DETERMINANTS OF FEMALE LABOUR FORCE PARTICIPATION IN ZAMBIA: A MICRO DATA ANALYSIS

BY

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I, Chikumbe Sankwa, declare that this dissertation:

a) Represents my own work;

b) Has not previously been submitted for a degree at this or any other University; and

c) Does not incorporate any published work or material from another dissertation.

Signed: …….

Date: …….

APPROVAL

This dissertation of Chikumbe Shakumbila Sankwa has been approved as partial fulfillment of the requirements for the award of the degree of Master of Arts in Economics by the University of Zambia.

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Abstract

There are many factors that influence females to enter the labour market. Women in most of the developing countries are underrepresented in the labour force. In this regard, the equity and efficiency related Sustainable Development Goals, in particular; ensuring inclusive and equitable quality education and promote lifelong learning opportunities; achieving gender equality and empower all women; promoting sustained economic growth, full and productive employment and decent work for all have become desirable goals and target for policy formulation. This research focused on the determinants of female labour force participation in Zambia, with the view that labour market participation of women will improve their relative economic positions and also increase overall economic growth of the country. The study employed the Logit Model to analyse secondary data from 2014 Zambia Demographic and Health Survey. The results suggest that an increase in age influence women to join the labour force. Women with primary, secondary and higher education are more economically active than those without. Ownership of land and having children who are under five years of age also encourage them to engage in the labour market. Conversely, increasing the number of household members and ownership of television affected female labour force participation negatively. Additionally, women who are Non-Catholics are less likely to participate in economic activities. It is concluded that, in order to improve the working condition of female labour force, government should ensure that more women have access to education and limiting the family size would influence women to be more productive. Religious beliefs should be reviewed especially in the school curriculum and women should secure rights to own land.

DEDICATION

I owe everything to God Almighty, my awesome family - Nasi, Evans Jr. and Lushomo for your love, support and care.

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Praise be to the Almighty God, the provider and sustainer of my physical, mental and spiritual health to reach the end. With you all things are surely possible.

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List of Acronyms

CSO	Central Statistical Office
FAO	Food and Agricultural Organization
FLFP	Female Labor Force Participation
LFSR	Labor Force Survey Report
MDGs	Millennium Development Goals
ILO	International Labour Organization
OECD	Organization for Economic Co-operation and Development
PACRA	Patents and Companies Registration Agency
TV	Television Set
UDHS	Uganda Demographic Health Survey
UNDP	United Nations Development Program
USA	United States of America
ZDHS	Zambia Demographic Health Survey

1.0. Introduction

It is a known fact that economic and social development depend, among many other factors, upon a rational exploitation of human resources endowment. In this regard, the contribution of women is crucial to this development because the lifetime decisions women face, determine not only their individual future but also that of society (Klaren, 1999). Women form part of the labor force that produce goods and services to meet the requirements of society. Not surprisingly, a huge amount of scholarly effort has been invested in understanding the subject, ever since the pioneering works of Mincer (1962). Literature also suggests that there have been increases in women's contribution to modern sector activities (Amsden, 1980).

Women need to be integrated into economic activities. In this effort, the equity and efficiency related Millennium Development Goals (MDGs), in particular: ensuring inclusive and equitable quality education and promote lifelong learning opportunities; achieving gender equality and empower all women; promoting sustained economic growth, full and productive employment and decent work for all and ensuring health lives and promoting well-being for all have become desirable goals (Camilla, 2013).

These goals highlighted above are being achieved through the enactment of laws which address gender discrimination and discrimination due to marital status; pregnancy, race and sexual preference - thereby ensuring a fair treatment of women workers world over. Over the past few decades, the labor force participation of women has increased strongly, especially, in countries like United States of America and the Nordic countries (OECD Economics Department, 2004).

In spite of all these efforts and achievements, various surveys have shown that the actual participation rates are still below desired levels in developing countries (Jaumotte, 2003). Many women still find restrictions in attaining some managerial jobs and grapple with maternity decisions and family trade-offs (Murray and Syed, 2007). Some scholars have argued that disparities in labor market participation are not due to gender per se, but are attributable to the fact that women are disproportionately responsible for bearing and raising children and low levels of education attainment especially in developing countries (Waldfogel, 1998)

Zambia is among the developing countries in Sub-Saharan Africa that has shown some tremendous improvement as far as female labour participation is concerned. The region has witnessed a

substantial increase in the number of female labour force participation (FLFP) [1] from 1990 to 2000 and it started decreasing from 2000 up to 2010 (Ntuli, 2010). Thereafter, the trend seems to be slowly rising.

The Central Statistical Office, through Labour Surveys that were conducted in the years; 2005, 2008, 2012 and 2014, show the trends of female labour participation in Zambia as compared to men. The line graph of figure 1.1 illustrate the trend of participation between men and women.

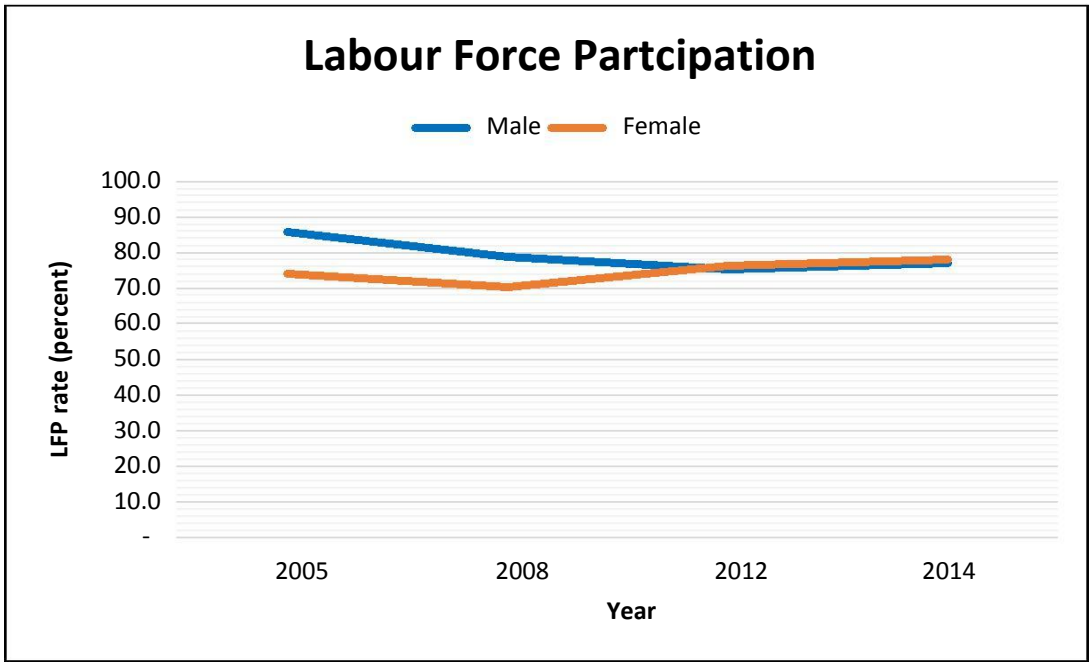


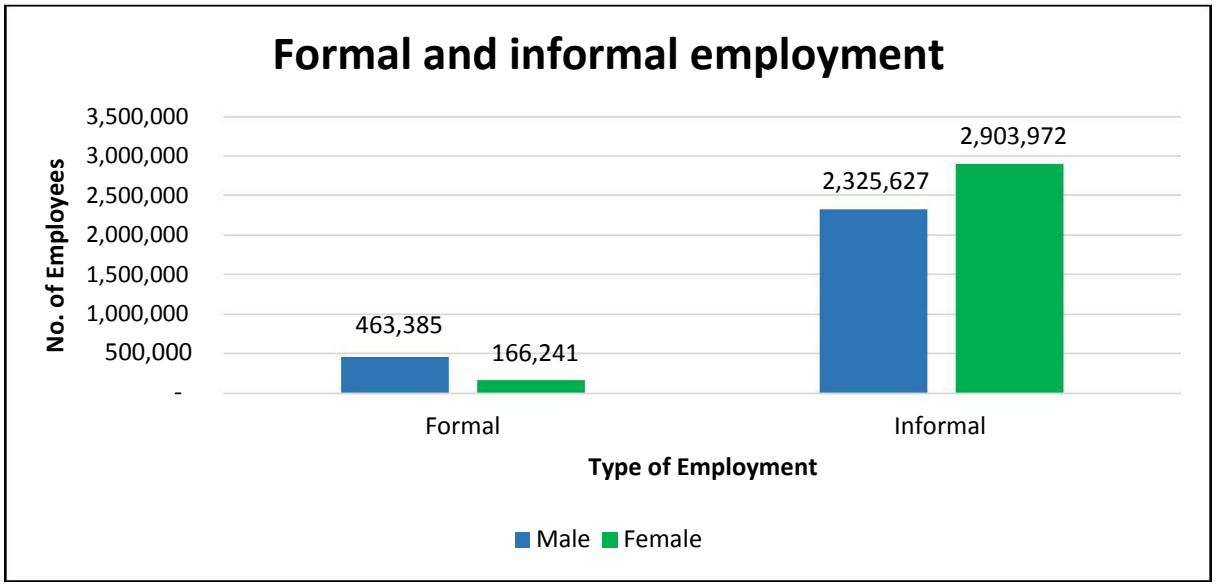
Figure 1.1 Labour Force Participation in Zambia; trends from 2005 to 2014

Figure 1.1 shows clearly that female labour force participation has been increasing steadily while for men, it has been declining.

