=women							
		3=children							

8. Fill in the following table about the services received by the farm and their providers.

Service and its description		Has this household ever received assistance with or info on …? 0=No→ Go to next service 1=Yes	Which year did you first receive help/info on…? *Enter year (e.g. 2001)*	Who is/was the most important supplier or organizer of this service? ***See codes below***	***Has the females of this household ever received assistant with or info on…?*** 0=No 1=Yes	How did you receive (info on) this service? ***See codes below***	Did you use or receive this service during the past year (July 2004 – June 2005)? 0=No 1=Yes
service	**Name/description**	**SR01**	**SR02**	**SR03**	**SR04**	**SR05**	**SR06**
1	Technical assistance						
2	Training						
3	Inputs						
4	Credit						
5	Farm machinery services						
6	Packing/collection						
7	Packaging/selection						
8	Transportation						
9	Quality control						
10	Phytosanitory inspection						
11	Export certification						
12	crop price information						
13	Other (specify)						
14	Other (specify)						
15	Other (specify)						

Codes for service provider (SR03)

1=Fellow farmer(s)
2=Farmer organization
3=Private firm(s) or intermediaries
4=Government department
5=NGO or project
6=Bank

Codes for mode of service delivery (SR05)

1=Informal conversation
2=Radio program
3=Pamphlet/newspaper
4=Workshop
5=Field Day
6 =Demonstration plot
7 =Other (specify)