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EMPLOYMENT IN LARGE-SCALE AGRICULTURAL INVESTMENT (LAI) AND FERTILITY INTENTION AMONG WOMEN OF REPRODUCTIVE AGE IN ETHIOPIA, THE CASE OF SAUDI-STAR AND MERTI AGRICULTURAL FARMS

BY

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Declaration

I, the undersigned, declare that this thesis is my original work, has not been presented for a degree in this or another university and that all sources of materials used for this thesis have been fully acknowledged.

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List of abbreviation

ADLI	Agriculture Development Led Industrialization
CSA	Central Statistics Agency
DHS	Demographic and Health Survey
EDHS	Ethiopia Demographic and Health Survey
FGD	Focus Group Discussion
LAI	Large scale Agricultural Investment
MoARD	Ministry of Agricultural and Rural Development
OECD	Organization for Economic Co-operation and Development
RA	Reproductive Age
SPSS	Statistical Package for Social Sciences
SSA	Sub-Saharan Africa
TFR	Total Fertility Rate
UN	United Nation
UNDESA	United Nation Department of Economic and Social Affaire
UNFPA	United Nation Population Fund
USA	United States of America
WFS	World Fertility Survey
WHO	World Health Organization

Abstract

Fertility is an important component of population dynamics which plays a major role in the size and structure of a given population. Uncontrolled fertility has adversely influenced the socio-economic, demographic and environmental development of the country. Ethiopia is one of the most populous countries in Africa, which suffers from direct and indirect population problems. The total fertility rate (TFR) is 4.6 children per woman and under five mortality rates 59 per 1000 live births. This paper investigates the impact of female employment in large scale agricultural investment on fertility in two areas Sawdi-star agricultural investment and Merti agricultural investment Gambella and Oromia region respectively in Ethiopia.

There were 375 and 461 women resides in adjacent to large scale agricultural investment (LAI) and far away from large scale agricultural investment (LAI) respectively selected using simple random sampling method. The hypothesis that female employed by large scale agricultural investment (LAI) may lower fertility rates address this question empirically using household survey data and SPSS Version 20 binary logistic regression techniques were used to analyze the data. Finding is that 64.1 percent (537 women) are employed in large scale agricultural investment, 31.5% of whom would prefer to have a child. Whereas 33.4% woman who are not employed would prefer to have a child, showing the proportion of women who desire to have an additional child being lower for employed women compared to the unemployed. It is also found that, the average desired number of children of women who live in far away from large scale agricultural investment (LAI) areas of Ethiopia was 1.606 higher than women who lives in adjacent to it. This shows that women employment in large scale agricultural investment (LAI) have a significant negative effect on fertility rates. Being involved in economic activity is a real option and can therefore impact upon their reproductive life; Greater involvement of women in the labour force is the reason for fertility decline woman within large scale agricultural investment (LAI). These findings illustrate how important it is to consider social gender-specific roles in order to accurately determine the influence of female employment on reproductive life. Measures are taken to decrease fertility status besides promoting child survival with expanding interventions to reduce the high fertility rate through child health services in large scale agricultural investment (LAI), is recommended.

Keywords: Fertility; women's employment; fertility intention; agricultural investment; Saudi Star Agricultural Development Farm; Merti Agricultural Development Farm.

CHAPTER ONE

INTRODUCTION

1.1 Background

With a population of 109 million (World Bank, 2018) Ethiopia is the second largest country in Africa. With fertility declining much more slowly than mortality, the country is yet in the third stage of the demographic transition (World Bank cited in Ringheim, Teller and Sines, 2009: 1; Gebreselassie, 2011: 19). According to World Bank (2007) report, economic performance has been sluggish while population growth was rapid. Although the urban population grows at a rate of 3.5% which is significantly higher than the rate of total population growth (UNFPA, 2010: 101), 83% of the population still resides in rural areas. The agricultural sector is the principal engine of growth in the Ethiopian economy, employing 83% of the labor force, contributing to about 90% of exports and 45% of gross domestic product (MoARD, 2009). The mode of farming is primitive and labor intensive by any standard (Aassve et al, 2005: 11).

This being the facts regarding population growth and development issues in Ethiopia, the interrelationship between population change and development has long been of considerable interest in the development literature. The interrelationship is two way population influencing resource availability and development, and resource availability and development influencing population. Evidence has been documented for both ways of the interrelationship (Afzal, 2009, Dasgupta, 2000, Espenshade and Thomas, 1978)

The development effect of population growth has been most studied by economic demographers, population economists, geographers and environmentalists. While the issue has been an area of ongoing debate between proponents of adverse consequences of (rapid) population growth and those in favor of its positive consequences a recent publication of an edited volume on the development consequences of population growth (Birdsall, Kelley and Sinding, 2001) initiated a renewed research interest and resulted in a large amount of empirical evidence.

Similarly, the effect of development policy and programs and resource availability on population has been studied by demographers (review of work by Merrick in Birdsall, Kelley and Sinding, 2001) in the context of investigating the determinants of fertility, and also by geographers in the context of examining spatial patterns of population growth and distribution (Kloos and Adugna,

1989; Findlay, 1991; Nash 1994; Goldstein and Klüsener, 2010). In the former case, studies on the determinants of population change, fertility in particular, focused on what are known as proximate (e.g. contraceptive use, age at marriage, breast feeding, etc) and intermediate (education, employment, etc) determinants. The role of employment in regulating fertility behaviors and population distribution has been studied by previous research's (Dickson, 2006, Rindfuss, 2000). Large scale agricultural investments (LAI hereafter) yield a huge potential in creating employment opportunities in addition to supporting the national economy. However, despite the availability of some evidences on the effects of large scale investments on population dynamics (UNDESA, 2011), very little is known regarding its impacts on population dynamics.

Concerns on the new initiatives of LAI in the world in general and in the developing countries in particular are gaining insight. As of the end of 2009, more than a dozen countries in Africa, including Ethiopia, have given out millions of hectares of farm land to foreign capital under highly concessionary terms (Cotula et al., 2009; von Braun and Meinzen-Dick, 2009; and Richards, 2013). Ethiopia recently experienced a significant increase in land transaction for the purpose of large scale agricultural investment. Despite the availability of ample research evidence on what determines population change; evidence is scanty regarding the link between LAI and population dynamics (fertility, mortality and migration). Research on these issues is particularly important given the above noted recent surge in LAI in Ethiopia. Once the given LAI shapes patterns of population dynamics (fertility, mortality and migration), the latter will influence development efforts thereby increasing the demand for food, water and energy (UNDESA, 2011); and putting pressure on employment opportunities, available social services and infrastructure.

1.2 Statement of the problem

Over the past few years, the volume of international investment in agricultural land has increased globally. In recent times Ethiopian government use agricultural investment as one of the most important and effective strategies for economic growth, food security, providing employment opportunities and poverty reduction in the country. Thus, government formulated a long term economic development strategy called Agriculture Development Led Industrialization (ADLI) and is the government's overarching policy response to Ethiopia's food security and agricultural productivity challenge. The strategy focuses primarily on expansion of large-scale commercial

farms and improved productivity in smallholdings (Ethiopian Investment Commission, 2014). According to a World Bank report, 406 large-scale commercial farm investment projects covering 1.19 million hectares of land were approved in Ethiopia between 2004 and 2009 (Vhughen and Gebru, 2013). This investment will provide substantial women employment opportunities both to the local peoples and others migrating to it gain employment opportunity. If implemented, this is expected to influence fertility behavior. The contribution of women employment to fertility decline is well acknowledged in the literature. In other William Butz and Michael Ward, 1977 challenged somewhat Easterlin's labor supply cyclical fertility model by proposing that fertility actually moves in counter cyclical patterns to economic growth. They propose that good economic times correspond to times of high income; however, they also correspond to periods when childbirth and childrearing have a high cost in terms of the female's time away from work. The model is based on two variables: family income and the opportunity cost of women's time. The model hypothesizes that, all things equal; couples in higher income brackets will have more children. However, if at the same time the female is also working, the income she gives up to raise children is a significant factor.

This model implies that times of economic prosperity are the most expensive times for employed women to have children. This is supported by the fact that beginning in the late 1950s, the U.S. fertility rates decreased sharply, leveling in 1970, and then decreased again until leveling again in 1974. These movements were in the opposite direction to those of the business cycle. The model suggests that the reason for this was the increase in female employment after the war. During the upper end of a business cycle, men's income and consequently family income are increasing. This causes an increase in fertility rates. During recessions, the family income is lower and couples therefore decide against having children because of the high direct costs of childrearing. If we now assume that the number of jobs and the salaries for females increases steadily, then the proportion of wives that are in the work force will increase. With more women working, the business cycles will now generate cycles for both men and women's salaries and job opportunities. Therefore, as more women are employed, times of economic prosperity no longer result in an increase in fertility. Instead, because more females are working and earning higher salaries, they will tend to delay childbirth and hence fertility will actually decrease. Thus, if enough females are working, the fertility rates will begin to move in the opposite direction to the business cycle, i.e. counter cyclically.

In summary, over the period from the late 1940s to the 1970s, there were three major intervals over which fertility rapidly declined: 1947-50, 1957-69, and 1970-73. During these periods employment and wages increased. Similarly, during the periods 1950-57, 1969-70, and 1973-74, fertility either increased or very slightly decreased. During these periods, wages were either declining or constant, with 1969-70 and 1973-74 exhibiting constant or slowly increasing employment ratios (Butz, and Michael, 1977). The correlation between women's wages and fertility is stronger, the larger the proportion of women employed. The model was used to predict fertility for 1956 to 1975. It predicted a higher and larger fertility peak than the one actually experienced in the late 1950s. It was successful in predicting the rapid decline in fertility during the economic expansion of the 1960s, and the movements during the 1970 and 1974 recessions. The Butz and Ward model explains both pro-cyclical and counter-cyclical fertility movements. Looking to the future, their model implies that, provided female wages and job opportunities continue to increase, the fertility rate will decline until a bottom (TFR 3.0 by 2020) is reached. They predict that counter-cyclical movements due to couples having children during slower economic times will interrupt the decrease.

This thesis will evaluate whether the recent changes in female employment differently linked to fertility in different areas far and near to LAI of Ethiopia. Swings in employment may be directly connected to fertility, in the sense that the reduction in family income following job loss may lead to a postponement of fertility until better economic times prevail. However, unemployment swings may be indirectly connected to fertility, considering that high or rising levels of unemployment may create a feeling of general insecurity that even affects people who have not lost their jobs. The results of my data analyses confirm the hypothesis that the relationship between female employment rates and fertility differs between the various Ethiopia areas at LAI level.

In this paper assess how fertility changes with increased labor market participation of women. First, female employment contributes to total household income, and additional income can be invested in raising more children or in improving childcare quality. This income effect can lead to increased or reduced fertility, but generally fertility drops if income rises (Galor O, Weil DN, 2000). Second, employed women have a higher opportunity cost of raising children, and substitute productive labor for reproductive labor. This substitution effect results in decreased

fertility. Through employment women widen their social network, which can lower fertility preferences and increase knowledge about birth control (Abbott J, 1974)

The paper analyzes the effect of agricultural investment induced female employment on fertility in the rural region in Ethiopia. This is a relevant case for two reasons. First, Ethiopia has a TFR of 4.6 in the country and 5.2 in rural area of the country (EDHS, 2016), which is one of the highest in the world. The Ethiopian government is investing in family planning programs, especially targeting rural areas, with the aim of increasing the contraceptive prevalence rate to 27.3% by 2016 (EDHS, 2016). The results of this study can inform such policy to render programs more successful by directing them to regions where women have lower-fertility preferences. Second, female employment in the rural region increased rapidly since 2005 as a result of agricultural farm. Increased investments in the agricultural sector created employment opportunities for rural women while these women hardly participated in the labor market. This represents an ideal case to study how fertility changes with increased female employment in a poor, rural area. The research also aware of no studies that have looked directly at the effect of large scale agricultural investment induced employment on fertility on and production decisions.

1.3 Research Questions

The research will answer the following questions:

- What does the demographic and socioeconomic characteristics of women in the study areas look like?
- Do fertility levels and patterns differ by working and non-working women's in the study area?
- What is the impact of large-scale farm for women of reproductive age on fertility of Saudi Star and Merti?

1.4 Research Objectives

The overall objective of the study is to examine the effects of large scale agricultural investment on fertility levels and intentions of rural Ethiopia.

The specific objectives are to:

- Compare fertility intention of women who reside adjacent to LAI and far away from LAI.
- Examine the relationship between women employment offered by the agricultural commercial farms and a woman's fertility intentions in the study areas.

1.5 Significance of the study

It is hoped that the findings from this research could be useful in many ways. The findings are believed to be useful for policy making, monitoring and evaluation activities of the government and different concerned agencies. Since the study is an attempt to identify women employment affect fertility or not, the end user governmental and non-governmental organizations could take intervention measures and set appropriate plans to tackle fertility problems.

This study is expected to contribute its part by filling the information gap concerning the impact of factors that affect fertility in the country. The association between women employment and fertility behavior will be analyzed at a large-scale agriculture in Saudi-Star and Merti in Ethiopia. Therefore, this study will examine effects of LAI on fertility levels and intentions in Ethiopia. Finally, the study could be useful as a stepping stone for further studies.

1.6 Scope and Limitation of the study

The scope of this study is limited to the impacts and consequences of large-scale agriculture investment in Ethiopia Saudi Star and Merti Agricultural Development farms in Gambella and Oromia regions respectively on fertility intention in the local community. This research is an attempt to respond to the impact of large-scale agricultural investment on fertility intention in Ethiopia. At the same time the Ethiopian government encourages large-scale agriculture so as to advance agricultural transformation (MoFED, 2003). This research is also an attempt to identify a policy avenue for women's fertility in large-scale agriculture in Ethiopia. The research focuses only on the fertility intention of women employed by large-scale agricultural farms in Ethiopia.