However, the Zambian labour market has a peculiar trend that require a critical analysis. Following the declaration of millennium development goals, people should have access to decent jobs. Decent jobs demands that employees are entitled to social security coverage and a contract in addition to annual paid leave, or any such entitlement (Central Statistics Office, 2014).

[1] Labour force participation refers to all persons above a specified minimum age who were either employed or unemployed but looking for work at the time of the survey (Zambia Labour force Survey, 2014). Female labour force participation, in this research, represent those females that declared as working or are participating in any economic activity.

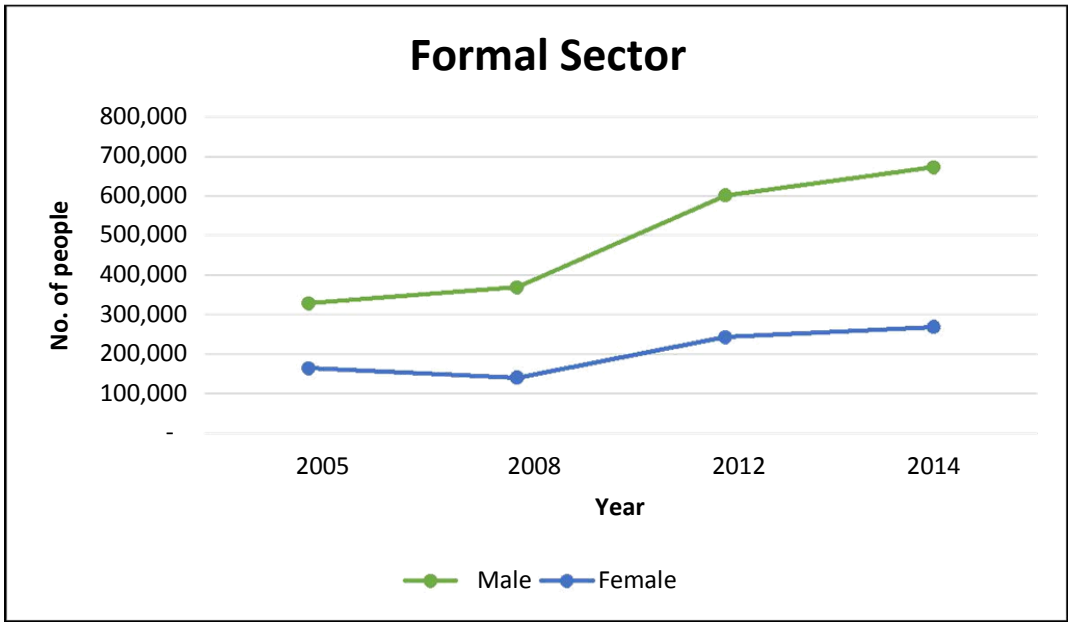
Most women, in Zambia, have no formal employment. They are in the informal sector and the majority have informal employment where such privileges of decent jobs are absent. Because they are in the informal sector, most of their jobs and businesses contribute less to economic growth and hence, retarding national development. Figure 1.2 below shows the trend on how women have fared in formal employment.



Source; CSO, Zambia Labour Force Survey, 2014

Figure 1.2 Distribution of men and women in formal and Informal employment.

It is clear from figure 1.2 that there are more men employed in the formal sector while women are more in the informal sector. Conversely, the total labour force seems to show that women are more than men. It is also important to know how women have fared in the formal sector. These sectors entail whether or not the firm or business is registered with the tax authorities such Zambia Revenue Authority (ZRA), Patents and Companies Registration Agency (PACRA), Pension and other authorities.



Source: Zambia Labour Force Survey, 2014.

Figure 1.3 Formal Sector Employment.

The line graphs in figure 1.3 show an increase in the number of people joining the formal sector for both sexes. However,the gap (difference) between men and women participationseems to be widening.

Taking an example of the Zambian parliament which is one of the formal sectors, the share of women participation was 12% in 2005 and in 2008-2009, 24 out of 158 seats were held by women, leading to the low share of 15.2%. At the same time, in local government the female share was only 6.6%, one of the lowest figures in sub-Saharan Africa (Serumaga-Zake et al, 2004). Consequently, the country's estimated per capita earned income was $1273 out of which $1650 was for men and $897 for women (United Nations Development Plan, 2008a). Thus, the 2006 ratio of the average female to male income was quite low at 0.54.

And because of these disparities, ActionAid-Zambia (2016) argued that there is need to increase the number of women in leadership position in order for them to become economically active.

> *The number of women Councilors in Zambia at the moment stands at 88 against a total number of 1,427 Councilors. As a result of the stated inequalities, women do not have equal power to influence policies and developmental*

> *decisions at the local level which has a direct effect on their lives. Women's participation in local government can have a particular impact on local and national development, global affairs and or social issues that affect their families, daily lives such as healthcare, education and infrastructure (Zambian Eye, ActionAid, 2016).*

Furthermore, the exclusion of women in the formal sector has led them not to access financialservices and productsthat could help them move out of the vicious circle of poverty. Linda and Irma (2016: 4) argue that, "women are more inclined to depend on a family member for cash or be self-employed, while men participate more in 'piece work' (day labour) or salaried jobs."

Linda and Irma (ibid) showed that women are more likely than men to be financially excluded across formal and informal services. Women who are financially included, are significantly less likely than men to take up formal financial services (for example, borrowing from banks) and more likely to rely on informal services.

From this outcry, there is need, then, to understand how the Zambian labour market can attract female labour participation. There is need to assess what makes women to be excluded from jobs and what can be done to improve the situation.

Therefore, this paper examined individual, household and environmental characteristics that affect female labor force participation in Zambia. The variables of interest included; age, education level, marital status, fertility (number of children under five years a woman has), family size (number of household members), sex of household head, television ownership, land ownership, region, place of residence and religious denomination.

1.1. Statement of the Problem

Every government need to create a conducive environment in the job market. It is for this reason that every political party that comes into power try to promote gender equality. The promotion of these gender equality rights have been in place as far back as 1997. Recently, efforts have been scaled up by enacting an act to form the Gender Equity and Equality Commission by the Zambian parliament (National Assembly Proceedings, 2015). This act tries to guard against any form of

discrimination, including the right to access any job opportunities. Despite the government putting more efforts in promoting gender equality and other millennium development goals such as: equal access to education, improving maternal health, the raising of the minimum wage, plus, other labor market policy framework in Zambia, women are still underrepresented in many economic activities. This is evident, especially, in formal employment and formal sectors of the economy (see figure 1.3).

On the other hand, many countries have embarked on carrying out empirical studies on female labour force participation. This is because, many factors that affect the labour markets are not uniform. Hence, labour participation vary from country to country. Treatment variables have different causal-effects in different countries. Some could have a positive effect in one country while, in another, negative. Further, labour force participation studies are still in their infancy stage in Zambia. There are very few (if any) econometric or empirical studies that have been conducted. This could imply that, any government policy targeted at the labour market may not be based on well researched information. Hence, the paper tried to examine the factors that influence a woman to be economically active.

1.2. Significance of the Study

This study was undertaken with the view that, increasing female labor participation would improve their relative economic positions and also increase overall economic efficiency of the country. This study would also help government to come up with policies that could improve overall market working conditions and promote women empowerment. By being in the formal sector, women will have equal opportunities to accessing financial services (financial inclusion). This research might eventually form the basis for further research as no (or if any, very few) empirical studies, have been quantitatively conducted in our country, Zambia.

1.3.0. General Objectives

To analyze the determinants of female labour force participation in Zambia.

1.3. 1. Specific Objectives

The following are the specific objectives for this study;

i. To assess the effect of personal female characteristics (age, education, marital status) on labour force participation by women

ii. To examine the effects of household characteristics (infant presence, family size, sex of household head, ownership of television) on female labor force participation.

iii. To evaluate the impact of wider environmental factors (land ownership, region, place of residence, religious beliefs) on labour force participation

1.3.2. Hypotheses

i. Education is positively related to female labour force participation.

ii. Educated women are less likely to have many children

iii. Fertility negatively affects female labour force participation.

iv. Married women are less likely to engage in economic activities than single ones.

2.0. Literature Review

2.1. Theoretical literature

The theoretical outlook on labour force participation reflects how an individual makes choice among alternative uses of his/her time. According to Mincer's study on labour supply, the manner in which individuals allocate their time depends on choices between *work* and *leisure* in response to a wage increase (Mincer, 1962).

Furthermore, Mincer (ibid) points out that the labor force participation of (married) women should not be construed only in terms of allocation of time between market work and leisure since work at home is another activity which women, on the average, devote a large part of their married life. Therefore, the choices faced by married women are three-fold, i.e. leisure, work at home and work in the market.

In applying this model in the exposition of labor force participation in a developing economy like Zambia, there are issues calling for attention. First of all, there is a weak link between the labor force concepts of this model and the labor force variables often used in empirical studies. The theory assumes that individuals allocate their time between market work and other activities in finely divisible units e.g. hours of work, whereas the actual measured variables are whether an individual is in the labor force or not, whether employed or not, and whether formally and fully employed or works below full-time, among several other factors. Although the theoretical concepts of this model take into account the family context within which married women participate in the labor force, by treating labor force participation generally as a matter of individuals' choices under the condition that the real wage increases, this theory neglects other conditions that are likely to affect an individual's participation or non-participation.

To view socio-economic behavior like that of labor force participation as an individual decision making process is one approach. Another approach is to view such a micro-economic behavior as a household decision-making process. The latter approach makes the assumption that individual behavioral decisions are made interdependently. It states that they are part of a larger behavioral framework which links the household's behavior through a process of simultaneous and recursive

links. For example, in a household, the school enrolment of children will directly affect employment of a mother and vice-versa. If the mother is employed and contributes to household income, it is likely that the household can afford to send the children to school. Conversely, if the children attend school, it is more likely that the mother works because school enrolment will reduce child employment and increase the household income needs (Peek, 1978). This illustrates how a household tends to decide simultaneously on the employment of wife and children's school enrolment. Hence, there are many other factors that lead a woman to engage in economic activities.

2.2 Theoretical framework

The increasing trend toward women participation in the labor market in both developed and developing countries has drawn both social and academic interest resulting in many insightful studies on gender aspects of labor market issues. Other theoretical paradigms have been put forth in order to explain the changing patterns of female labor force participation in developing countries. Nam (1991), categorizes the literature into two perspectives i.e. Modernization and World system perspectives.

- **Modernization theory**

According to modernization theorists, economic development is positively associated with female labor force participation through change in the country's occupational structure (i.e. the increasing availability of service and white-collar jobs) and increased educational opportunities, often accompanied by reduced fertility rates and household responsibilities. The modernization process is associated with increased demand for labor, a general social acceptance of women's education and employment, as well as lower fertility (Heckman, 1980; Standing, 1978).

The relationship between education and female labor force participation has been summarized by Standing (1999) under three hypotheses: The opportunity cost hypothesis, the relative employment opportunity hypothesis, and the aspiration hypothesis (Nam, 2004). First, the opportunity cost argument conceives that to the extent that there is a positive relationship between educational

investments and earnings potential, education raises the opportunity cost of economic activity, thereby giving people a positive incentive to seek employment (Bowen and Finnegan, 1969).

The second one is the relative employment opportunity hypothesis which posits that employers usually tend to have a positive bias towards a qualified female work force rather than older male workers whose educational qualifications increase their employment options (Long, 1958; Oppenheimer, 1970).

Lastly, the aspiration hypothesis is based on the human capital hypothesis that women with higher levels of education are more likely to participate in the labor market. From this view point that aspirations and expectations of people are strongly determined by levels of education, more-educated women are expected to have higher income aspirations over their less educated counterparts and therefore tend to be more active in the labor market (Cain, 1966).

- **World System Perspective theory**

The world system perspective, on the other hand, explains the increasing labor force participation in the context of traditional comparative advantage international trade theory. From the perspective of the Stolper-Samuelson theorem, global trade liberalization would lead to a rise in the demand for unskilled labor in developing countries. In other words, since developing countries are more likely to have a comparative advantage in producing unskilled labor-intensive goods, one would expect international trade in these countries to lead to a rise in the demand for and relative returns of the abundant factor; unskilled labor in the case of developing countries (Krueger, 1983). Since more females than males tend to be unskilled and female labour is usually cheaper than male labor, labor-intensive industries tend to relatively dominated by females, particularly those who are young and single (Grossman, 1979).

- **Human capital and Neoclassical theory**

Human capital theory stresses the significance of education and training as the key to participation in the new global economy. Education is seen increasingly as a key determinant of economic performance, a catalyst to technological change and innovation (Fitzsimons, 2014).Neoclassical theory supports the human capital theory by suggesting that high levels of investment in human

capital and greater participation of women in the labor market are negatively associated with lower fertility rates.

In general, however, the causal impact of female labor force participation on fertility may occur along a number of complex pathways because both female labor force participation and lower fertility may reinforce each other. The relationships between female labor force participation and fertility have been studied based on the maternal role incompatibility hypothesis, which states that an inverse relationship occurs between women's work and fertility only when the roles of worker and mother conflict (Goldstein, 1972). The implication of this hypothesis is that a negative relationship between female employment and fertility exists to the extent that they are competing uses of time. Otherwise, we should expect to find no relationship, or even a positive relation between employment and fertility.

2.3. Empirical Review

Labor force participation studies in the developing countries have tried to translate the general propositions of labor force participation in the developed countries into models for empirical work. Measurable variables have been formulated to reflect the determinants of labor force participation by considering a combination of characteristics such as, age, education, marital status, fertility (presence of children), family size and religious denomination(Standing and Sheehan, 1978; Magidu 2010).

- **Education and fertility**

The most common variable in almost all the empirical studies is education. Steels (1992), Fadayomi and Ogunrinola (2005), Sackey (2005) and others have shown that education is the key determinant in labour force participation, not just for females but also for males. Further, Sackey (2005), using data from the Ghana Living Standard Survey, established that; labor force participation and fertility decisions – are strongly linked and as such they should be studied together. To do this, a probit and a multinomial model types were specified and estimated. Significant contribution of this study is the negative effect of education on fertility while education and reduced family size increase labor force participation rate in Ghana.

However, these studies did not show how some household characteristics like television ownership could affect labour participation at different education levels. On the Zambian setting, this study tried to establish this relationship and interacted the variables 'education' and 'television ownership.'

- **Age, place of residence and sex of household head**

Various studies have shown different effects of age on female labour force participation. Steels (1992) study, using the probit model, revealed that the probability of participation in the labor market decreases as women become older although it remains relatively high even at older ages. Further, Dante and Gonzalo (2008) study categorized age in subgroups and found that there is also a positive relationship with decreasing rates between age and participation. This life cycle behavior indicates that women exhibit greater rates of participation between the ages of 24 and 28 and the ages of 39 and 43. Young women and older women show lower participation rates.

The study done by Fadayomi and Ogunrinola (2005) examined, empirically, the influence of household structure on labor market participation in Nigeria. The study used data collected by the defunct National Manpower Board in 2005 in the Nigerian Labor Market Survey conducted that year. Using the logit model, the study established that age, marital status, male headed homes and living in an urban area can positively influence a woman to engage in labor activities. Conversely, if the household is headed by a female, their participation in the labour force is less than that for men because they have household duties to perform also. Additionally, the size of the household also affect women participation negatively. In this study, age has a positive impact on female labour participation, contrary to Steels (1992) findings.

Adiqa (1986) also assessed many factors related to female entering the labor market. Variables of interest included; household income, household expenditure, education and status of the head of the household (male/ female). The degree of correlation between each variable and female labor force participation rate varied throughout Parkistan. Tobit model was used for this analysis. It is concluded that education and household expenditures have positive but insignificant impact on the

female labour force, whereas household income and if the head of the household is male, has negative impact on female labour participation.

Mehak (2007) identified some major determinants of female labor force participation in Pakistan, specifically with reference to rural and urban areas. Categorical dependent variable techniques (Logit and Probit) were utilized to determine the factors affecting female labor force participation. The analysis used data taken from the Pakistan Social and Living Standards Measurement Survey, 2004-05 (PSLM) which measure individual and household characteristics of females between the ages of 15-49. Empirical results suggest that age, educational attainment and marital status have significant and positive effects on female labor force participation (FLFP). Women who belonged to the nuclear family and had access to vehicles, were more likely to participate in economic activities, whereas a large number of children and the availability of home appliances such as television reduces the probability of female labour force participation.