Generally the scope of the study will be confined two major groups of women employed by LAI and they are not employed by LAI, Gamballa and Oromia. The major limitation of the study is that it's analyze restricted to see the impacts of women employment by LAI and their level of fertility is not included other employment (non-farming employment) status. Reproduction of child or child breeding is a universal phenomenon high breeding has led to various socio-cultural and national economic problems.

This study included only women employment by LAI did not include the other employment status (non-farming employment), which might affect its generalizability. In this study, selected variables that determine women employment have been investigated, and their importance was determined by comparing employed and non-employed at a specific point in time, so that the results could be interpreted with caution. Since, both dependent and independent variables are determined at one point in time.

1.7 Organization of the paper

This paper is organized starting from the background section. In the first part of the background section, the trend and pattern of fertility and women employment will be discussed in the context of Ethiopia. Demographic, socio-economical as well as the traditional way of living style of women in relation to fertility and employment will also be assessed in this subsection. Following to this, in the literature part the theoretical frame work and previous studies will be presented. In this part of the background, various essential theories which show the association between fertility behavior of women and their employment status and economic performance will be discussed in light previous researches.

Next to the literature review section, the methodology part will present under this section discuss sampling techniques, eligible criteria, sample size and also data collection and analysis techniques, after that statistical analysis part will be put forward. In this section statistical models which are suitable for the relationship between these two variables will be discussed. Binary logistic regression models will be brought for discussion respectively.

In the last section of the paper the overall results of statistical analysis out puts will be presented. And the results of empirical results will be discussed in detail in this section. Finally the overall results and findings will be summarized in the conclusion section of the paper. The conclusion part will reconsider the objective and the research questions and discussed the findings based on the objective and research questions of the paper.

CHAPTER TWO
LITERATURE REVIEW

2.1 Conceptual Literature

Traditionally household chores and caring of children and elderly is often given to women as a compulsory task. In many third world countries this kind of labor division has taken as a norm in a society. Therefore, many women in these countries are always dependent on the income of the man. They have a very limited autonomy in making of decision concerning to any issues including fertility. Recent studies states that due to a patriarchic culture persistence in many countries, women usually controlled by men in decision making, use of resources and even denied the right to decide about their professions to be employed(world bank, 2009). The usage of contraceptive methods and real autonomy of women in deciding the fertility rate will therefore affected by the culture of a given society as well. Thus, it is crucial to consider these variables while studying the association between women employment and fertility behavior of a given society.

In socio-demographic literature the work–fertility relationship is mainly explained by the maternal role incompatibility hypothesis. Unlike the economic approach, the socio-demographic approach does not focus on female wages which represent the opportunity cost of childbearing as a determinant of fertility. This approach focuses on the ability of women to combine childbirth and work which is determined by the complex relationship of social and economic institutions in a given society. It is generally argued that female employment is inversely related to fertility due to the presumed conflict between women's work and their reproductive roles (Becker, 1993; Rindfuss and Brewster, 1996; Standing, 1983). The conflict between the roles of mother and worker is supposed to stem from the separation of home and workplace the nature of employment and social norms regarding the roles of men and women (Mason and Palan, 1981; Rindfuss and Brewster, 1996). In particular, this conflict is exacerbated during the period of childbearing (Collier et al., 1994). The inverse relationship between fertility and employment emerges when economic life and social life are structured in such a way that it is difficult to combine both childbearing and employment (United Nations, 1987). Marianne Kempeneers, 1987), has argued that a discontinuous professional career is one of the main consequences of the constant and perpetual conflict between work and childbearing faced by women over the course

of their life. However, this conflict could be attenuated under certain circumstances. First, there are some jobs with characteristics that allow for the simultaneous fulfillment of worker and mother roles thereby reducing the incompatibility between the two. For example, women occupied in agriculture working at home or on a family farm are largely able to combine their working and mothering roles. These women are more likely to have higher fertility. For women working outside the home particularly in the modern sector it is more difficult to combine parenting and worker roles. These types of jobs are therefore conducive to small family size. Moreover, it is theoretically assumed that the fertility of wage employees is lower than that of non-wage working women and others. In fact factories office complexes and similar locations where wage employees tend to work are largely governed by the bureaucratic norms of impersonality strict adherence to rules punctuality and a clear separation of work from familial roles (Kollehon, 1984). A second factor that could lessen the conflict between work and childbearing is the availability and low cost of domestic help or parental surrogates (grandparents, cousins, older children, etc.), allowing women to fulfill both roles and thereby resulting in higher fertility (Blau and Robins, 1989; Rindfuss and Brewster, 1996). The traditional social norms regarding gender roles and the division of household duties between men and women could also mitigate the relationship between female employment and fertility. In many societies such norms assign to women the role of rearing children, while men have to take care of the household by working and providing revenue. When prevailing, these social norms can alter women's aspirations and attitudes towards work outside the home.

Negative attitudes towards work outside the home could reduce a woman's employment chances or predispose her towards a job that is more compatible with her maternal responsibilities (Engracia and Herrin, 1984). Traditional women favour the mother-and-wife role resulting in large family sizes, while modern women favour the professional life and are therefore more likely to have lower fertility levels. These conditions which prevail generally in developing countries have led some authors (Engracia and Herrin, 1984) to make the assumption that no or a weak relationship should exist between labour force status and fertility. But this could be true in rural settings in developing countries only where such conditions are more likely to prevail. By contrast urban areas offer opportunities to women to be involved in paid non-agricultural work outside the home and to have attitudes and aspirations more favourable to paid work. It appears then, that the relationship between professional and reproductive lives depends on the specific

characteristics of each society particularly social gender relations and roles. In the African urban context we expect a negative relationship between female employment and fertility that is wage employees should have lower fertility than non-wage working women and others. However, we expect this relationship to be stronger in Ethiopia around large scale agricultural investment. In the following section, we provide a brief description of the previous studies on the work–fertility relationship in developing countries.

2.2 Theoretical Literature

The most common approach when trying to identify and understand the relationship between employment and fertility is the seminal New Home Economics theory (Becker, 1981) in which childbearing is subject to a rational decision, based on individual preferences, the costs and benefits of children, and the family's income constraint. A rational household will weigh the utility of having a child against the costs, which in addition to direct costs (e.g. food, clothing, and schooling) also include indirect costs related to the time needed to take care of the child, the so-called opportunity costs of childbearing.

The opportunity costs associated with childbearing comprise a rather broad range of issues that women (or couples) are expected to take into account in their childbearing considerations first there is the forgone income due to the absence from the labour market at the time of and immediately following the birth of a child also, there is the forgone accumulation of human capital such as skills and knowledge during the period when the mother or the father is away from the labour market. Lower accumulation of skills is expected to lead to a reduction in future earnings (Gangl and Ziefle, 2009). Hence, together with the more direct costs of childrearing these factors are assumed to be part of the decision process concerning childbearing and are to be taken into account along with the pleasures and the satisfaction of being a parent.

Empirical studies using Scandinavian data found mixed results in the correlation between female employment and second- and third-birth rates. For instance, (Kravdal, 1992a) studied the effect of female labour force participation on the probability of having a third child in Norway up until 1988. He found a very weak impact of employment on the third birth. Contrary, findings from Sweden showed a higher second-birth rate among mothers staying at home and those working part-time than those working full-time (Hoem and Hoem, 1989; Olah, 2003). More recently,

(Kravdal, 2002) studied the impact of both individual and aggregate unemployment in Norway for the period 1992-1998.

According to the New Home Economics theory, any reduction in the cost of children (as a result of e.g. a public subsidy) or an increase in income (as a result of transfer payments) is expected to increase the demand for children. Consequently, family policies that reduce the direct or indirect (opportunity) cost of children are expected to have a positive impact on fertility. Two central components of the Norwegian settings are the right to paid leave (in connection with birth) and the availability of subsidised childcare. In the study period there was a maximum leave period of 52 weeks with 80 percent wage compensation or 42 weeks with full wage compensation. The only part of the leave period which is reserved for the mother comprises 3 weeks before and 6 weeks after childbirth; the remaining weeks may be taken by either the father or the mother. Furthermore, the father has 2 weeks of unpaid leave (in many cases paid by the employer) following immediately after childbirth and apart from that four weeks of paid leave are reserved for the father. In order to be eligible for leave, a person must have worked at least 6 out of the previous 10 months.

A comparative study of Finland and Norway renders some support for the hypothesis that parental leave extension may stimulate fertility (Rønsen, 2004), while findings from Sweden and Norway indicate e.g. that measure encouraging an active participation from the father in child care may stimulate fertility as women are more likely to have another child if the father took parental leave with the first child (Duvander and Andersson, 2006; Duvander et al 2010, Lappegård, 2010).

Starting from Malthus various theories are proposed regarding the relationship between women employment (increase of income) and fertility behavior in different times. Malthus related high income with high fertility rate. He argued that high income would facilitate earlier marriage and more sex which ultimately gives rise to more children. Therefore, according to Malthus theory increasing of income will ultimately lead to the high fertility rates. However, this theory is criticized due to the changes of the life style and modernization of this contemporary world. Despite the fact that modernization and changing of life style, scholars argued that in some remote areas of developing countries, income (which can be explained by accumulation and possession of agricultural land) still will lead to high fertility rate (Beguy, D.2009).

In addition neoclassical models of consumer and demand models view parents as the consumer that chooses number of children that maximizes their utility subject to the price of children (often seen to be inferior goods) and budget constraint they face. Becker (1960) adapted this relationship by considering quality of children and the importance of parental time in rearing children, and he rejected the assertion of neoclassical theory that views children as inferior goods. The adapted neo classical model put forward two models in the analysis of the association between fertility and women labor attachment .The first one is the so called quantity and quality tradeoff model. This model stated that the reduction in the household size will lead to increase in the investment of a given income in a particular child (per child spending) in the assumption of increasing the quality of children. Becker (1960) argue that the decision (preferences) of parents having children is not only depend on the number of children but also the quality of children (money spending per child) .Thus, in contrast to Malthus and Neoclassical model of consumer and demand: Becker argued that due to the fact that the preference parents having children is depend on both quality and quantity of children, he treated children as superior good. Hence, although there is an increase of income of parents, it may not be necessarily related with increase of the number of children due to the preference of the quality of children. The second issue related to neoclassical model is the opportunity cost of having children. This theory is basically states that since childbearing is a time intensive task, women at work are most likely prefer to have fewer children just to decrease the opportunity cost of having children (Becker, 1965). This argument is formulated based on the incompatibility of women employment in the labor market and child bearing activities in the household. Women usually stuck at market work will not have enough time to bear their child. Thus parents are either limit their number of children or may postpone the tendency of giving birth to later ages.

However, this incompatibilities may change depend on some macro level factors that encompasses policies and institution of a given country. The availability and affordability of day care services, the structure of parental leave, and other related institutional structures are supposed to affect the direction of the association between women employment status and the number of fertility behavior at least at a macro level. Policies and institutions of a given country or work place may account for the variation of fertility rates of women`s among different countries. The variation is caused by due to flexibility or rigidity of policy and institutions that influence the possibility to combine family and careers. For example, in the case of Sweden and

other Nordic countries, the institutional establishment and arrangement address the gender equality issues and creates work-family balance (Datta.G et al, 2008). This will expect to enhance fertility rates and continued child bearing among the one who wants to accomplish their career at the labor market and their family tasks simultaneously. Hence as a consequence positive relationship has revealed among women labor force participation and fertility rate in many of the countries of this region. In addition to this, the prevalence of pubic child care services may have also enormous influence on the decision of parents to give birth. This will expect to enhance fertility rates and continued child bearing among the one who wants to accomplish their career at the labor market and their family tasks simultaneously. In addition to this, the prevalence of pubic child care services may have also enormous influence on the decision of couples to give birth. Since public day care services are taking care of children, it will help couples to have children without affecting their working hours at least during working hours (see Ermisch, 1989). On the other side socioeconomic variables such as earning capacity and educational attainment of women are also influence the relationship between women employment and fertility. This variables are usually supposed to increase women`s empowerment and autonomy in decision making concerning to fertility. Studies shows that women with higher educational attainment will possibility to be hired in labor market and more probably postponed the time of transition to parenthood or decreased their number of children. And on the other hand since caring of children is a time intensive task, which possibly affects mother's time who are participating in the labor market, women who earn higher income are more likely decrease their fertility rate as compared to other women. Cultural and religious variations are also account for the direction and magnitude of the fertility level of women channeled through their impact on relative tastes and preferences for children (Espenshade, 1977). For instance, traditional work division is very common in developing regions that allocate women for household's tasks and man as a bread winner.

Traditionally household chores and caring of children and elderly is often given to women as a compulsory task. In many third world countries this kind of labor division has taken as a norm in a society. Therefore, many women in these countries are always depends on the income of the man. They have a very limited autonomy in making of decision concerning to any issues including fertility. Recent studies states that due to a patriarchic culture persistence in many countries, women usually controlled by men in decision making, use of resources and even

denied the right to decide about their professions to be employed(world bank, 2009). The usage of contraceptive methods and real autonomy of women in deciding the fertility rate will therefore affected by the culture of a given society as well. Thus, it is crucial to consider these variables while studying the association between women employment and fertility behavior of a given society.