Arends (1992) empirical study used data taken from the Household-Man Power Survey of August 1989 by the office of Statistics and Census of Panama to analyse female labour force participation. The results show that the likelihood of women working for pay increases with higher education levels range from 10 percent for those with primary education to 48 percent for those with over 4 years of university education. Women with children under 6 years of age are less likely to be in the labor force. The probability of labor force participation drops from 27 percent for those with no children under 6 years of age to 18 percent for women with three children in that age group. Labor force participation peaks between 35 and 39 years of age. Those living in an urban area are 12 percent more likely to work than those living in a rural area. This result is similar to Fadayomi and Ogunrinola (2005). On fertility, Arends found that, the probability of working increases from 20 percent to 57 percent if the woman is head of household; and additional workers in the household increases the probability of working.

Aromolaran (2004) examined the influence of education (both own and husband's) on labor force participation of married women in Nigeria in wage market employment, self-employment and overall labor market participation. The study confirms not only the influence of own education on labor force participation, but also that the husband's education positively influence the labor force participation of married women in Nigeria. The methodology of study relies on the use of linear

probability regression model towards the estimation of three labor supply functions on female labor force participation. The estimation results show that own as well as husband's education at all levels positively influences labor participation in different degrees in wage-, self-, and total employment in Nigeria.

- **Religion influence and labor participation**

Religion is another factor that is rarely used in labor force studies. H'madoun (2010) included it in the analysis of comparing female labour force participation across countries. The probit model was used. The data for the study were obtained from the 2005 wave of the World Value survey, where 26,711 women in the age range 18 to 55 years in 48 countries were selected for the study. Like many other studies of this nature, the religious women were found to participate less in labor market activities than the non-religious women after controlling for other social and economic variables in the model. Bbaale (2014) study looked at the country specific study. Using a Probit model, and the Uganda Demographic and Health Survey (UDHS) data, the results showed that with more education, women are more likely to join the labour force. Education also makes women to keep fertility low, hence, increasing labour participation. Further, Protestants and Muslim women are less likely to join the labour force as compared to Catholics and other faiths.

The shortcoming of the H'madoun (2010) study is the fact that all the 48 countries were lumped together in the analysis without being disaggregated for country-specific uniqueness. Even when one of the regression equations reported country-fixed effects, no clear explanation was given for how this was carried out. A disaggregation by, for instance, level of economic and social development might possibly have shown different results for developing countries (like Mali, Rwanda, etc.) and developed ones (like France, Britain, Sweden, etc.).

- **Summary of Empirical studies**

These empirical studies show clearly that variables like education attainment, fertility, age and other factors affect labor force participation of women. However, their impact is not uniform among researchers. Some show positive relationship like the case of Steels (1992) on fertility and labor participation, while others show a negative effect like Arends (1992). Hence, the study investigated the relationship of these factors on the Zambian labor market.

The geographical and economic setting and standards in Zambia are different from other countries where other empirical studies have been conducted and because of such factors, the results of this study could be different.

3.0. Methodology

3.1. Research design

The study used an explanatory design that was non-experimental. It is non-experimental because Secondary data for 2014 Zambia Demographic and Health Survey from Central Statistics Office was utilized. The logic behind using this data sets is that, they have a wider representation in all the ten provinces of Zambia. Many stakeholders, like International Labour Organization, have also acknowledged the authenticity of the data. Demographic and Healthy Survey data have also been used to study labour participation by a number of economic researchers (see Bbaale, 2014 and Mehak, 2007). Arguably, Labour Force Survey data would have been better because they bring out many hidden labour market issues that may not be present in other surveys. However, at the time of data collection and analysis, this data was not yet in public domain. Hence, it was recommended to use the ZDHS data. And the data still gave good and satisfactory insights of the labour market. Observations were analyzed at micro-level.

3.2. Model specification

This study utilized, mainly, the quantitative approach with few descriptive analysis to give a quick glimpse of the relationship between variables. The logistic regression model (or simply Logit Model)was used for estimating parameters.It was chosen due to the nature of the outcome variable that is dichotomous. Since the dependent variable is discrete, using the linear probability model which is heteroskedastic may predict probability values that are outside the range of 0 and 1. The other competing model is the probit. The only challenge with the probit model, it underestimate the parameters. And recent papers prefer the logit than the probit model, though the results of one model could be converted to the other and vice-versa (MarnoVerbeek, 2004). Hence, the logistic regression model was used to estimate the factors which influence female labour participation. In this case, we are interested in predicting the probabilities that a woman is in the labour force given the independent variables.

$$= \{ \begin{matrix} 1: \quad * > 0 \\ 0: \quad h \end{matrix} \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(1)}$$

is a binary outcome which is simply the status of participation. However, our goal is to predict the probability that Y=1.

Modelling probabilities require that their values are in the interval $0 \leq \leq 1$. The econometric model that was used to model the binary response is the logit- derived from the logistic function as given below:

$$(= 1) = \frac{1}{1+^{-}} \text{ or } \frac{}{1+} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where $= 0 + 1 1 + 2 2 + \cdots +$

To come up with a linear model, we introduce the concept of the odds ratio.

$$\frac{}{1-} = \frac{}{1+} \cdot \frac{1}{1+} = \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

From equation 3, we can introduce the natural log on both side.

$$\ln\left(\frac{}{1-}\right) = \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

Therefore, logit model gives the following form;

$$^{*} = \left(\frac{}{1-}\right) = 0 + 1 1 + 2 2 + \cdots + \ldots\ldots\ldots\ldots\ldots (5)$$

Then using the log odds function, the research showed what influences a woman to enter (or not to enter the labor force). This logistic regression analysis has the advantage of estimating the probability or likelihood of a female entering or not entering the labor force using odds ratios (Gujarati, 2009).

The treatment variables were selected on the basis of economic sense rather than statistical. Sequential testing and sometimes data snooping were also applied so as to have a quick glimpse of variable significance. Economic theory allows us to specify a standard but very simple labor force participation equation that models the decision of a woman to engage in market work as a function of her age, education, marital status, fertility (children under five years), number of

household members, sex of household head, television ownership, land ownership, region, residence, and religion.

is the labor participation status of a woman, which is equal to 1 if the i-th woman is in the labor force and zero otherwise. A woman declared whether she was working or not. Those who answered 'yes' were classified as being in the labour force. Those who answered 'no' were regarded as not being in the labour force. In the analysis, women working on the family farm or business are considered economically active and thus counted in the labor force.Thewealth index (proxy for income) was also dropped out of the regression analysis as it brought problems of "bad control" where it is a potential outcome variable. Including it in the regression analysis also affected the parameters of the other regressors. On the other hand, wealth was represented by proxy variables like ownership of television and land.

Another variable of interest that gave uniqueness to this research is the geographical location. The country needed to be analyzed in three regions such as Central, Southern, and Northern provinces to understand their proximity variations of economic participation. The logic behind the categorization of the provinces into three regions is based on regional proximity and similarities (in observable factors) of economic activities, for example, the kind of farming inputs, the climate and common markets that they have. The Southern region comprised of Southern province, Western Province, and North-western Province. The central region composed of Lusaka province, Central province and Copperbelt province while the Northern Region comprised of Northern, Luapula, Muchinga and Eastern provinces.

The notation (or variable codes) used in STATA for the chosen treatment variables are given in table 3.1 below;

Table 3.1 Response and predictor variables notation

Dependent Variable; FLFP	Female Labor force participation (FLFP) = 1 if a women is working or 0 otherwise
Independent variables	
AGE	Age of the respondent
EDUC	The education level attained as categorized as no education, primary, secondary and Higher
MRTS	Marital status is analyzed i.e. Never in union, married, widowed and divorced
CH5	The number of children, 5 years and under, a woman has
HHME	The number of household members
SHH	Sex of household head.
TV	Television set
L_OWNER	Land ownership which is categorized as does not own, alone only, jointly only.
REG	Region; where the country is divided into 3 sub-region i.e. Southern, Central and Northern blocks.
RESID	Residence whether urban or rural
RELIG	Whether Catholic, Protestant, and Others

Using the selected variables, we estimated the parameters with the following econometric model;

$$^{*} = \ln(_{1-}) = {}_{0} + {}_{1} + {}_{2}\ {}_{2} + {}_{3}\ {}_{3} + {}_{4}\ {}_{5}\ {}_{4} + {}_{5}\ {}_{5} + {}_{6}\ {}_{6} + {}_{7}\ {}_{7} + {}_{8\_}\ {}_{8} + {}_{9}\ {}_{9} + {}_{10}\ {}_{10} + {}_{11}\ {}_{11} +$$

…… (6).

Where; $\in [1,2, \dots,]$

3.3. Sample design

The study analysed 49 207 units of women, comprising a complete enumeration of all the female respondents in the survey. A large sample has an advantage of making reliable and valid generalization since they are actual representation of the whole population. The target population was any woman between the ages of 15-49 years. This group of respondents are in line with international standards and International Labour Organization definition of economically active people (Zambia Labour Force Survey Report, 2014).