Early theoretical studies on the determinants of fertility suggested that highly educated (potential) mothers tend to substitute the number of children with "child quality" (Becker and Lewis, 1973). According to this approach, since both "production" and bringing up children are time intensive an increase in wage rates may induce a negative substitution effect reducing the demand for children (see for instance Mincer, 1963, Becker, 1965; Becke, 1981; Willis, 1973; Hotzet al., 1997). In this framework higher earnings discourage childbearing by raising the opportunity cost of the time distracted from work to rear children. The income effect is unlikely to outweigh the negative substitution effect. For men in contrast the income effect tends to dominate since they spend less time on bringing up children though the magnitude of these effects will vary across countries and birth parity (Willis, 1973; Butz and Ward, 1979). These theoretical predictions have found support in early empirical studies claiming that the increasing returns to schooling (especially for women) act as a factor in encouraging women's education relative to men's and driving the rise in women's labour market attachment (Schultz, 2001). Schultz (1985), for example, identifies an exogenous appreciation in the value of women's time as a factor in improving women's wages relative to men's and contributing to the decline in fertility in Sweden. Rosenzweig (1982), by comparison simulates a natural experiment to empirically show that Indian farm households exposed to the new technologies showed a reduction in fertility and an increase in the allocation of resources to schooling despite the associated rise in the demand for unskilled labour. The effect of women's labour market participation on fertility decisions may also depend on the availability of external childcare services (Ermisch, 1989). With costly external childcare women with high earnings may have more children because they are more able to afford these expenses. Those with low income are less likely to be able to afford childcare services, but may still have higher fertility due to the lower opportunity cost of childbearing.

Over the last two decades research has shifted towards investigating the timing of births rather than completed fertility (Heckman and Walker, 1990). Empirical studies have shown

that higher educated women with a better position in the labour market have births at older ages (Gustafsson and Wetzels, 2000; Prioux, 2004; Amudeo-Dorantes and Kimmel, 2005; Modena and Sabatini, 2011). A mother's age at the birth of the first child can be seen as the result of a trade-off between investment in human capital and career planning on the one hand and motherhood on the other hand (Gustafsson, 2001). The effect of income on the timing and the number of births may follow different paths: Gustafsson (2005) suggests that, for young Swedes any additional year of education affects fertility through a delay in the formation of a stable couple rather than by delaying parenthood once the couple is formed. Amuedo-Dorantes and Kimmel (2005) argue that college-educated mothers can profit from postponing motherhood, because they are in a position to negotiate a family-friendly work environment with flexible work schedules.

In the last two decades the trade-off between career and the family seems to have eased off causing a change in the relationship between labour market outcomes and fertility at the macro level. As stated in the Introduction the correlation between female participation in the workforce and fertility turned positive at the end of the 80s across OECD countries (Ahn and Mira, 2002; Morgan, 2003; Engelhardt and Prskawetz, 2004; Billari and Kohler, 2004). The shift has been explained as a result of the increasing availability of childcare services and part-time jobs especially in the Nordic countries (Del Boca and Locatelli, 2006; Del Boca et al., 2007). This evidence is confirmed by recent findings for a panel of Latin American countries (Aguero and Marks, 2008). Northern Italian regions are experiencing the same trend even if they still lag behind the European average. It has been documented that the emergence of the lowest-low fertility in Italy is related to a decrease in the progression to the second, third and subsequent children, while the probability of a first child remained almost stable (Dalla Zuanna, 2004). Additionally the personal ideal family size for around 60% of Italian women aged 20-34 years is two children while one quarter has a preference for large families (Goldstein et al., 2003).

2.2.1 Factors that affect fertility

There are two groups of factors that affect fertility. The first group consists of socio-economic and demographic factors, which are characterized as indirect determinants. The second direct

factor known to be the intermediate determinants are the biological, reproductive and behavioral/attitude factors through which the indirect determinants must eat to affect fertility (Henry, 2006).

Fertility differences among populations and trends in fertility over time can always be traced to variations in one or more of the intermediate fertility variables. Educational attainment has in general, a depressing effect on fertility through the adoption of small family norms, knowledge and use of contraceptives and later ages at first union and birth.

It is generally believed that high infant and under-five mortality causes high fertility through the insurance and replacement effect. The "insurance effect" assumes that the couples adjust their fertility because they expect some of their children to die. "Child replacement effect" involves a deliberate decision of couples to make up for the lost children and is based on the fact that their previous child bearing (Gyimah, 2001) they follow the appropriate way to get another children to replace the previous one. Analysis using data from rural Ethiopia supports child/infant mortality had a significant positive effect on the number of children ever born.

An increase in the number of children who have died raises the probability of attaining higher fertility (Yohannes *et al.*, 2004). Similar results in South Africa were also found in the study of Dust (2005), in which he illustrated that under-five mortality had a significant positive effect on fertility status. That is an increase in the under-five mortality rate increases fertility significantly. As the number of children who died increased women were exposed to a higher risk of uncontrolled fertility (Ramesh A, 2010)

The relationship between fertility and under-five mortality is complex (Bhalotra and Soest, 2005) focus on the biological relation between fertility and child mortality in India. The neonatal death of a child shortens the interval unit to the next birth because parents want to quickly replace the lost child and /or because shortened post-partum amenorrhea. Women who experienced a child death were more likely to have shorter subsequent birth intervals comparing to those who did not have such experience (Hossain *et al*, 2005; LeGrand *et al*, 2005). In investigating the impact of survival child on fertility (Doepke, 2004) used the Barro-Becker Model and found that a decline in child mortality significantly reduced fertility. When the number of survival child increased the fertility level correspondingly decreased (Getu A. and Alemayehu W, 2008). The relationship

between education attainment of parents and level of fertility generally noted in surveys of sub-Saharan African countries and other parts of the world has been an inverse one.

Groups with high educational attainments (either husband or wife) have lower fertility than low educational groups (Dejene, 2000; Vilaysook, 2009**).** Education can affect birth rate through a number of channels including changes in the level of contraceptive knowledge, desire for children and economic productivity. Educated women are more likely to postpone marriage have smaller families and use contraception more than uneducated women. The educational level of the parents (wife or husbands) influences access to modern knowledge and new ways of life. In addition, education tends to break down barriers to communication about family planning between spouses (Derebssa, 2002). Similarly it has important implications in raising family planning discussion like the use of contraception, which ultimately reduces the fertility level and helps to reach the replacement level of fertility with their husbands. Woman's education directly and indirectly influences contraceptive use (Azhar and Pasha, 2008).

The husband's desire for more children a preference for the sex of the next child and the women's poor education attainment remain the main barriers to contraceptive use in Pakistan (Saleem and Pasha, 2008). In a similar study in Awassa by Samson and Mulugeta (2009), educational status of women was mainly found to be associated with high fertility even after adjustment for other basic socio-demographic variables. Mothers with educational status of above primary school had less risk of having five or more child ever born. Those mothers below primary school not showed a significant difference with illiterate mothers in their level of fertility. Women with no education have 3.8 more children than women with more than secondary education (5.7 versus 1.9) in Ethiopia (CSA, 2016). It has been proposed that in the developing country the negative relationship between women's employment and fertility level is only present when higher status occupations of the urban sectors are considered (Agadanian, 2000). The relationship between women's participation in the paid labor force and their fertility and contraceptive behavior is commonly conceptualized in two ways. The first main perspective emphasizes the opportunity cost of child bearing focusing on how the prospect for career development and higher income may depress the women's fertility.

The second perspective centers on the work child care conflict postulating that the less flexible the women's work schedule and arrangements are the more difficult it is for her to provide

adequate care for her children. Therefore she more likely tries to limit her fertility (Agadanian, 2000; Yohannes *et al,* 2003). Beguy (2009) examined the impact of female employment on fertility in Dakar (Senegal) and Lome (Togo) and found that women in both places who were employed had a longer birth interval than those who were unemployed, especially those who worked outside their homes. Another study confirmed that unemployed women were more likely to have higher pregnant frequency than employed women (Banerjee, 2004).

Women who lived in the urban area were more likely to use contraceptives than those who lived in rural areas. The fertility levels in urban and rural areas tend to be different (Boupha *et al.,* 2005). A longitudinal study of Nepal's fertility trend based on the Demographic Health Survey in 1996 and 2001 illustrated that the estimates of TFR and fertility level of women in the urban area were lower than women who lived in the rural area, because of differences in contraceptive use (Retherford and Thapa, 2003).

Religion continues to be associated with variations in the intermediate variables contraceptive because large differences by religion remain in contraceptive choice (CSA, 2006). Traditionally one of the indisputable generalizations in demography has been that Orthodox Christians have higher fertility rates than the Muslim (Yohannes *et al.,* 2003).

Income affects fertility through its effect on child survival which in turn affects maternal mortality environmental contamination nutritional status, personal illness, and controlling the use of medical services. Fertility decreases as the wealth of the respondent's household increases. Women living in the poorest households have an average of 6.4 children, compared to 2.6 children among women living in the wealthiest households in Ethiopia (CSA, 2016).

The lower the income levels the higher the child mortality. Higher child mortality is followed by a higher fertility in individuals (Dust K, 2005). Fertility is said to be affected by ethnicity. In various ethnic groups the proximate and remote determinants of fertility do not operate by the same route. The observed difference in fertility and its determinants can be understood in the wider context of the inequalities and differences in socio-cultural and economic position. Ethnicity as fertility differential acting through patterns of postpartum abstinence which intern is affected by education, urbanization, changes in marriage and religions tradition they tend to have a lower rate of contraceptive use due to their limited knowledge of birth control (Vilaysook,

2009). The age at first marriage has a major effect on child bearing because women who marry early have on average a longer period of exposure to pregnancy and a greater number of life time births (CSA, 2016)**.** In a study on differentials of fertility in Awassa the age at first marriage was significantly associated with the level of fertility the age at first sexual intercourse and the age at first birth (Samson and Mulugeta, 2009). Marriage is a leading social and demographic indicator of the exposure of women to the risk of pregnancy especially in the case of low levels of contraceptive use and therefore, is important for an understanding of fertility.

In general, a woman's age is a significant factor involved with the probability for her to get pregnant. Increasing infertility with age is a well-documented and very apparent problem in modern society. The longer women wait to have children the higher the chance is for them to have fertility problems due to the quality of the eggs and other related issues (Vilaysook, 2009).
Contraceptive use is another substantial proximate factor affecting fertility among countries. At the same time culture and socio-economic condition have significant roles in the use of contraceptive method. By and large it is found that an increase in contraceptive prevalence rates is consistent with an increase in the proportion of woman who needs to avoid pregnancy, which then leads to a decrease in fertility (Feyisetan, 2000). The prevalence of use of contraceptive methods increases with the increase in the number of living children as well as education level of the respondent (Sajid *et al.,* 2005; Azhar and Pasha, 2008). Similarly this association was also found in rural Tanzania where the number of living children and education were the main factors in use of contraception (Marchant *et al*., 2004). This was also found in Nepal where the sex preference was an important barrier to the increase of contraceptive use and the decline of fertility in the country (Tiziana *et al*., 2003)**.** According to Kwame Boadu (2002) the fertility behavior in Ghana is influenced by a multitude of socio-demographic and economic and cultural factors. These factors, in turn affect contraceptive practice in a variety of ways. The outcome of the analysis appears to support the view that knowledge of and contraceptive adoption is gradually making an impact on fertility behavior in Ghana. Every use and current use of contraceptives is not significantly associated with the level of fertility (Fantahun *et.al*, 2001; Getu, and Alemayehu, 2008; Samson and Mulugeta, 2009). It is well known that breast-feeding is the major factor influencing the duration of postpartum infertility. The inhibitory mechanism by which breast-feeding acts to delay ovulation was not fully understood but there is evidence that both the frequency and the duration of suckling play an important role (Hadia *et al.*, 2009).

Similar studies conclude that the fertility-inhibiting effect of postpartum infecundity resulting from prolonged breast-feeding is by far the most important proximate determinant of fertility. The duration of breast-feeding showed a significant difference between the two fertility profiles .Those mothers with prolonged breast-feeding showed a lower fertility status (Yohannes *et al*., 2004). The inhibiting effects of breast-feeding on fecundity particularly during the first twelve months after a birth are well established. In the absence of breast-feeding the postpartum amenorrhea period is about two months. Prolonged breast-feeding can extend the amenorrhea period for up to 19 months or more (Berhanu and Hogan, 1998). Even after the return of menstruation, breast-feeding can continue to depress a woman's fecundity. The death of breast-fed infant prematurely ends lactation that shortens the length of the postpartum amenorrhea period. In non-contraception populations the early return of menstruation contributes to a higher risk of conception and thus a shorter than normal birth interval. It is more pronounced in societies such as those of sub-Saharan Africa with prolonged breastfeeding practice and low contraceptive usage (Gyimah, 2001).

2.3 Empirical Literature

The relationship between women employment and fertility has been studied both at micro and macro level in the context of various countries in different period of time. Findings show the intricate results across different regions and countries. Studies in some countries revealed that there is a positive relationship among these two variables and the other found inverse relationship, and the rest have shown no association at all. Studies which have conducted in developed countries have generally revealed a negative relationship among these two variables. For instance, F. Jones (1981) in USA, Bratti (2002) in Italy and Kalwij (2000) in Netherlands; all have found that women employment will have a negative impact on the fertility level of women. Various reasons have suggested regarding the negative relationship among these variables. The dominancy of paid work in the labour market is usually mentioned for the primary cause for this predominant negative relationship in the developed nation. Bernhardt (1993) in the review of empirical evidences in the association between these variables in industrialized nations concluded that industrialized countries, where paid work is dominated, generally revealed a negative association between these two variables. Along with the dominancy of paid work, taste of preference has mentioned for the occurrence of this inverse relationship. For instance,

Bernhardt make use of Hoffmann`s (1988) findings on the effect of employment status of Swiss women on their fertility to show how preference affects the relationship between employment status and their fertility level. The finding show that due to the reason that married women remains in the labor market after marriage, the fertility of Swiss women have affected negatively. Bernhardt (1993) argued that this negative relationship probably raised from the selection phenomena. The Swiss women are more likely prefer to stay in the labor force after marriage and shows a little ambition towards giving birth. However, In spite of these facts, positive relationship has been revealed in some OECD countries in the years 1980s and 1990s.

Empirical studies using Scandinavian data found mixed results in the correlation between female employment and second- and third-birth rates. For instance, Kravdal (1992a) studied the effect of female labour force participation on the probability of having a third child in Norway up until 1988. He found a very weak impact of employment on the third birth. Contrary, findings from Sweden showed a higher second-birth rate among mothers staying at home and those working part-time than those working full-time (Hoem and Hoem, 1989; Olah, 2003). More recently, Kravdal (2002) studied the impact of both individual and aggregate unemployment in Norway for the period 1992-1998. This study showed a slightly higher first-birth rate but slightly lower higher-order birth rates for mothers in employment.

In contrary to the group of countries which are characterized by high women labor force participation has been revealed an increment in their fertility rate (Matysiak and Vignoli, 2007). Following these associations, many studies have emerged during this period and various reasons have put forwarded. In the first place introduction of new Institutional arrangements and policies that decreases the conflict between reproductive and productive role of women of various countries have mentioned for the cause that accounts for the positive relationship among this variables. Flexibility of labor market, generous parental live during child birth and expansion of part time jobs are some of the factors which are associated to this policy and institutional changes that encourage women to run both roles simultaneously without contradictions.

These institutional variations have led also to the cross national variation regarding the relationship between labor force participation and fertility rate among various countries. Matysiak and Vignoli (2007), in their meta-analysis of fertility and women employment of various western countries, assessed the cross national variation of countries regarding the

relationship between women labor force participation and fertility level. According their findings, due to favorable institutional settings that supporting and encouraging working mothers, the conflict between the activities of women employment and family is comparatively low in the social-democratic (Nordic countries) and socialist (Czech Republic, Hungary and Poland) welfare regimes. In the contrary, the liberal (United States and United Kingdom), conservative(France the Netherlands, West Germany) and familialistic (Italy and Spain) welfare regimes have revealed the more stronger conflict between work and fertility as compared to that of social-democratic and socialist welfare states. Limited institutional support and rigid labor market structures are account for the stronger conflict of work and family particularly in conservative and familialistic welfare regimes. In addition to this, changes of socio-cultural characteristics of a society are also supposed to be attributed to the changing of the inverse relationship. In the culture of some societies, it was common entitling women as a house wife and husband as a breadwinner. The changing of the attitudes towards working mother weakening the conflict of childbearing activity and employment of women in the labor market. Thus the context of each countries in relation to institutional and socio-cultural characteristics are more likely determine the sign of the relationship between women employment and fertility that leads to the cross national variation. Intricate association between women employment and fertility was also shown across various developing nations as well. Beguy (2009) has studied the impact of women employment on fertility behavior in two African cities, Dakar (Senegal) and Lome(Togo) . The findings show that in the case of Lome the involvement of women in the paid work are more likely delayed the time of giving birth. Whereas, in Dakar, women are running both activities, rearing of children and participation in the labor market simultaneously. Thus, it appears that the employment of women in the paid work is more likely affect the fertility behavior of women in Lome, but not in Dakar. The author demonstrated here that this difference is appeared due to the variations of social gender-specific differences among these nations.

Moreover, in addition to cross national variation, the relationship between women employment and fertility behavior is also varied in the regions of a given nation as well. For example in the comparison study of three counties in rural china, different relationship of women employment and fertility have found among all these counties. The counties have been selected by their socioeconomic development background. The finding shows that in the area of Jiang (a more developed county) , a negative relationship is found. Whereas a positive relationship has found in

a less developed county of Luochuan and no relationship found in a medium-developed area of Xiaoyi (Shuzhuo et al, 1997). Apart from regional variation, significant variations have been revealed in the pattern and magnitude of the association between these variables over time. The improvement of attitudes towards working mothers, globalization that creates a competition in the labor market, urbanization and expansion of industrializations are some of the variables that have changed dynamically over time. The changing of these factors will influence the employment status as well as the fertility behavior of a given society through creating competition in the labor market and enhancing the participation of women in labor market accordingly. Thus, the conflict between women employment and family is greatly varies with the time period accordingly.

In order to perceive the variation of incompatibilities between women employment and family, scholars have divided the cohorts in to different periods. For instance (Matysiak and Vignoli, 2007) have been classifying the samples under study in to two cohorts, prior and after the year 1960.Thier finding has shown a significant reduction of the effect of women employment on fertility overtime. The authors argued that several factors are attributed to the reduction of the effect over time. The change of attitudes towards working women, emerging of new policies that encouraged mothers to accomplish both childbearing and works in the labor market are some of the improvements that have accounted for the reduction of incompatibilities of the reproductive and productive roles of women at home and in the labor market respectively. Cramer (1980) also point out that due to the dynamic nature of the fertility and employment variables, current employment status will decreases both actual and expected number of children in the long run.

The opportunity cost of having children is the other issue which limits the number of children in various countries. Turchi (1975) studies the decision of women in giving birth in USA by using the perceived cost of having children. According to his finding increment of the number of children in the family impose some additional hours of house work for the wives in the family. Thus, he demonstrated that wives in the three children families will have spent around doubled additional hours of house work as compared to the wives with only one child (Turchi, 1975).Therefore; this clearly shows that decision of having children is greatly influenced by its opportunity costs. The UN studies in a group of developing countries has also shown that most women who have occupied in the modern, mixed and professional occupation are more likely to have fewer children than those who are engaged in the traditional occupations. The presence of

wage differential among this various occupations has mentioned as one of the reasons that creates this differences among this groups. Given that less likelihood of women who had just gives birth in the labor market, the opportunity cost of having children is higher among high wage earner professionals than that of self-employed or less wage earners. Findings also confirmed that women's wage have a great depressing effect on women fertility at least in developing countries (Rodriguez and Cleland, 1981). Fertility and the related concept of household size affect household well-being through consumption and production. Lanjouw and Ravallion (1995) focused on the effects of household size on consumption in a developing country. Their results contradicted the widely held view that larger households were usually relatively poor (due to increased competition for food) and that economies of scale in consumption had little offsetting effect. When they accounted for economies of scale in households the negative correlation between household size and consumption expenditures disappeared. On the production side of farm households, the effect of household size is equally ambiguous. Larger households theoretically have a greater supply of labor that is not subject to the effects of moral hazard often attributed to hired labor. At the same time, though, a larger number of dependents in a household means that more time must be allocated to caring for them. Also, agricultural labor could be subject to diminishing returns.

The relationship between fertility and the supply of household labor has been studied most carefully in the field of labor economics in developed countries. I have aware of no studies that have looked directly at the effect of fertility on agricultural labor and production decisions. However, since the bulk of the work related to bearing and rearing children falls to the women in a household fertility is directly related to gender and we can gain additional insights from the large body of literature on gender and agriculture. There is a well-documented gap of 20–30 percent in productivity between plots owned or managed by men versus those owned or managed by women (Udry, 1996).

2.3.1 Agricultural investment and women's Employment in developing countries

Looking critically at the labour market, the increase in the proportion of women participating in paid work that began shortly after the start of World War II has been one of the most significant social and economic trends in modern history (Morrill, 2008; Anunobi, 2003). The movement of large numbers of women into the workplace has resulted in substantial changes to public policy

organizational practices family relations and cultural attitudes and norms as well as contributing to the creation of entire new industries such as childcare. While the level of attachment to the labour market of childless women is generally unopposed the same cannot be said for women with dependent children. Being primarily responsible for the care of young children in an emotion-laden role and any behaviour that are thought to impact on that role including participation in paid work is scrutinized accordingly (Dow, 1999). The engagement of women in paid jobs has greatly affected the proportion of women working in the farming sector however from academic and cultural reasons many more women are still participating in the agricultural sector (Logo and Bikie, 2003).

Research indicates that women's employment participation may be adversely affected by childbearing/rearing (Norris, 1996). That is having children typically involves a discontinuity of employment and/or a change in employment status resulting in a move from full-time to part-time work or leaving the labour force for a period of time. This discontinuity of employment and/or decreased level of labour force participation may have profound implications for Cameroonian women as individuals and for the broader Cameroon society. For example, decreased labour participation can exert downward pressure on women's wages and benefits both in the short and long term (McDonald, 2003). However, there may also be substantial personal family and societal implications for a mother who decides to remain continuously full-time employed following the birth of a child. For example, there is evidence that even full-time employed mothers retain a larger share of childcare and household duties than their partners resulting in role overload (Fisher, 2002) or what has been termed by Hochschild (1989) a double shift. Also, recent evidence suggests that early extensive and continuous formal child care poses some developmental risks for young children (Belsky, 2002). Finally, fertility rates appear to be inversely related to women's attachment to the labour force (Fisher, 2002) and falling fertility rates have implications for the ratio of working adults compared to the dependent population and subsequent economic growth (Barnes, 2001). Fon and (Edokat, 2012) in reviewing the marginalization of women's role in SSA towards Crop Production noted that while SSA women contribute a significant amount of their time in weeding, harvesting, animal husbandry, cleaning, fetching water, baking, cooking, sewing and childrearing, they have not received adequate recognition for the intensive time spent on their dual roles as producers and reproducers. Crop production remains the major source of food for most SSA countries. In-addition, they intimated

that the bulk of the production processes are carried out by women, but they have the least access and use of those resources that lead to the final output. In this perspective, Logo and Bikie (2003) underscore that rural women in Cameroon spend most of their time daily on crop production activities (cultivating, harvesting, weeding, and processing) and domestic tasks (home improvement, and child rearing) with little rest or recreation. This observation was later confirmed by Fon and Edokat (2012), firstly that Sub-Saharan African women contribute a significant amount of their time in weeding, harvesting, animal husbandry, cleaning, fetching water, baking, cooking, sewing and childrearing, they have not received adequate recognition for the intensive time spent on their dual roles as producers and reproducers.

Empirical evidence on the link between women's employment and fertility is quite scarce in developing countries especially in sub-Saharan Africa. Most of the studies date back to the World Fertility Survey (WFS) conducted in the 1970s. The United Nations conducted two studies based on the WFS. The first (United Nations, 1985a) which aims to verify role incompatibility estimates the effect of the place of work on fertility in 30 developing countries. In most countries women who have never worked since their first marriage have higher fertility whereas for women working outside the home or at home fertility differences are not consistent. Moreover, the observed differences in fertility between these two categories of women are weak when considering the control factors. The second study (United Nations, 1985b) estimates the effect of the type of professional activity on marital fertility in 38 developing countries. Findings showed that after controlling for other socio-economic variables only women occupied in modern and mixed professional activities tend to have fewer children than those working in transitional and traditional occupations. But although employment is significantly related to low fertility in most countries the differences are quite weak (United Nations, 1985b). More generally, this study concluded that the relationship between female employment and fertility is stronger in countries with a high level of development. Findings from another United Nations study (1987) showed that women occupied in modern transitional and mixed occupations had on average fewer children than did working women. But the differentials between transitional and mixed categories on the one hand and non-working women on the other are smaller. However, this significant effect was observed in most developing countries in Asia and Latin America but not in many African countries. Moreover, women working in agriculture and non-working

women had similar fertility levels. Using the same data for their comparative analysis of socio-economic determinants of marital fertility Rodriguez and Cleland (1981) indicated that women's wage employment had a slightly stronger depressing effect on recent fertility. In general, the negative impact was stronger among wage earners than among self-employed women. Analysing WFS data for the Philippines, Engracia and Herrin (1984) indicated that the effect of work on fertility depends upon the time framework. In the short run women currently working end up with higher fertility, while in the long run having ever worked appears to be associated with lower fertility. But this study did not consider the intensity or the type of work.

For sub-Saharan countries, previous country-level studies mainly reported on the situation of rural women involved in agricultural activities in the 1970s when women were mostly involved in agricultural activities. However, fertility is also likely to influence female employment, leading to the likely causal reciprocity between the two phenomena. Indeed, even though most of employment fertility research has addressed only one-way relationships (either employment affecting fertility or the opposite), there is evidence that there may be mutual causation between employment and fertility (Cramer, 1980; Felmlee, 1993). But this interdependence is far from being clearly understood, since inconsistent findings have been reported, with some studies seeing reciprocal effects (Budig, 2003; Felmlee, 1993) and others seeing only a one-way relationship (Hout, 1978; Smith-Lovin and Tickamyer, 1978).

2.3.2 Agricultural investment and women's employment in Ethiopia

Similar to most sub-Saharan African countries, high proportion of the women who are living in Ethiopia is predominantly engaged in agricultural unpaid works. The engagement of women in professional clerical and managerial fields is very limited. Due to low educational attainment and some traditional factors the enrolment of women in the labour market is very limited. Thus most of the women are spending their time in their home as a housewife. Given the predominant engagement of women in the agricultural sector, notable variation has revealed on the average employment rate of women in the year 2000 and 2005.According to the DHS report of Ethiopia, the average employment rate of women was estimated to be Sixty-two percent of married women who are employed and earned cash made joint decisions with their husband on how to spend their earnings. Overall, 58% of working women reported earning less than their husband reported by CSA (DHS, 2016). Whereas, during the survey period of 2000, it was around 57 percent of

the women were working either full time or seasonal jobs. This notable difference among the two calendar years attributed to the difference in the way of data collection regarding to the current employment status of women (DHS, 2005).