3.4. Data management and Analysis

The data was analyzed using a statistical software package called STATA using the logistic regression model or the Logit Model. Stata has the advantage of accommodating large quantities of data as compared to Excel and SPSS. Tables and Charts were also used to analyse variables descriptively.

3.5. Limitations of the study

Time and money are always a challenge as a questionnaire based survey would have been better in order to use primary data.

The nature of dataset used in the research did not have the category of men, hence, it was difficult for the research to make a comparison between women and men labour force participation.

There is need to further categorize the protestant churches in order to have a deeper understanding of their beliefs rather than just clustering them under one umbrella, as there are many protestant churches today than 50 years ago.

It would have been interesting to use data that can clearly show the informal and formal sector categories so that their variability can be analysed using the chosen set of variables and determine whether the differences are statistically significant.

However, with the available data, a lot of insightful analyses were done to try and assess what really influences women to participate in economic activities.

4.0 Results

The study analysed the determinants of female labor force participation (FLFP) in Zambia. A number of potential variables are included in the model on the basis of theoretical models discussed in literature review. This section presents the findings and discussion of the study using the treatment variables outlined in the objectives, thus; age, education, marital status, presence of children under five years, family size (or number of household members), sex of household head, television, residence (Urban versus Rural), ownership of land, religion and region (geographical location). The logistic regression coefficients and odds ratios are then analysed to test the hypothesis that the likelihood of the woman being in the labour force is related to the given regressors.

4.1. Response Variable

The table below shows that 64% of the 49 207 respondents were engaged in the labour force while 36% were not.

Table 4.1 Distribution of the respondents according to participation status

Respondents currently working	Frequency	Percent	Cumulative
no	17,430	35.77	35.77
yes	31,300	64.23	100.00
Total	49 207	100.00	

4.2. Descriptive statistics for independent variable

Age, fertility(CH5) and number of household members(HHME) were measured as continuous variables. On the other hand, education, marital status, sex of household head, Television ownership, land ownership, region, residence and religion were measured as categorical or dummy variables (see table 4.2).

Table4.2 Descriptive statistics for the treatment variables

Column lebeled (1) represent the number of observation for each variable. Column (2) are means while column (3) are standard deviations. Column 4 and 5 are the minimum and maximum values.

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) Max
AGE	49,207	35.08	7.936	15	49
REGION	49,207	5.930	3.126	1	9
RESID	49,207	1.621	0.485	1	2
EDUC	49,177	1.155	0.679	0	3
TV	49,184	0.333	0.471	0	1
RELIG	49,092	2.587	8.411	1	96
HHME	49,207	6.868	2.661	1	23
CH5	49,207	1.491	1.048	0	8
SHH	49,207	1.228	0.419	1	2
MRTS	49,207	1.374	1.021	0	4
L_OWNER	49,076	0.959	0.944	0	2

The number 96 under religion represent those that are neither Catholic nor protestant. In the same vein, region was categorised as; Central taking the value of 1, Northern=7 and Southern=9.

4.3. Logistic regression estimations (logit coefficients)

In order to determine the influence of the independent variables on female labour force participation, a logistic regression analysis was conducted. Before the logistic regression analysis was conducted a Likelihood ratio test and Hosmer- Lemeshow test were carried out in order to insure reliability of the results.

Table 4.3 below show the results of the joint hypothesis testing using the likelihood ratio test. This Likelihood Ratio test (like the F-test) is 3739.61 which is significant with 19 degrees of freedom.

Table 4.3 Joint Hypothesis testing; Likelihood Ratio test.

Number of observation	48730
Likelihood Ratio chi2(19)	3739.61
Probability > chi2	0.000
Pseudo R2	0.0580

The most reliable way of evaluating how well the model fit the data set, apart from using pseudo-^{2}, is by using the Hosmer-Lemeshow test which also measures the goodness of fit for non-linear models. Figure 4.4 show the Hosmer-Lemeshow test statistic, which is 65.86. It follows a ^{2}-distribution with 8 degrees of freedom. The model fitted the data well as it was statistically significant.

Table 4.4Hosmer-Lemeshow test for the goodness-of-fit

(Table collapsed on quintiles of estimated probabilities)

Number of observations	48730
Number of groups	10
Hosmer-Lemeshow chi2(8)	65.86
Prob> chi2	0.0000

Further, the logistic model predicted 67% of responses correctly. This was calculated using the classification table (see Table A2 at the appendix).

4.3.1. Estimation of logit coefficients

The logistic regression parameters were estimated using the logit coefficients (log odds) and the results are presented in table 4.5 below:

Table 4.5 Estimated Log odds

		(1)	(2)	(3)
VARIABLES	**Categories**	**Model 1**	**Model 2**	**Model 3**
AGE	Age	0.0326***	0.0377***	0.0316***
		(0.00128)	(0.00146)	(0.00150)
EDUCATION	None (base)	0	0	0
	Primary	0.287***	0.324***	0.270***
		(0.0283)	(0.0285)	(0.0292)
	Secondary	0.133***	0.270***	0.242***
		(0.0326)	(0.0341)	(0.0355)
	Higher	1.262***	1.483***	1.426***
		(0.0758)	(0.0780)	(0.0797)
MRTS	Single	0	0	0
	Married	0.173***	0.259***	0.248***
		(0.0489)	(0.0518)	(0.0538)
	Widowed	0.634***	0.503***	0.579***
		(0.0687)	(0.0703)	(0.0724)
	Divorced	0.628***	0.504***	0.557***
		(0.0571)	(0.0584)	(0.0602)
CH5	Infants		0.0719***	0.0490***
			(0.0119)	(0.0121)
HHME	Family size		-0.0247***	-0.0235***
			(0.00460)	(0.00468)
SHH	Male (base)		0	0
	Female		0.231***	0.199***
			(0.0327)	(0.0334)
TV	No (base)		0	0
	Yes		-0.262***	-0.131***
			(0.0222)	(0.0243)
L_OWNER	Does not (base)			0
	Alone only			0.795***
				(0.0400)
	Jointly only			0.569***
				(0.0226)
REGION	Central (base)			0
	Northern			0.428***
				(0.0243)
	Southern			0.732***
				(0.0274)

RESIDENCE	Urban (base)			0
	Rural			-0.206***
				(0.0237)
RELIGION	Catholic			
	Protestant			-0.0654**
				(0.0264)
	Others			-0.338***
				(0.0884)
Constant		-1.015***	-1.203***	-1.469***
		(0.0641)	(0.0730)	(0.0817)
Observations		48,730	48,730	48,730

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4.5 above estimates the log odds that show the direction of influence, thus, either a positive or negative way. As shown in the table above, continuous variables such as age, and fertility (children under 5 years) are positively related to female labour force participation while family size (number of household members) is negatively related. For categorical variables; being educated, Catholics, female headed homes, marital status (divorced, married, separated) and owning land are positively related to female labour force participation. Conversely, being a protestant and other religious grouping and ownership of a television were found to be negatively related to females engaging in labour activities.

4.3.2. Estimation of the Odds ratios

In order to compare the difference in female labour force participation using magnitudes, the odds ratios were used. The results are shown in table 4.6

Table 4.6 Estimated odds ratios of female labour participation

		(1)	(2)	(3)
VARIABLES	Category	Model 1	Model 2	Model 3
FLFP	Female labour participation			
AGE	Age	1.033***	1.038***	1.032***
		(0.00132)	(0.00151)	(0.00155)
EDUCATION	None (base)	1	1	1
	Primary	1.332***	1.382***	1.309***

		(0.0378)	(0.0395)	(0.0383)
	Secondary	1.142***	1.310***	1.273***
		(0.0372)	(0.0446)	(0.0452)
	Higher	3.533***	4.406***	4.164***
		(0.268)	(0.344)	(0.332)
MRTS	Single (base)	1	1	1
	Married	1.189***	1.296***	1.281***
		(0.0581)	(0.0672)	(0.0689)
	Widowed	1.886***	1.654***	1.784***
		(0.130)	(0.116)	(0.129)
	Divorced	1.874***	1.656***	1.745***
		(0.107)	(0.0968)	(0.105)
CH5	Infants		1.075***	1.050***
			(0.0128)	(0.0128)
HHME	Family size		0.976***	0.977***
			(0.00448)	(0.00457)
SHH	Male (base)		1	1
	Female		1.260***	1.220***
			(0.0412)	(0.0407)
TV	No (base)		1	1
	Yes		0.770***	0.877***
			(0.0171)	(0.0213)
L_OWNER	Does not (base)			1
	Alone only			2.215***
				(0.0886)
	Jointly only			1.767***
				(0.0399)
REGION	Central (base)			1
	Northern			1.534***
				(0.0373)
	Southern			2.079***
				(0.0571)
RESIDENCE	Urban (base)			1
	Rural			0.813***
				(0.0193)
RELIGION	Catholic			1
	Protestant			0.937**
				(0.0248)
	Others			0.713***
				(0.0630)
Constant		0.363***	0.300***	0.230***
		(0.0232)	(0.0219)	(0.0188)
Observations		48,730	48,730	48,730

seEform in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: All the discussion of relevant variables is centered on model 3 in figure 4.6

4.3.2.1. Education and female labour force Participation

Education is a very important factor in determining the likelihood that a female would enter the labor force. It plays an important role in deciding whether to work or not by enhancing job prospects. The findings of this study showed that educated women are more likely to participate in the labor force. All the categories were found to be statistically significant(< 0.05). Using model 3 in table 4.6, the results show that, those with higher education are 4.2 times more likely to participate than those without any education. The findings are similar to what Mehak (2007) found in his empirical study, that for women, greater educational attainment does not only lead to greater participation in the labor force, but also increases productivity. As the years of schooling increase, the probability of women's participation in the labor force also increases. Since women who are less educated are less likely to enter the labour market, it means that they will have challenges generating income. This may lead to poverty levels increasing considering the contribution that women make in households.