Regarding employment status of married women, among all women in the age interval 15-49, the employment rate of currently married women is estimated to be Forty-eight percent of currently married women age 15-49 were employed in the 12 months before the survey. However, in spite of this high proportion of women employment, large percentage of the women was engaged in agricultural jobs which are predominately characterized by unpaid jobs. For instance, according to 2005 DHS finding, 81 percent of the women who are engaged in the agricultural works is not received any kind of payment. Among all married women who have a job, 68 and 62 percent of them were engaged in agricultural works in the years 2000 and 2005 respectively. Among all working women, 59 percent earned their payment either in cash only, both in kind and cash or in kind only in the year 2000, where as in the year 2005, only 48 percent of the working women earned some form of employment. Thus, around 41 percent in the year 2000, and 52 Percent of working women in the years 2005 respectively, didn't receive any form of payment for their work (DHS, 2000). It shows that in addition to the less proportion of employed women, pronounced percentage of them are segregated in unpaid works, which in turn limits their autonomy and earning capacity. Among married women, the percentage currently employed was 32% in the 2005 EDHS. This increased moderately to 57% in the 2011 EDHS, and then declined slightly to 48% in the 2016 EDHS. The percentage of employed married women who receive cash earnings increased from 27% 2005 to 36% inm2011, and then remained essentially stable at 35% in 2016. The percentage of married women not paid for their work declined from 60% to 30% between 2005 and 2011 and then increased to 49% in 2016. Among married women, the percentage currently employed rises with age, from 40% in the 15-19 age groups to a peak of 53% in the 30-34 age groups. Among married men, there is virtually no variation in the employment rate with age. The percentage of [married] women who are not paid for their employment is highest in the 15-19 and 45-49 age groups (66% and 56%, respectively).

2.4 Synthesis of the review

In recent times Ethiopian government use agricultural investment as one of the most important and effective strategies for economic growth, food security, providing employment opportunities

and poverty reduction in country. Thus, government formulated a long term economic development strategy called Agriculture Development Led Industrialization (ADLI) and is the government's overarching policy response to Ethiopia's food security and agricultural productivity challenge. The strategy focuses primarily on expansion of large-scale commercial farms and improved productivity in smallholdings (Ethiopian Investment Commission, 2014). According to a World Bank report, 406 large-scale commercial farm investment projects covering 1.19 million hectares were approved in Ethiopia between 2004 and 2009 (Vhughen and Gebru, 2013). This investment will provide substantial employment opportunities both to the local peoples and others migrating to it gain employment opportunity. If implemented, this is expected to influence fertility behavior. The correlation between women's wages and fertility is stronger, the larger the proportion of women employed. The model was used to predict fertility for 1956 to 1975. It predicted a higher and larger fertility peak than the one actually experienced in the late 1950s. It was successful in predicting the rapid decline in fertility during the economic expansion of the 1960s, and the movements during the 1970 and 1974 recessions. However, research in the context of the relationship between investment induced (especially agricultural investment induced) employment and maternal fertility. As the brief background of Ethiopian agricultural history shows, the smallholders were never given the opportunity to reach their potential. Whatever surplus they produced was extracted by the feudal lords or the state. For most SSA, agriculture is at subsistence level and the majority of the smallholders are using backward agricultural practices (traditional technologies) for cultivation, harvesting and storage. To drag the region's poor agricultural production and productivity out of backwardness, capital and investment flow have crucial importance. However, large scale agriculture investment can be useful as long as the interest of smallholders is seriously considered and their potential identified. As mentioned earlier, the driving force behind the government's policy were, among others, the belief that those investments will;

- create employment opportunities in the localities concerned.
- produce export crops which will increase the country's foreign earnings, and also expected to expand cotton and sugar cane production needed for agro-industry.
- provide the opportunity for technology transfer.
- build the infrastructure and social assets such as health posts, schools, access to clean water which all benefits the local communities.

- promote energy security.

Therefore, this study will examine the relationship between women employment (available, agricultural investment induced employment) provided by the Saud- Star and Merti Agricultural Development farms and a woman's fertility intention in Ethiopia.

2.5 Conceptual framework

The presence of wage differential among this various occupations is mentioned as one of the reasons that creates this differences among this groups. Given that less likelihood of women who had just gives birth in the labor market, the opportunity cost of having children is higher among high wage earner professionals than that of self-employed or less wage earners. Findings also confirmed that women's wage have a great depressing effect on women fertility at least in developing countries (see Rodriguez and Cleland, 1981). There is evidence that even full-time employed mothers retain a larger share of childcare and household duties than their partners resulting in role overload (Fisher, 2002) or what has been termed by Hochschild (1989) a double shift. Also, recent evidence suggests that early extensive and continuous formal child care poses some developmental risks for young children (Belsky, 2002). Finally, fertility rates appear to be inversely related to women's attachment to the labour force (Fisher, 2002) and falling fertility rates have implications for the ratio of working adults compared to the dependent population and subsequent economic growth (Barnes, 2001).

Using the same data for their comparative analysis of socio-economic determinants of marital fertility Rodriguez and Cleland (1981) indicated that women's wage employment had a slightly stronger depressing effect on recent fertility. In general, the negative impact was stronger among wage earners than among self-employed women. Analysing WFS data for the Philippines, Engracia and Herrin (1984) indicated that the effect of work on fertility depends upon the time framework. In the short run women currently working end up with higher fertility, while in the long run having ever worked appears to be associated with lower fertility. But this study did not consider the intensity or the type of work.

A conceptual framework is an argument that the concepts chosen for investigation, and any anticipated relationships among them, will be appropriate and useful given the research problem under investigation (Eisenhart, 1991). The framework used may be based on different theories

and various aspects of practitioner knowledge, depending on what the researcher can argue will be relevant and important to address about a research problem. The framework indicates the relationship between dependent variable (fertility intention) and independent variables that could predict the outcome. This conceptual framework is constructed based on the literature.

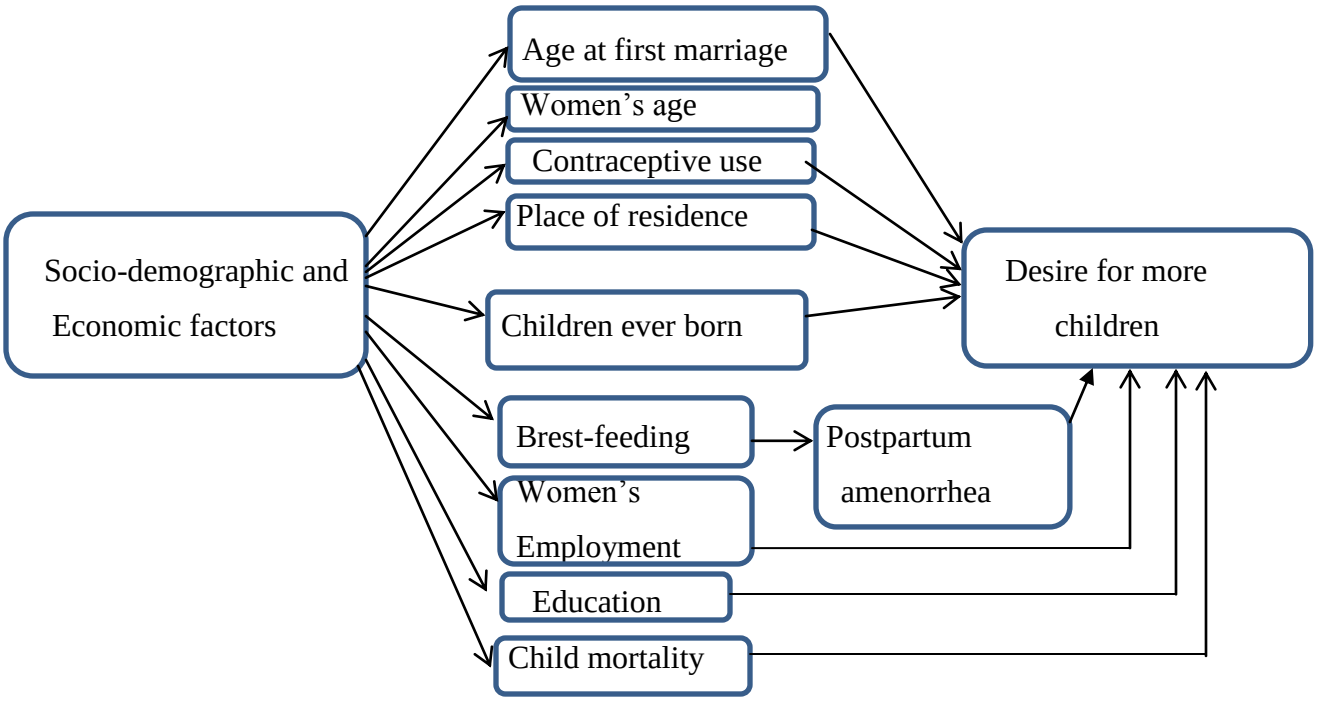

Figure 1: Conceptual framework on determinants of high fertility status.

Source: Determinants of fertility status among married women: A case control study (Bekele Belayihun, 2011)

CHAPTER THREE

THE RESEARCH METHODOLOGY

3.1 Sampling techniques, eligibility criteria and sample size

3.1.1 Sampling techniques and eligibility criteria

The study sites were Saudi Star and Merti Agricultural Development Farms in Gambella and Oromia regions respectively. Multi-stage sampling was applied. First, study kebeles were purposefully selected with the view to allow for capturing the differential effect of an intervention and control groups. That is, depending on (1) availability of transport facility between the given kebele and the farm and (2) whether the kebele is an urban settlement or part of it, kebeles up to 25 kms away from the farms were considered as intervention group; otherwise they were considered as control group. Accordingly, kebeles as far as 25 kms away from the farms were treated as intervention group if they have transport facility and/or are or part of an urban settlement. Otherwise most other intervention kebeles were close to the farms. This decision was reached to avoid the influence of Abobo town (the woreda capital) located 25kms away from the farm. For Merti Woreda, Abomsa town (the woreda capital) was far enough from the Merti farm.

Once the study kebeles were chosen and categorized as intervention and control sites in this way, all women of reproductive ages who were willing to participate in the interview were targeted. Those women who were sick, pregnant or were unwilling to participate were not selected. From each woreda, 421 and 415 respondents were randomly selected from households residing in kebeles adjacent or close to the farms and those kebeles farther away from the influence of the farms. The idea is that those households residing adjacent or close to the farms are assumed to have been employed either directly by the farms or indirectly as various types of service providers to workers of the farm due to the presence of the farms.

3.1.2 Sample size

Determination of the size of a sample is one of the most important issues. Sample size should be large enough as far as the available resource allows because a large enough sample relative to the target population helps reduce errors in generalizing responses to the whole population (Welch

and Comer, 1988; Sharma, 2004; Agrawal, 2006). While several approaches to sample size determination are available in the statistical literature, there is no agreement on the suggested appropriate levels of sample size and on the criteria based on which the sample sizes are determined. Sample size determination depends on several factors including the purpose and design of the study. However most sample size determination approaches take into account confidence levels and sampling errors in calculating sample size. For observational studies, 95% confidence level and 5% error is often suggested (see e.g. Welch and Comer, 1988; Sharma, 2004; Agrawal, 2006).

One among the sample size determination formula suggested in Sharma (2004) and Agrawal (2006) is the following:

$$n = \frac{N}{1 + N(e)^2}, \qquad (1)$$

where n is the sample size to be estimated, N is the target population, and e is the level of precision. Using this formula, the sample size for the present survey is expected to be 376.

However, assuming substantial heterogeneity in the socioeconomic and demographic characteristics of respondents, for example, between the indigenous Agnuwa and population groups resettled a long ago in the Abobo Woreda and between the Oromos and other migrant workers in Merti Woreda, a design effect of 2 was considered to control for heterogeneity. Further, a contingency of 11.2% was considered to compensate for non-response. Therefore, the total estimated size of respondents was 836.

However, once the total sample size was calculated using the above noted method, more or less equal samples were taken from each study woreda instead of based on calculations proportional to the size of the target population for each group. The focus was on increasing the total size of the sample rather than on proportionately assigning the sample size according to each group's population size. This bold decision was taken because, despite the substantially lower size of the target population, the Abobo Woreda households were highly heterogeneous compared to that of Merti Woreda.

Table 3.1: Study population and sample size

Study population and sampling: Abobo and Merti of Gambella and Oromia regions, 2017 & 2018.

Woreda	Category	Study Kebeles	No. of HHs	Sample HHs selected	Sample size (%)
Abobo*	Intervention	Perpengo	83		
		Pukedi	81		
		Terkudi	153		
		Ochokchala	66		
	Sub-total		383	190	
	Control	Tegni	92		
		Terchuri	107		
		Okedi	139		
	Sub-total		338	231	
Merti**	Intervention	Warsha Qona	1297		
		Watecha Dale	512		
		Golgota	1707		
	Sub-total		3516	185	
	Control	Gedo Arba	964		
		Shamo Gado	414		
		Kabiro Oromo	569		
	Sub-total		1947	230	
Total	Intervention		3899	375	
	Control		2285	461	
	Total		6184	836	

Note: * Source is the Woreda Administration

** Source is CSA (2007), Population and Housing Census....

Assuming a margin of error to be 0.05, the total sample size is:

$$n = \frac{6184}{1+6184(0.05)^2} = 376$$

(1) n = 376 (total sample size)

(2) Multiplying by the design effect, 376*2 = 752

(3) With an 11.2% (84.2) of contingency, 752+84.2 = 836.2

3.2 Data collection techniques and procedures

Survey questionnaires and FGDs used to collect the data. Both individual level and a household level data were collected from the female spouse in the given household. Women were the targeted respondents in the household, but when necessary, the male spouse was encouraged to assist the female spouse in responding to some of the questions. For Abobo Woreda, data were collected using enumerators drawn from the Abobo Secondary School (teachers), Abobo Woreda Office of Natural Resources and Rural Development, and Abobo Woreda Office of Health. Whereas for Merti Woreda, unemployed first degree graduates with adequate previous experience in socioeconomic data collection were used as enumerators. The Woreda Social Security Offices assisted with the selection process. Using structured interview, women of reproductive ages (and husbands or other adult members where possible and necessary) were asked to provide a wide range of demographic (fertility, mortality and migration status) and socio-economic data.

Survey data were collected in one round in 2018/2019. A stratified random sample of 836 households, and a quantitative structured questionnaire was used. The survey provides household-level data on farm production, land and non-land assets, and living conditions, and individual-level data on demographic characteristics and employment history. Individual-level data are collected for all current household members (i.e. all persons who lived, slept and ate within the household compound during at least six months in the 12 months period prior to the survey) and children of the household head who already left the household.

3.3 Measurement, Study design and variables description

Using a random sample of women in the study area, a quasi-experimental design was employed to compare fertility intention of women living in close proximity to the farms against that of

women living far away from the farms. The assumption is that women residing adjacent or closer to the farms are more exposed to the treatment variable, which is employment, compared to those women who reside farther away. In this approach a binary logistic regression technique was employed, in which employment was measured as a dichotomous variable (*1=yes or employed*; *0 otherwise*) and fertility intention would be measured in terms of the declared statement of a wife and/or a husband to have or not to have an additional child during the coming three years (*1=yes* or *to have; 0 otherwise*).

Other independent variables controlled in the model included

For the purpose of this study explanatory variables are categorized in to three groups, namely demographic variables, employment status and socio-economic variables. Thus, the explanatory variables which are used in empirical analysis are described below in accordance with their category.

- Demographic variables: women's age, children ever born (CEB) marital status, contraceptive use, duration of breast-feeding, duration of post-partum amenorrhea.
- Employment status: Employment status of individuals is the main explanatory variables for this study.
- Socio-economic variables: income, education level, place of residence, religion, and ethnicity.
- Knowledge /attitude variable: knowledge about contraception (knowledge about the existence of services and where the service is given, knowledge about the safe period for coitus and desired number of children.

3.4 Data analysis techniques

Analyze the effect of female employment on fertility using binary logistic regression analysis. Using SPSS version 20 a binary logistic regression technique, attempt was made to examine the relationship between women employment offered by the agricultural commercial farms and a woman's fertility intentions. Assume a dependent variable Fi with the mean X a vector. This vector includes main variable of women employment, which is a dummy variable, and a large set of control variables at individual level (women's age, age at first marriage, children ever born, literacy, marital status, contraceptive use, religion, ethnicity and relation to the household head).

These control variables capture observable characteristics that are likely correlated with female employment and/or fertility.

My fertility measure is a function of women employment in large scale agricultural investment and other explanatory variables: $Fi = \beta 0 + Xi\beta i + E\beta 2 + \varepsilon$, where:

Fi = fertility measure, X = a vector of other explanatory variables;

E = a binary indicator of whether the woman is employed in an off-farm job;

ε = the disturbance term.

The key coefficient of interest is β2, the effect of women large scale agricultural investment employment on fertility.

β0: The intercept term

βi: regression coefficient (i=1, 2…k)

Xi : explanatory variables (i=1,2…k)

Interpretations of the regression coefficient (β)

In my model a unit changes in x has a multiplicative effect on the mean of Fi according to this the different interpretation is given for different values of the regression coefficient (β).

Therefore:

If $\beta=0$, $e^{\beta} = e^{0} = 1$ this indicates that there is no relationship between the dependent and explanatory variables.

If $\beta>0$, $e^{\beta} >1$ then this indicate that when the explanatory variable (x) increased by one unit then the mean value will be changed by e^{β} units larger than the original values.

If $\beta<0$, $e^{\beta}<1$ this indicates that when the explanatory variable(x) increased by one unit, then the mean value of group one will be smaller than the other by e^{β} units as compared to the original value.

The women were asked whether they had desire to have new child in the coming three years or not during the survey period. According to these women who have reported that she wanted to have during the survey period is assigned a value 1 and 0 otherwise. Hence, due to the binary nature of this variable logistic regression model is adapted for empirical analysis.

Logistic regression is used to predict the dichotomous outcomes. Depending on the number of category of the outcome variable, the model can be classified as binary logistic regression. According to this, response variables which are dichotomy are analyzed by binary logistic regression model. Since my dependent variable fertility intention (desired number of children)

has a binary nature the binary logistic regression model was employed for this analysis. The regression coefficient of logistic regression describe us how big is the effect of independent variables on the outcome variable. That is a regression coefficient with a bigger value signals that the explanatory variables have a strong effect on the outcome variables, whereas smaller regression coefficient indicates an opposite effect. In addition to this, the sign of the regression coefficients are served us determine the direction of the relationship among the explanatory and the response variables. According to this, a regression coefficient with positive value indicates that the explanatory variables increased the probability of the outcome, whereas negative values means that the decrease probability of the outcome. The Fi can take any value and the corresponding probability is constrained to lie between 0 and 1.

The odds ratio can be interpreted as the change of odds when a unit change in the independent variable (or changes from reference group in categorical explanatory variables). According to this, the odds ratio greater than 1 indicates that the probability of the occurrence of success is higher than that of the probability of the occurrence of failure, while odds ratio less 1 indicates the opposite effect. Odds ratio with a value of 1 is a neutral value i.e. both outcomes (success and failure) are likely to occur equally. For this study, odds ratio interpretation method has been employed to interpret results obtained from regression of desired number of children and explanatory variables under study

CHAPTER FOUR
RESULT AND DISCUSSION

4.1. Results

4.1.1 Descriptive statistics

Table 4.1 shows descriptive statistics for employment status by women's location relative to the farms. The table shows the proportion of women employment among those who reside adjacent to the LAI compared to those far away from it. It also shows that 64.2 percent (537 women) are employed in large scale agricultural investment the remaining 35.8%(299 women) are not employed by LAI, from women who reside adjacent to LAI 61.1% are employed by LAI, whereas 66.8% women who resides far away from LAI, showing the proportion of women who employed being lower for adjacent to LAI compared to far away from LAI.

Table 4.1: Woman's employment status in place of residence

		Employed in the LAI		Total
Respondent Category		Yes	No	
		No(%)	No(%)	No(%)
	Adjacent to LAI	229 (61.1)	146 (38.9)	375 (100)
	Far away from LAI	308 (66.8)	153 (33.2)	461 (100)
	Total	537 (64.2)	299 (35.8)	836 (100)

Source: Survey data (2018 & 2019)

Table 4.2 shows descriptive statistics for fertility intention by women's location relative to the farms and by employment status. As we discussed in the literature review, fertility intention is expected to be lower among women employed by the farms compared to those unemployed by it. The table 4.2 shows that 64.2 percent (537 women) are employed in large scale agricultural investment, 31.5% of whom would prefer to have a child. Whereas 33.4% of woman who are not employed would prefer to have a child, It also shows the proportion of women intending to have

an additional child to be higher among those who resides adjacent to the LAI compared to those far away from it, because from table 4.1 the proportion of women who are employed by LAI lower among those who reside adjacent to LAI than who reside far away from LAI, 61.1% and 66.8% respectively, showing the proportion of women who has desire to have an additional child being higher for unemployed women compared to the employed.

Table 4.2*:* Woman's fertility intention in place of residence and employment status

		Intended to have a child within the coming 3 years			Total
Respondent Category		Yes	No	Missing	
		No(%)	No(%)	No(%)	No(%)
	Adjacent to LAI	133 (35.5)	211 (56.3)	31 (8.3)	375 (100)
	Far away from LAI	136 (29.5)	285 (61.8)	40 (8.7)	461 (100)
	Total	269 (32.2)	496 (59.3)	71 (8.5)	836 (100)
Employed in the LAI	Yes	169 (31.5)	321 (59.8)	47 (8.8)	537 (100)
	No	100 (33.4)	175 (58.5)	24 (8.0)	299 (100)
	Total	269 (32.2)	496 (59.3)	71 (8.5)	836 (100)

Source: Survey data (2018 & 2019)

The mean difference of women employment who resides adjacent to LAI and far away from LAI is shown as follow in the table 4.3. The table shows that women employment in the LAI has a statistically significant effect who resides far away from LAI than who resides adjacent to LAI.

Table 4.3:- Mean difference of women employment status by place of residence.

Variable		No	Mean	St. Deviation	Mean difference	Sign
Employed by LAI	Adjacent to LAI	375	1.39	0.488	-0.023	0.000
	Far away from LAI	424	1.41	0.635	-0.023	0.000

Source: Survey data (2018 & 2019)

Table 4.4 shows descriptive statistics for actual number of children by women's location relative to the farms and by employment status. The table shows the proportion of women have actual number of children to be lower among those who reside adjacent to the LAI compared to those far away from it. From the table 37.1% of women who reside adjacent to LAI have more than three children, whereas women who reside far away from LAI are 40.8%. In my sample, 64.2 percent (537 women) are employed in large scale agricultural investment, 18.7% woman who are not employed have no actual number of children, while 18.4% of an employed woman have no actual number of children, whereas 40.5% of woman who are not employed have 1, 2 or 3 children, 43.4% of an employed woman. 38.2% of employed by LAI women have more than three children, whereas 40.8% of unemployed women. Showing the proportion of women who have actual number of children being lower for employed women compared to the unemployed.

Table 4.4: Woman's actual fertility in place of residence and employment status

		Actual number of children(CEB)			Total
		0	1-3	>3	
		No(%)	No(%)	No(%)	No(%)
Place of residence	Adjacent to LAI	61 (16.3)	175 (46.7)	139 (37.1)	375 (100)
	Far away from LAI	94 (20.4)	179 (38.8)	188 (40.8)	461 (100)
	Total	155 (18.5)	354 (42.3)	327 (39.1)	836 (100)
Employed in the LAI	Yes	99 (18.4)	233 (43.4)	205 (38.2)	537 (100)
	No	56 (18.7)	121 (40.5)	122 (40.8)	299 (100)
	Total	155 (18.5)	354 (42.3)	327 (39.1)	836 (100)

Source: Survey data (2018 & 2019)

The major ethnic groups in Abobo and Merti are Agnwak ,Amara, Kambata, Oromo, and others. In these two areas Protestant and Islam are the dominant religions there are also Orthodox. The table 4.5 shows that the over view of socioeconomic and employment status of women who are

adjacent to large scale agricultural investment and who are living far away from large scale agricultural investment. Out of employed by LAI (64.2 percent or 537 from total sample) 42.6% (229 women) are live adjacent to LAI and 57.4% (308 women) are live far away from LAI. Women who are adjacent to LAI 51.9% are ever using contraceptive, while who are live far away from LAI 48.1% use contraceptive. 42.8% of low income (< 10000 annually) households are adjacent to LAI but 57.2% are far away from LAI, 69.6% and 30.4% the high income women live adjacent to LAI and far away from LAI respectively. Whereas 90.9% the rich women live adjacent to LAI and 9.1% women live in far away from LAI.

Table 4.5:- Explanatory variables distribution of women residence

Variable		Respondent Category		Total
		Adjacent to LAI	Far away from LAI	
		No(%)	No(%)	No(%)
Education Level	Illiterate	168 (46.3)	195 (53.7)	363 (100)
	Primary	60 (35.7)	108 (64.3)	168 (100)
	Secondary	127 (48.7)	134 (51.3)	261 (100)
	Higher	1 (20)	4 (80)	5 (100)
	Missing	19 (48.7)	20 (51.3)	5 (100)
	Total	375 (44.9)	461 (55.1)	836 (100)
Religion	Orthodox	65 (56.0)	51 (44.0)	116 (100)
	Protestant	134 (41.1)	192 (58.9)	326 (100)
	Islam	147 (45.7)	175 (54.3)	322 (100)
	Other	7 (43.8)	9 (56.2)	16 (100)
	Missing	22 (39.3)	34 (60.7)	56 (100)

	Total	375 (44.9)	461 (55.1)	836 (100)
Ethnicity	Agnwa	87 (28.2)	222 (71.8)	309 (100.0)
	Amhara	35 (62.5)	21 (37.5)	56 (100.0)
	Kambata	70 (100.0)	0 (0.0)	70 (100.0)
	Oromo	162 (43.8)	208 (56.2)	370 (100.0)
	Others	8 (88.9)	1 (11.1)	9 (100)
	Missing	13 (59.1)	9 (40.9)	22 (100)
	Total	375 (44.9)	461 (55.1)	836 (100)
Marital status	Married	328 (45.7)	390 (54.3)	718 (100)
	Not married (Never married and Widowed)	24 (33.3)	48 (66.7)	72 (100)
	Divorced	5 (38.5)	8 (61.5)	13 (100)
	Cohabited	1 (50)	1 (50)	2 (100)
	Missing	17 (54.8)	14 (45.2)	31 (100)
	Total	375 (44.9)	461 (55.1)	836 (100)
Employed in the LAI	Yes	229 (42.6)	308 (57.4)	537 (100)
	No	146 (48.8)	153 (51.2)	299 (100)
	Total	375 (44.9)	461 (55.1)	836 (100)
Contraceptives use	Yes	41 (51.9)	38 (48.1)	79 (100)
	No	274 (46.6)	314 (53.4)	588 (100)
	Missing	60 (35.5)	109 (64.5)	169 (100)