The study revealed that TV ownership has a negative effect on female participation in the labour force although its impact is more on those without education and with less education. On the contrary, the results of this investigation also show that females with high education participated more in the labour market even when they watch television as presented in figure 4.1. This may be, because, females that are educated, know how to allocate time between leisure and work (see also table A4 in the appendix for interactive regression of TV and education).

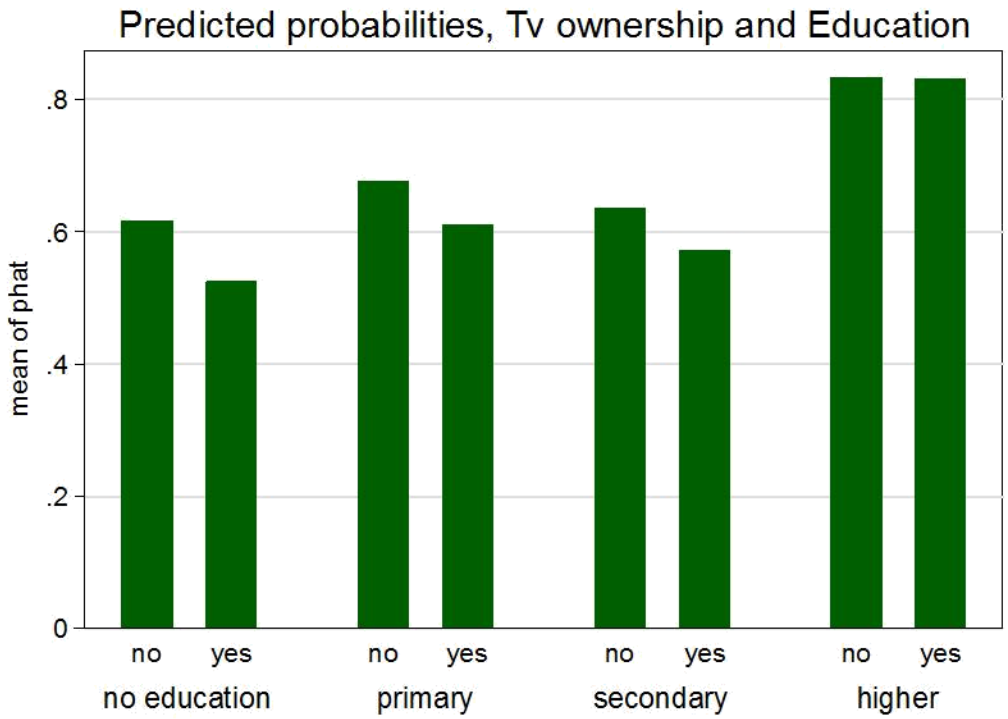


Figure 4.1 Predicted probabilities, TV ownership and Participation

Although it was revealed in the study that educated females, who owned and watched T.V participated more in the labour force, the availability of home appliances such as a television, have a negative impact on female labour force generally. Women who come from homes that have televisions are less likely to engage in the labor market. On average, the odds ratio of being in the labour force reduces by 0.878 (see Table 4.6).The reason for not engaging in the labour market may be that, homes which are financially stable may choose leisure (watching television) than engaging in market work. The results of this investigation are similar to those of Mehak (2007) who found that women who came from homes that had home appliances like refrigerators, television sets and fans were less likely to enter the labor force. However, the results must be applied with caution as televisions are also an important source of information. Just banning it could result in homes denying themselves access to some informative programs.

4.3.2.2. Education and fertility levels

It was also revealed in the study that, increased educational opportunities lower the fertility of women. Probably, this may be attributed to increased knowledge of their reproduction cycle and

the desire to work and earn a better pay. These findings are in line with the modernization theory which postulates that increased educational opportunities are often accompanied with lower fertility rates and household responsibilities. As shown in Figure 4.2, as the education level of females is increasing, the mean numbers of children under five years of age (CH5) tend to decline.

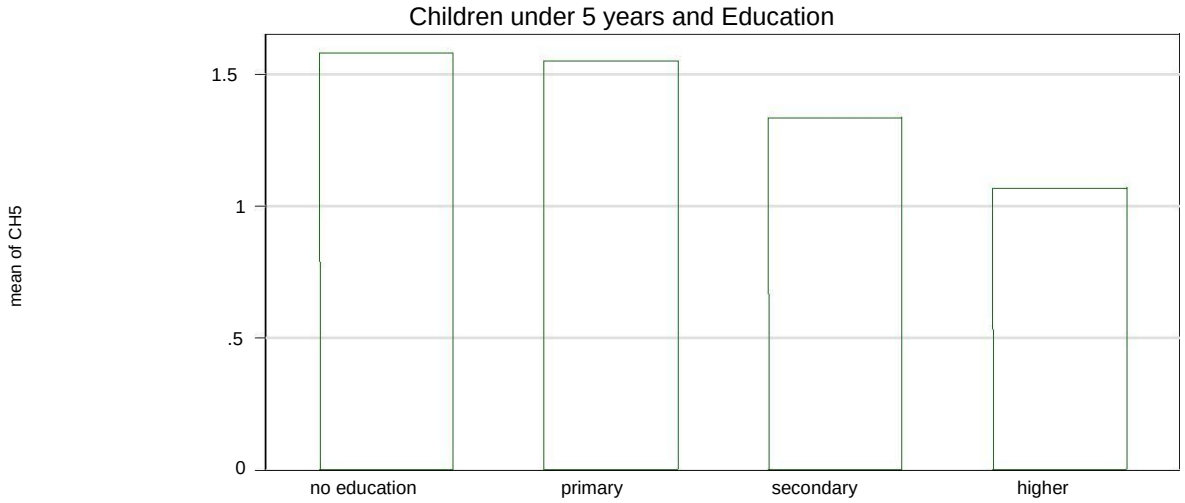


Figure 4.2 Relationship of fertility (CH5) with Education.

This revelation could imply that with more education, women tend to learn how to manage their life well. For example, they will plan how many children to have and house hold members to keep. With low levels of fertility, females are more likely to participate in the labour force.

4.3.2.3. Children under five years and Number of household members (Family size)

The number of children under five years of age plays a significant role in propelling a woman to decide whether to work or not to work. The findings of this study show that a unit increase in the number of infants leads to more labour participation of females in the labor force. The odds of a woman with a unit increase in the number of infant children being involved in the labor force are 1.049 higher. What was found in this study is similar to what Steels (1992) found. Conversely, the findings are not agreeable with Arends (1992) and Dante and Gonzalo (2008) who found that the presence of children under five years adversely affect women participation in the labor market.

Interestingly, there is also a negative correlation between family size (number of household members) and labor force participation which indicates that a unit increase in family size would

decrease the odds of participation by 0.977, signifying a lower incidence of women in the workforce (see figure 4.3).