	Total	375 (46.4)	461 (53.6)	836 (100)
Income/ annum	Lower income (< 10000)	151 (42.8)	202 (57.2)	353 (100)
	Medium income (10000-50000)	94 (49.2)	97 (50.8)	191 (100)
	Higher income (50000-100000)	16 (69.6)	7 (30.4)	23 (100)
	Rich (>100000)	10 (90.9)	1 (9.1)	11 (100)
	Missing	104 (40.3)	154 (59.7)	258 (100)
	Total	375 (44.9)	461 (55.1)	836 (100)

Source: Survey data (2018 & 2019)

The following table (Table 4.6) indicates descriptive statistics and summary statistics of variables related with the dependent variable. The table shows that a women who wants or have a plan to have a new child within the coming three years differs by women's education level. For instance, 21.7% of non-employed illiterate women want or have a plan to have a new child within the coming three years and the remaining 70.5% do not want to have a new child in the coming three years and 26.1% of employed illiterate women have a plan to have a new child in the coming three years the remaining 67.5% do not want to have a new child in the coming three years. As it is observed from the table employed women respondents' response on mother's educational level show that 26.1% are illiterate, 37.0% are primary, 35.4% are secondary and 50% are higher education intention to have a new child within the coming 3 years, this shows that education and fertility intention are positive relation for an employed women. The result also shows that 21.7%, 51.0%, 41.0% and 33.3% of non-employed women in the level of education illiterate, primary, secondary and higher level respectively intention to have a child in the future, the result shows that education and fertility intention are negative relation for unemployed women. Marital status is also important factor that affect fertility intention for employed and non- employed by LAI women. Based on table 4.6, 34.2% of employed by LAI married women want or have a plan to have a new child within the coming three years. While from not married (never married and widowed) women 13.3% want or have a plan to have a new child within the coming three years. Whereas 35.5% of non-employed by LAI married women want or have a plan to have a new child within the coming three years. While from not married (never married

and widowed) women 14.8% want or have a plan to have a new child within the coming three years. Contraceptive use is also factor that affects fertility intention for employed and non-employed by LAI women, 47.5% of contraceptive uses women employed by LAI want or have a plan to have a new child within the coming three years. While from non-uses contraceptive women 31.4% want or have a plan to have a new child within the coming three years. Whereas 44.4% of non-employed by LAI contraceptive use women want or have a plan to have a new child within the coming three years. While from non-uses of contraceptive unemployed women 33.8% want or have a plan to have a new child within the coming three years.

Table 4.6 also shows the fertility is measured by female employment status. Compared to their employed counterparts in both Abobo and Merti areas, women who are employed by large scale agricultural investments have less likely to have or prefer to have children than are not employed. Specifically, among women who are not employed by large scale agricultural investment 33.4 percent prefer to have a child and 31.5percent of employed women prefer having a child. This shows that the proportion of women who are employed by LAI less likely to have new children within the coming three years than who are not employed by LAI.

Table 4.6: Cross tabulation of explanatory variables with dependent variable on women employment status

Variable		Employed women				Non-employed women			
		Intended to have a child in the future				Intended to have a child in the future			
		Yes	No	Missing	Total	Yes	No	Missing	Total
		No(%)	No(%)	No(%)	No(%)	No(%)	No(%)	No(%)	No(%)
Religion	Orthodox	30 (37.5)	47 (58.8)	3 (3.8)	80 (100)	9 (25.0)	26 (72.2)	1 (2.8)	36 (100)
	Protestant	52 (27.5)	117 (61.9)	20 (10.6)	189 (100)	42 (30.7)	77 (56.2)	18 (13.1)	137 (100)
	Islam	69 (31.4)	139 (63.2)	12 (5.5)	220 (100)	41 (40.2)	57 (55.9)	4 (3.9)	102 (100)
	Others	3 (27.3)	7 (63.6)	1 (9.1)	11 (100)	1 (20.0)	4 (80.0)	0 (0.0)	5 (100)
	Missing	15 (40.5)	11 (29.7)	11 (29.7)	37 (100)	7 (36.8)	11 (57.9)	1 (5.3)	19 (100)
	Total	169	321	47	537	100	175	24	299

		(31.5)	(59.8)	(8.8)	(100)	(33.4)	(58.5)	(8.0)	(100)
Education	Illiterate	61 (26.1)	158 (67.5)	15 (6.4)	234 (100)	28 (21.7)	91 (70.5)	10 (7.8)	129 (100)
	Primary	44 (37.0)	70 (58.8)	5 (4.2)	119 (100)	25 (51.0)	23 (46.9)	1 (2.0)	49 (100)
	Secondary	57 (35.4)	87 (54.0)	17 (10.6)	161 (100)	41 (41.0)	49 (49.0)	10 (10.0)	100 (100)
	Higher	1 (50.0)	1 (50.0)	0 (0.0)	2 (100)	1 (33.3)	2 (66.7)	0 (0.0)	3 (100)
	Missing	6 (28.6)	5 (23.8)	10 (47.6)	21 (100)	5 (27.8)	10 (55.6)	3 (16.7)	18 (100)
	Total	169 (31.5)	321 (59.8)	47 (8.8)	537 (100)	100 (33.4)	175 (58.5)	24 (8.0)	299 (100)
Ethnicity	Agnwak	55 (30.1)	111 (60.7)	17 (9.3)	183 (100)	40 (31.7)	70 (55.6)	16 (12.7)	126 (100)
	Amhara	15 (40.5)	19 (51.4)	3 (8.1)	37 (100)	6 (31.6)	12 (63.2)	1 (5.3)	19 (100)
	Kambata	12 (28.6)	26 (61.9)	4 (9.5)	42 (100)	8 (28.6)	19 (67.9)	1 (3.6)	28 (100)
	Oromo	84 (32.7)	160 (62.3)	13 (5.1)	257 (100)	42 (37.2)	66 (58.4)	5 (4.4)	113 (100)
	Others	2 (40.0)	3 (60.0)	0 (0.0)	5 (100)	1 (25.0)	3 (75.0)	0 (0.0)	4 (100)
	Missing	1 (7.7)	2 (15.4)	10 (76.9)	13 (100)	3 (33.3)	5 (55.6)	1 (11.1)	9 (100)
	Total	169 (31.5)	321 (59.8)	47 (8.8)	537 (100)	100 (33.4)	175 (58.5)	24 (8.0)	299 (100)
Marital status	Married	158 (34.2)	274 (59.3)	30 (6.5)	462 (100)	91 (35.5)	145 (56.6)	20 (7.8)	256 (100)
	Not	6	35	4	45	4	20	3	27 (100)

	married	(13.3)	(77.8)	(8.9)	(100)	(14.8)	(74.1)	(11.1)	
	Divorced/ separated	1 (10.0)	6 (60.0)	3 (30.0)	10 (100)	1 (33.3)	2 (66.7)	0 (0.0)	3 (100)
	Cohabited	1 (50.0)	1 (50.0)	0 (0.0)	2 (100)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Missing	3 (16.7)	5 (27.8)	10 (55.6)	18 (100)	4 (30.8)	8 (61.5)	1 (7.7)	13 (100)
	Total	169 (31.5)	321 (59.8)	47 (8.8)	537 (100)	100 (33.4)	175 (58.5)	24 (8.0)	299 (100)
contraceptives use	Yes	29 (47.5)	29 (47.5)	3 (4.9)	61 (100)	8 (44.4)	9 (50.0)	1 (5.6)	18 (100)
	No	112 (31.4)	229 (64.1)	16 (4.5)	357 (100)	78 (33.8)	142 (61.5)	11 (4.8)	231 (100)
	Missing	28 (23.5)	63 (52.9)	28 (23.5)	119 (100)	14 (28.0)	24 (48.0)	12 (24.0)	50 (100)
	Total	169 (31.5)	321 (59.8)	47 (8.8)	537 (100)	100 (33.4)	175 (58.5)	24 (8.0)	299 (100)

Source: Survey data (2018 & 2019)

As previously described, unobserved characteristics might give rise to spurious results in a standard intensity regression model (employed and non-employed). The results which are found in this paper show that the inclusion of unobserved heterogeneity does in fact change the estimated effects of employment status on the actual and preferred number of children, but the differences are still evident (and have the same sign). One could argue that part of the selection is taking place when entering into motherhood. Unfortunately, the data available for the present study did not allow us to include a model for the actual children and preferred number of children some selection is still in action in the fertility process. Furthermore, the first spell of the employment process for a woman is the spell which starts after her first maternity leave. This spell might be either in employment or out of employment. Whether this initial state is one or the other is a matter of choice which might not be fully covered by the unobserved heterogeneity entering into the equations. However, do not expect this to constitute a problem of any significance in the analysis at hand.

Another aspect of the employment history which is potentially important is the accumulated work experience. This heterogeneity stems from factors such as e.g. religious affiliation but also the accumulated work experience. The latter is likely to play an important and direct role for a woman's opportunity costs of childbearing since women who has accumulated much work experience will have large opportunity costs associated with staying out of employment.

Furthermore, it is possible that some women are involuntarily out of employment for longer or shorter periods. On the other hand, it might also be that some women, who has preferred to work, are staying at home due to inadequate access to child-care (Kravdal, 2002).

Ideally, would have had more detailed information about employment structure. However, I believe that the distinction between employment and non-employment is an important indicator of work-family strategies and that the employment information included in the present analysis does indeed suffice to shed new light on the employment-fertility relationship.

The result included women who were either married or unmarried at the time of survey on the other hand we have disregarded any subsequent changes in partnership status and have not included any information concerning the woman's current partnership status or any characteristics concerning the possible partner. It would indeed be relevant to assess the extent to which the results found above are influenced by such factors. In particular, it would be interesting to examine how the income of the male partner (or more generally, the entire household income) affects the results found. Butz and Ward (1979) formulated a static economic model for how fertility is influenced by household income and female wage rates. One of their main points was that the probability of want to have a new child with male income but it will be less important if the woman is non-employed compared to when she is employed, because non-employed women have lower opportunity costs associated with childbearing.

Their approach has the underlying supposition that table 4.7 shows that household income who reside adjacent to LAI has a statistically significant effect than who reside far away from LAI. If the husband's income is high enough the wife will stay at home and that children are provided for in the household only by women. The number of children desire and more children currently

showed significant associations reside in adjacent to LAI than far away from LAI because more women were employed by LAI who reside far away from LAI than adjacent to LAI.

Table 4.7: Mean difference of household income on place of residence

Variable		No	Mean	St. Deviation	Mean difference	Sign
Household income	Adjacent to LAI	271	22692.62	55949.723	11622.867	0.000
	Far away from LAI	307	11069.75	14345.322	11622.867	0.000

Source: Survey data (2018 & 2019)

4.1.2 Results of the binary logistic regression analysis

In this sub section, the regression output from binary logistic regression models will be presented accordingly. In each of the regression models one variable is controlled and the other is served as an explanatory variable. The impact of women employment on the fertility behavior is analyzed by considering the pattern and nature of women employment on changing the fertility behavior of women residing in adjacent to LAI and far away from LAI. According to this, the impact of women employment on the desired number of children that women want to have the coming three years during the survey periods will be presented below.

The first model regression output shows impact of women employment and place of residence on the desired number of children is presented for both women who resides adjacent to LAI and far away from LAI. The second model regression output shows the relationship between women employment and demographic variables with fertility intention presented for both women who reside adjacent to LAI and far away from LAI. The third model regression output shows the relationship between women employment and other explanatory variables with fertility intention presented for both women who reside adjacent to LAI and far away from LAI. The last model summarized the regression out puts by considering the effect of all variable under each category given below.

4.1.2.1 Employment status

As it is described in the above sections of the paper, the primary aim of this study is focusing on the effect of women employment on their fertility level**.** In the model the place of residence is introduced in model to perceive the variation of the association between women employment and fertility behavior among adjacent to LAI and far away from LAI areas of Ethiopia. To show this variation interaction variable of place of residence and employment status of women is generated. As it can be seen in table 4.8, there is no significance variation in the relationship between women employment status and fertility behavior of women is shown among adjacent to LAI and far away from LAI areas. It is also found that, the average desired number of children of employed by LAI women was the same as not employed by LAI women who live in Ethiopia. While the average desired number of children of women who lives in far away from LAI areas of Ethiopia was 1.367 higher than who lives in adjacent to LAI.

4.1.2.2 Demographic Variable

As it shown in the table 4.8 demographic variables have some significant effect in determining the desired number of children that women want to have the coming three years in both areas (adjacent to LAI and far away from LAI). Regarding the difference of place of residence on the fertility behavior of women, all the regression output reveals that there is variation between adjacent to LAI and far away from LAI areas of Ethiopia, the average desired number of children women who lives far away from LAI areas of Ethiopia was 1.319 higher than women who live in adjacent to LAI. The desired number of children during the survey is significantly high in far away from LAI as compared to the adjacent to LAI residents. While the average desired number of children of employed women of Ethiopia almost the same as unemployed women.

As expected marital status is significantly influenced the desired number of children in both areas. For example as shown in the table 4.8 model (2) the desired number of children among married women in 2.658 times higher than not married women in the study areas. The desired number of children among divorced/separated women is 1.369 times higher than not married women. However, the desired number of children that women want to have throughout their life time(CEB) is affected the fertility intention of women, the desired number of children among women who have 1-3 children is 0.557 times lower than women who have no child. The

regression output also shows that fertility behavior of women is significantly affected by mother's age. According to this, women at earlier ages reduced the desired number of children; however, the desired number of children is significantly higher among a woman who is at older (35^{+}) ages than those who is earlier (<25) ages. The habit of using contraception is the other variable which determines the fertility level of women. In both areas the influence of contraception had significant impact on determining the desired number of children. It has found that the desired number of children is 2.023 higher among the women who had the tradition of not using contraception method than those who are using.