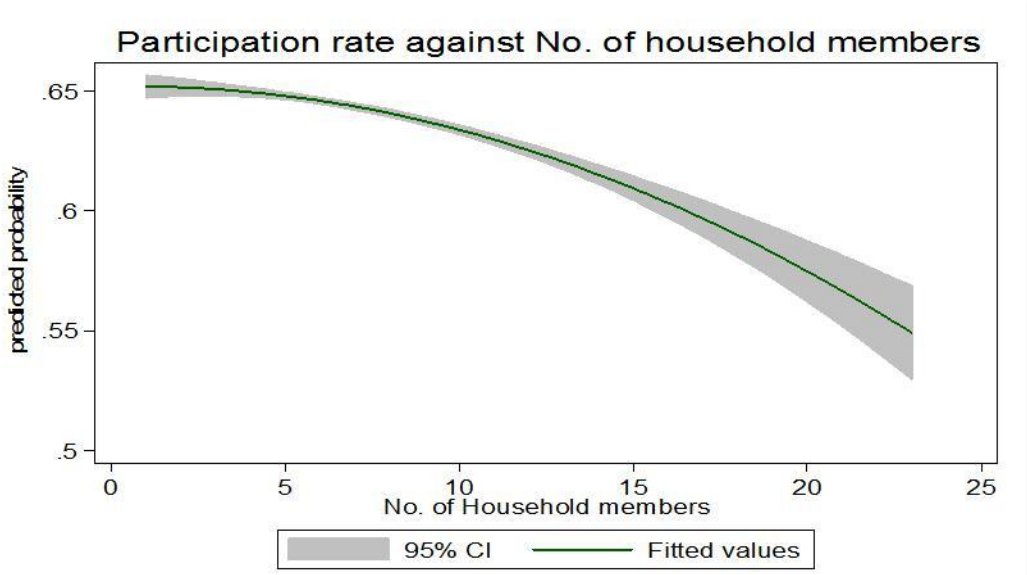


Figure 4.3 Female labour force participation rate versus family size.

Figure 4.3 above shows that as you increase the number of household members (family size), females are less likely to participate in the labour force-hence showing a negative relationship. The results are in line with those of Mehak (2007) who found that a large number of children reduces the probability of female labour force participation.

In Zambia, the existence of the traditional values that reverts a woman to the household chores hinder them from joining the labour force, as they are dependent on their husband's or father's decisions. On aggregate, the labour burden of women exceeds that of men, and it also include a higher proportion of unpaid household responsibilities. When the number of people in a household is higher, females have greater workload because of household activities such as sweeping, doing the laundry, cooking, and looking after the family members. This study revealed thatif a female belongs to a nuclear family, the greater the probability of her participating in economic activities, whereas a large number of children reduces the probability of FLFP. In terms of the effect, Shah et al. (1976) found that reducing the family size on females and facilitating their education (through creation of bursaries) is likely to lead to higher female labor participation.

4.3.2.4. Age

The coefficient of age for the Logit model shows that with an increase in age, there is a greater likelihood that a female will enter the labor market. The study revealed that, an increase in age by a unit increased the odds of being in the labor force (versus not being in the labor force) by a factor of 1.03 (see table 4.6 and figure A1 in the appendix). The results are in line with Dante and Gonzalo (2008) and Naqvi and Lubna (2003) whose findings indicated that women's age positively influenced the possibility of their involvement in economic activities. On the other hand, this result contradict that of Steels (1992) who found-that the probability of participation in the labor market decreases as women become older. Although the findings of this study showed a positive relationship between women participation and age, the dataset only comprised of women between 15 to 49 years, hence making it difficult to extend the generalization of women above 50 years. It would have been better to also see the trend of older women.

4.3.2.5 Marital status

Marital status is a crucial element in determining the woman's participation in the labour force. The results of the study indicate that if a woman is married, widowed or divorced, she is more likely to participate in the labor force than those who are single as evidenced by their odds ratios that are greater than 1. The odds of the married (versus single) are 1.281 times higher. For the widowed (versus single), they are 1.790 times higher while the odds of being in the labor force for a divorcee versus single are 1.761 times higher. In short, those that have been in marriage or are still married are more likely to participate in the labor market than those who are single. These results are in contrast to what was theorized by Mencer (1962) who stated that married women were perceived to be less likely to be involved in income generating activities due to their preferences for household activities. However, this study ties with that of Fadayomi and Ogunrinola (2005) which established that the divorced, separated and the widowed (which is the reference group in the marital status variable) demonstrate higher participation than the single (who are largely young, school going and still dependent on the household resources). Apart from the single, this phenomenon could be expected on the account of the absence of the usual male "breadwinner". This condition is likely to intensify their financial pressure and responsibility to other members of the household, given the usually large household size.

4.3.2.6. Sex of household head

In Zambia, the life expectance for men is lower than that of women and therefore, most of the households, especially in rural areas, are headed by females (Zambia Demographic and health Survey, 2014). The findings of this study show that the odds of female headed homes engaging in the labor force were 1.22 higher than those headed by males. If a household is headed by a female, other female members of the family may feel more empowered. Being a head of the family, she would encourage female participation in an economic activity. Realizing the responsibilities, she could be more likely to join the labor force depending on the financial needs of her family. Further, the study found that there was a positive relationship between female headed households and labor participation. The results of this study however, do not agree with Adiqa (1986) who conducted a study in Pakistan and found that in the case where the male was head of the household, there was a negative but insignificant relationship with female labor force participation. This was mainly due to the traditional attitude against the female labor force participation in that country.

4.3.2.7. Ownership of land versus regions

In Zambia, most of the population depends on agriculture. Agriculture can be an important backbone of growth and poverty reduction. But the sector is underperforming in Zambia, mainly because women, who are often a crucial resource in agriculture and the rural economy, face constraints that reduce their productivity. One of the resources is land ownership. Hence, ownership of agricultural land was introduced in the model. The study established that, a woman who owns land alone was 2.223 times more likely to be economically active than those without while those owning land jointly with their spouses were 1.767 times likely to participate than those without. This imply that, ownership of agricultural land enable women to produce cash crops, hence, having a source of income. The result of this study conquer with Sofa Team and Cheryl (2011) findings where owning land by women influenced them to be economically active. Ownership of agricultural land is therefore highly significant variable and has a positive impact, especially, on the rural female labour force participation. This is because, land, sometimes, also operate as collateral where a woman can access financial assistance. This in turn helps women to be more productive since they can access modern machinery.

We can also analyse the participation by comparing land ownership by different regions in Zambia namely central, Northern and southern. Figure 4.4 below shows how women participate in economic activities, especially through agriculture using different land ownership system.

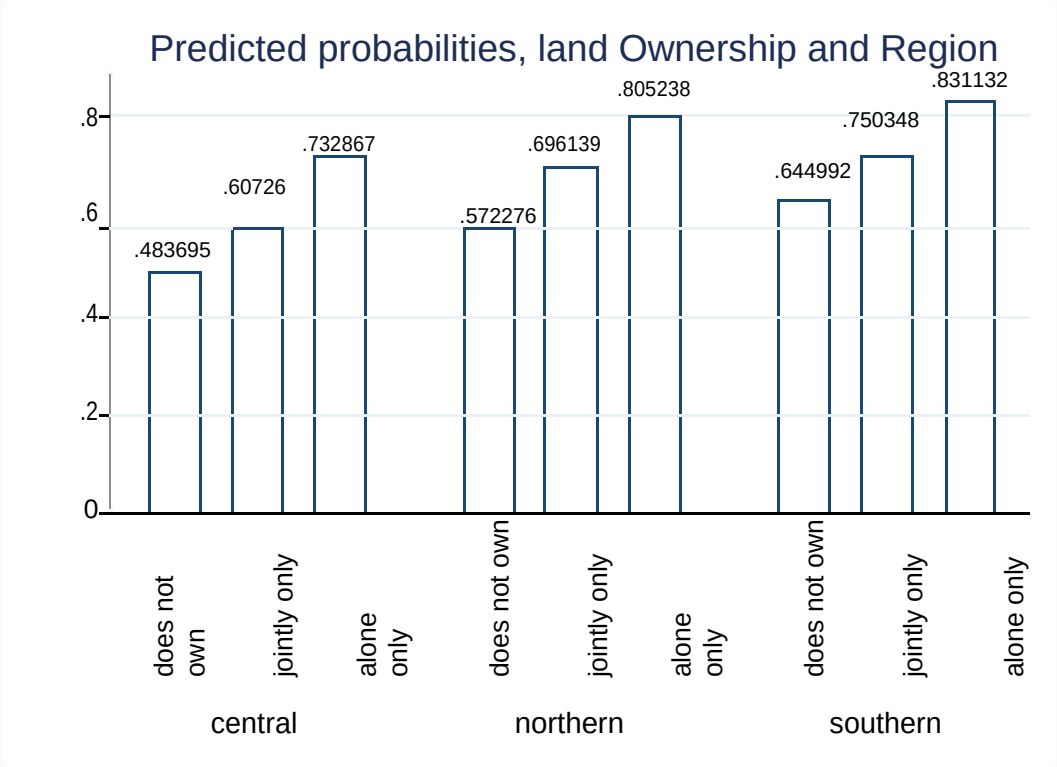


Figure 4.4.Participation rate of women, land ownership and region.

The study shows that women who own land alone are more productive than other kinds of ownership in all the regions. In all the regions, women who owned land were more productive than those without (see figure 4.4 above). These descriptive findings are also backed by the results from table 8- showing that the odds of a female engaging in labor activities from Southern and Northern were 2.068 and 1.533 times more than those from the central region, respectively (see table 4.6). This means a woman is more likely to be in the labour force when coming from Southern and northern regions. Women from the southern region owned land alone than jointly as compared to those from central and northern region.

4.3.2.8. Place of residence and religion

This is another key factor that was used in the model. The study showed that, women who are in urban areas are more economically active than those in rural areas. Those in rural areas were found to be 0.809 times less likely to be in the labour force than fellow urban dwellers. This was due to the fact that many rural women lacked higher education as compared to their Urban countered. Technical education was also found by Mehak (2007) to be a key determinant of efficiency and can positively augment female labour participation. Another reason that led to less female participation is outlined in the study of Iweagu, et al. (2015) which asserts that Cultural and traditional beliefs that determine husband's willingness to permit their spouse work are predominant in rural areas than urban areas in Nigeria. Hence, Zambia's case is no different. Let there be deliberate programs that try to change the mindset of village men to perceive women as potential source of labour in order to improve the high standard of living.

Religion is also significant in determining how woman participate in the labor market. The findings show that Protestants and other faiths are less likely to engage in the labor force than Catholics. The odds of a protestant being in the labour force were 0.937 times lower while those for others were 0.713 lower than Catholics. These findings are in line with what Bbaale (2007) investigated in Uganda where Non-Catholics were found to be less productive than those that are Catholics. This require an understanding of what kind of doctrine, members are given by the clergy. Could this suggest a change in perception towards work for Non-Catholics? Work should not be viewed as a punishment from God but everyone must be encouraged to work hard in order to have better life.

4.3.3. Predicted Probabilities

On the other hand, the research also validated the magnitudes of the odds ratios by using the predicted probabilities (see table 4.7).Categorical variables were calculated at their mean values. For example, the predicted probabilities of female labour force participation with 'no education', 'primary education', 'secondary education' and 'higher education' are 59%, 66%, 65% and 86% respectively. Those that are married, widowed and divorced participate more than the single ones.

Women that have a share of land ownership also show a higher probability of participation than those without land.

Table 4.7 Predicted probabilities.

Column marked (1) shows the variable name while column 2 describe the variable. Column (3) are the predicted probabilities.

(1)	(2)	(3)
Variables	**Detail of variable**	**Predicted prob.**
EDUCATION	No education(ref.)	0.592***
		(0.00644)
	Primary	0.656***
		(0.00293)
	Secondary	0.650***
		(0.00492)
	Higher	0.860***
		(0.00895)
MRTS	Single	0.587***
		(0.0124)
	Married	0.645***
		(0.00276)
	Widowed	0.718***
		(0.0111)
	Divorced	0.713***
		(0.00791)
SHH	Male	0.644***
		(0.00286)
	Female	0.688***
		(0.00596)
TV	Not owning	0.664***
		(0.00288)
	owning	0.635***
		(0.00440)
L_OWNER	No land	0.577***
		(0.00353)
	Owns alone	0.752***
		(0.00693)
	Owns jointly	0.707***
		(0.00341)
REGION	Central	0.561***
		(0.00461)
	Northern	0.662***
		(0.00337)
	Southern	0.725***
		(0.00399)
RESIDENCE	Urban	0.683***

		(0.00389)
	Rural	0.636***
		(0.00307)
RELIGION	Catholic	0.667***
		(0.00535)
	Protestants	0.653***
		(0.00251)
	Others	0.604***
		(0.0341)
Observations		48,730

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
NOTE: All predictors at their mean value

Those that own land alone are 4.5 percentage points more likely to participate than those who own land jointly. Furthermore, those who don't own any land are 17.5 percentage points less likely to participate than those who own alone. The reason could be that, land security gives an opportunity to plan effectively for a given piece of land for any productive business.

5.0. Conclusion

5.1. Summary

The study identified and analysed the major determinants of female labour force participation. The main objectives grouped the independent variables under personal, household and environmental characteristics. The Zambia Demographic and Health Survey (2014) data was used to estimate the parameters of the Logit model. Age, education and fertility (children under five years) were found to be positively influencing females into joining the labor force. Furthermore, education and fertility were found to be negatively correlation implying that, with better education, women are likely to plan their fertility well. Staying in rural areas, family size and ownership of televisions negatively impacted women from entering the labor force. On the basis of the empirical results, if a woman has fewer children, then she is more likely to participate in the labor force. Conversely, if the family size is large, she would be less likely to enter into the labor force. Owning land propelled women to participate more in the labour market. Those who owned land alone were more economically active both in rural and urban areas and across all the three regions. Non-Catholics were found to be less active in economic activities. The biggest augmenter of labor force participation is education as seen in the odds ratio. Education plays a vital role in the development of societies and only educated females can understand their rights since education empowers a women to make decisions regarding labour force participation.

5.2. Recommendation

In line with the findings, a gender-friendly policy that addresses the constraints facing women's work and their full participation in the labor market must be promoted such as;

(1) Increasing educational opportunities for women in order to become highly productive.

(2) Government must ensure that women are given rights to own land as it can be used to acquire financial assistance (financial inclusion[2]).

(3) Let the media have deliberate program that would help sensitize families the dangers of allocating too much time watching televisions as this is may hinder labour participation if not handled with caution.

[2] Financial inclusion is the delivery of financial services at affordable costs to sections of disadvantaged and low income-segments of society (Linda and Irma, 2016).

Above all, let there be a continuous collection of data of social indicators on the part of government through research and development. Future research should incorporate the wage differentials so that we can test the substitution and income effect theories. Economic and social development can only come when we understand the causes and correlation of different socio-economic indicators that shape the quality of life for citizens, especially, women in the country.

6.0. References

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7.0. Appendices

Table A1. **Goodness of Fit**

Logistic model for FLFP, goodness-of-fit test

(Table collapsed on quantiles of estimated probabilities)

number of observations =	48730
number of groups =	10
Hosmer-Lemeshow chi2(8) =	65.86
Prob > chi2 =	0.0000

Table A2. Classification Table

. estat classification

Logistic model for female_wk

——————— True ————————

Classified	D	~D	Total
		2804 1	
		3259	
Tota l	3130 0		

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tive D| 4%

predictive value Negative predictive value	Pr(+) Pr(~D|-)	57.68%
False + rate for true ~D	Pr(+|~D)	74.52%
False - rate for true D	Pr(-|D)	10.41%
False + rate for classified +	Pr(~D|+)	31.66%
False - rate for classified -	Pr(D|-)	42.32%
Correctly classified		66.66%

Table A3. Urban versus Rural Participation

VARIABLES	DESCRIPTION	(Urban)	(Rural)
		Logit coeff	Logit coeff
AGE	Age	0.0423***	0.0255***
		(0.00249)	(0.00190)
1.EDUC	Primary	0.283***	0.260***
		(0.0646)	(0.0332)
2.EDUC	Secondary	0.232***	0.274***
		(0.0672)	(0.0457)
3.EDUC	Higher	1.399***	1.909***
		(0.101)	(0.218)
1.MRTS	Married	0.428***	0.00321
		(0.0761)	(0.0789)
3.MRTS	Widowed	0.663***	0.349***
		(0.103)	(0.105)
4.MRTS	Divorced	0.867***	0.189**
		(0.0864)	(0.0870)
CH5	Fertility	0.0283	0.0552***
		(0.0207)	(0.0151)
HHME	Household members	-0.00400	-0.0287***
		(0.00777)	(0.00592)
SHH	Female	0.390***	0.0767*
		(0.0546)	(0.0425)
TV	Television	-0.166***	-0.107***
		(0.0366)	(0.0331)
1.L_OWNER	alone	0.779***	0.915***
		(0.0748)	(0.0487)
2.L_OWNER	jointly	0.352***	0.679***
		(0.0393)	(0.0279)
7.REG	Northern	0.253***	0.619***
		(0.0388)	(0.0321)
9.REG	Southern	0.318***	1.019***
		(0.0432)	(0.0361)
2.RELIG	Protestants	-0.0131	-0.0724**
		(0.0431)	(0.0338)
3.RELIG	Muslim	-1.596***	-0.414
		(0.190)	(0.252)
96.RELIG	Others	-0.204	0.320**
		(0.213)	(0.141)
Constant		-1.955***	-1.411***
		(0.130)	(0.109)
Observations		18,484	30,246

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A4 Interaction of TV ownership and Education

VARIABLES	Category	(1) logit coeff	(2) Odds ratio
FLFP			
0.EDU_TV	No Education (base)	0	1
1.EDU_TV	Primary	-0.123***	0.884***
		(0.0263)	(0.0233)
2.EDU_TV	Secondary	-0.389***	0.678***
		(0.0280)	(0.0190)
3.EDU_TV	Higher	0.949***	2.583***
		(0.0733)	(0.189)
Constant		0.635***	1.887***
		(0.0115)	(0.0216)
Observations		48,730	48,730

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure A1. Prediction of Age