Findings of the estimated binary logistic regression model are given in Tables 4.8, model 3. Model 3 displays the findings for all the variables considered in the models with interaction between employment and fertility intention. In this model the effect of the other controlling factors does not differ from the first model presented in Table 4.8

As expected, marital status is associated with higher likelihood of giving birth over time in both women who resides in adjacent to LAI and far away from LAI. As shown in model 3, women in union or married woman are over 2.705 times more likely to give additional birth in the coming three years. The desired number of children among divorced/separated women is 1.376 times higher than not married women. Woman at secondary and higher school has more significant to prefer child in the coming three years than other woman, woman's age also significantly influenced the desired number of children in both areas.

Socioeconomic variables such as ethnic group and religion are not significantly associated with preferred fertility either woman adjacent to LAI or far away from LAI. In large scale agricultural investment female employment and education are associated with risk of giving birth over time (want or have a plan to have a new child within the coming three years) the same both place adjacent to and far away from LAI. Women who lived far away from the large scale agricultural investment are more likely to want or have a plan to have a new child within the coming three years than women who lived in large scale agricultural investment (model 3). Women who are adjacent to and far away from large scale agricultural investment affect by their age. Age of woman is significant for fertility intentions both that are live adjacent to LAI and for away from LAI. As can be noted from the result of the bivariate analyses (model 3), five of the twenty five variables show a significant association with high fertility level at a 5% level of significance. In this regard, Mother's age, marital status, children ever born, contraceptive use and place of

residence were significant at a 0.05 level of significance. In fact, the corresponding P-values for each of these variables were less than 0.05. Each of these predictor variables showed statistical significance at a 0.05 level of significance. Consequently, the multivariable logistic regression analysis which controls the adverse effects of confounding variables was used by taking all the five covariates (determinants of high fertility) into account simultaneously. The backward stepwise regression which controls the predictor variables use binary logistic regression was employed and only five of the most contributing factors remained to be significantly and independently associated with high fertility level and other factors were no associations for some covariates when controlling other variables women (model 3). In multivariable analysis only five variables have over all significant effect on women fertility level at 5% level of significant. These variables were: Mother's age, marital status, children ever born, contraceptive use and place of residence.

Table 4.8: Result of binary logistic regression for the effect of explanatory variables on women's fertility intention

Variables categories			Models								
			(1)			(2)			(3)		
	Variables	Categories	Coef.	Sig	Exp(B)	Coef.	Sig.	Exp(B)	Coef.	Sig.	Exp(B)
Employment and Residence	Employment status	Employed(R)									
		Non-employed	-0.001 (0.166)	0.995	0.999	-0.012 (0.184)	0.946	0.988	-0.013 (0.188)	0.944	0.987
	Place of residence	Adjacent to LAI (R)									
		Far away from LAI	0.313 (0.157)	0.046	1.367	0.277 (0.171)	0.106	1.319	0.474 (0.190)	0.013	1.606
Demographic Variables	Women's age	< 25 (R)									
		25-34				0.524 (0.211)	0.013	1.688	0.507 (0.224)	0.023	1.661
		35^{+}				1.556 (0.210)	0.00	4.739	1.592 (0.240)	0.000	4.912
	Marital status	Not married (R)									
		Married				0.978 (0.390)	0.012	2.658	0.995 (0.402)	0.013	2.705
		Divorced/separated				0.314 (0.812)	0.047	1.369	0.319 (0.828)	0.700	1.376
		Cohabited				-0.672 (1.435)	0.639	0.511	-0.819 (1.517)	0.589	0.441
	Children ever born(CEB)	0 (R)									
		1-3				-0.585 (0.256)	0.022	0.557	-0.642 (0.265)	0.016	0.526
		3^{+}				-0.017 (0.267)	0.948	0.983	-0.011 (0.275)	0.969	0.989
	Contraceptive use	Use (R)									
		Not use				0.705	0.040	2.023	0.519	0.041	1.680

						(0.343)			(0.277)		
Socio-economic Variables	Education	Illiterate (R)									
		Primary							-0.138 (0.236)	0.560	0.871
		Secondary							0.086 (0.234)	0.714	1.089
		Higher							0.291 (1.047)	0.781	1.338
	Religion	Orthodox (R)									
		Protestant							0.032 (0.358)	0.928	1.033
		Islam							-0.046 (0.306)	0.880	0.955
		Others							-0.234 (0.711)	0.741	0.791
	Ethnicity	Oromo (R)									
		Agnwak							-0.246 (0.372)	0.509	0.782
		Amhara							-0.266 (0.387)	0.491	0.766
		Kambata							0.680 (0.453)	0.133	1.973
		Others							0.365 (0.789)	0.643	1.441
	Household Income	Rich (>100000) (R)									
		Lower income (< 10000)							-0.481 (0.752)	0.522	0.618
		Medium income (10000-50000)							-0.567 (0.759)	0.455	0.567
		Higher income (50000-100000)							-1.152 (0.884)	0.193	0.316
	Constant		0.462	0.000	1.587	-0.543	0.141	0.581	-0.100	0.909	0.904
	R^2		0.008			0.193			0.219		
	R^2 change		0.008			155			0.165		

Source: Survey data (2018 & 2019)

4.2 Discussion

So far various empirical models are employed to examine the relationship between women employment status (employed by LAI) and their fertility behavior. Regarding the fertility behavior of women, one dependent variable which shows the current fertility behavior of women is selected. The primary reason that selects the current fertility rate as a fertility measure was arising from the fact that the scarcity of women employment data prior to the survey periods. The information on women employment status was available only for the current and one year prior to the survey periods. Thus, in order to figure out the accurate effect of women employment on the fertility behavior of women, I managed to use the desired number of children as a response variable. Hence, according to this the fertility variables, number of birth of women in

the past 12 months prior to the survey period, desired number of children that a woman wanted to have in her life time were put forward for analysis.

In the other side some important explanatory variables, which determine the fertility behavior of women was put forwarded for the analysis. Among this the employment status, demographic variables and socioeconomic variables which can be potentially affecting the relationship between women employment by LAI are controlled. Then the employment status of women is assessed by considering various characteristics of a given employment. In the first place, the overall impact of women employment and place of residence on the fertility behavior of women was examined by considering two areas (which are adjacent to LAI and far away from LAI). The result reveals that, as the theories of incompatibility and opportunity cost of having children, the employment status of women was affecting the fertility behavior of women in both areas in Ethiopia.

In the second place the impact of women employment on the fertility behavior of women by demographic variables in to the model. As to the expectation pronounced variation was found among the adjacent and far away from LAI areas on the impact of women employment on the fertility behavior of women. Currently women who reside in adjacent to LAI areas had less fertility level as compared to far away from LAI, in large scale agriculture investment mother's age and marital status are highly associated with fertility intention of woman. In employed woman neither female education nor human capital has a significant effect on the likelihood of giving birth (want or have a plan to have a new child within the coming three years). In particular, the risk of want or have a plan to have a new child within the coming three years for employed by LAI, is not significantly different from that for non-employed women. In the model that takes into account only female employment and work experience. The introduction of the educational attainment weakens this negative effect (lowering the significance level from 1% to 10%). This suggests that the lower risk of employee is somehow connected to educational attainment (went to school), which is associated with lower chances of giving birth (want or have a plan to have a new child within the coming three years). However, the negative effect of both employment and low educational level are completely disappeared when taking into account women's age. As observed in employed by LAI the older the woman, the higher she want to have a new child within the coming three years.

The results from regressions show that women's employment factors and demographic and socioeconomic variables do not have uniform associations with the ideal number of children (want or have a plan to have a new child within the coming three years) adjacent to LAI and far away from LAI. Certain women's employment factors are insignificant in women in adjacent to LAI but not far away from LAI, only some of the control variables are significant effect adjacent to and far away from LAI. The regression results from the associations between place of residence and fertility preference have been consistently found in this study, as expected from the literature. Regression results from the two areas suggest that far away from LAI residence is associated with a higher fertility intention than adjacent to LAI.

The educational status of women has showed insignificantly on the preferred number of children. In this study, the education factor is measured by women's illiteracy as a reference and primary, secondary and higher are in significant factor for woman who are non-employed by LAI and who are employed by LAI.

Female working participation tends to be associated (negative) with preferred number of children in employed by LAI; however, the coefficients are not statistically significant in this area. The positive relationship may imply that participating in paid employment means that women can financially afford childcare and childrearing, and having more children do not put them under financial hardship, which resulted in the higher ideal number of children. Unemployed or underemployed parents may also feel reluctant to have large families. From Bradley's point of view it actually makes sense for women who have higher scores in labor force participation in a country with already declining fertility to express a higher ideal number of children since they can financially afford a larger family. On the contrary, labor force participation factor is statistically associated with lower ideal number of children. This relationship is more in line with previous literature on the fertility transitions in countries at the beginning of the industrialization process, which suggests the incompatibility between work and family, and children is considered a cost instead of a benefit are major causes for couples to prefer lower numbers of children. The involvement of women in employed by LAI seems to be associated with almost the same prefer number of children with unemployed by LAI, these results imply that female labor force participation may have a balancing effect on the ideal number of children depending on current fertility. Apart from the employment status of women, other factors influence fertility as well as

can be revealed from the full regression results (model 3). Mother's age, marital status, children ever born, contraceptive use and place of residence are the significant factors for women to have a new child. Ethnicity and education has no significant effect on fertility. Women who are the wife of the household head and women in households with a female head or an older head of household have more children.

As already indicated below women's literacy promotes lower fertility while poverty decreases fertility non-employed women model 3 shown. The main Finding of the paper is that 64.1 percent (537 women) are employed in large scale agricultural investment, 31.5% of whom would prefer to have a child. Whereas 33.4% woman who are not employed would prefer to have a child, showing the proportion of women who desire to have an additional child being lower for employed women compared to the unemployed. It is also found that, the average desired number of children of women who lives in far away from large scale agricultural investment (LAI) areas of Ethiopia was 1.606 higher than women who resides in adjacent to it. This shows that women employment in large scale agricultural investment (LAI) has a significant negative effect on fertility rates.

The results confirm that, for each type of current employment, the chances of giving birth are lower when women are not in union in employed and unemployed women. In employed by LAI none of the interaction terms between employment and marriage are significantly associated with the chances of giving additional birth (want or have a plan to have a new child within the coming three years). In fact women's current employment does not significantly affect the probability of giving birth, irrespective of marital status. By contrast, in non-employed woman it emerges from interaction effects that the influence of employment is sensitive to marital status. In fact the effect of employment is only significant when women are in union, showing the same influence on the likelihood of giving birth as the one found in the previous model (without interactions terms). Non-employees are less likely to give additional birth (want or have a plan to have a new child within the coming three years) than employed women and inactive women.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

This paper investigates the influence of women's employment on fertility in two different parity women who reside adjacent to LAI and far away from LAI the analysis of the impact of women employed by LAI desire to have a new child within the coming three years. In the finding section various empirical models are employed to examine the relationship between women employment status and their fertility intention. Regarding the fertility behavior of women, one dependent variable which shows the current fertility behavior of women is selected. The information on women employment status was available only for the current and one year prior to the survey periods. Thus, in order to figure out the accurate effect of women employment on the fertility behavior of women, According to this the fertility variables, desired number of children that a woman wanted to have in the coming three years of women during the survey periods were put forward for analysis. In the other side some important explanatory variables, which determine the fertility intention of women was put forwarded for the analysis. Among this the demographic characteristics and socioeconomic variables which can be potentially affecting the relationship between women employment are controlled. Then the employment status of women is assessed by considering various characteristics of a given employment. In the first place, the overall impact of women employment on the fertility behavior of women was examined by considering two areas adjacent to LAI and far away from LAI. The result reveals that, similar to the theories of incompatibility and opportunity cost of having children, the employment status of women was affecting the fertility behavior of women.

In the second place the impact of women employment on the fertility intention of by introducing place of residence in to the model. Parallel to my expectation pronounced variation was found among adjacent to LAI and far away from LAI areas on the impact of women employment on the fertility behavior of women, more women were employed by LAI far away from LAI than adjacent to LAI but women who reside in adjacent to LAI areas had lower fertility level than compared to far away from LAI. The second possible reason for the variation between women

employment and fertility in adjacent to LAI and far away from LAI areas may be the income effect of women employment on the fertility behavior of women. like to my expectation the income difference of women employment in determining the actual births was negligible in the areas adjacent to LAI and for away from LAI. However, it had some significant effect in determining the ideal number of children that a women wanted to have in the coming three years in both adjacent to LAI and for away from LAI areas in Ethiopia.

The comparison between want to have a new child within the coming three years woman who reside in adjacent to LAI lower than far away from LAI. The findings show that the effect of female employment in LAI want to have a new child within the coming three years to be significant on place of residence (reside in adjacent to LAI and far away from LAI). In fact women adjacent to LAI who are involved in paid economic activity increased their fertility when they are married. The difference could be that being employed rather than non-employed women to better control their commitments and fulfill familial obligations economically. Adjacent to LAI, where female employment is more widespread than in far away from LAI it appears that women have to pay great attention to their family roles, namely bearing and rearing children, even if they are involved in economic activities. Working does not seem to hinder family formation. Greater involvement of women in the labour force is not the main reason for fertility decline in adjacent to LAI.

In large-scale agricultural investment (LAI), place of residence is a significant factor on women's fertility intention. This study has attempted to come up with the result of conclusion; many factors contribute to this phenomenon. Among these factors, Mother's age, marital status, children ever born, contraceptive use, place of residence were the most contributing factors in the desired number of children. Among the factors place of residence as a power full predictor variable of women's want to have a new child. Measures taken to increase women's employment will indirectly help in reducing fertility. Such measures would give impulse to fertility controlling programmes and hence should be further strengthened.

In sum, my study confirms that LAI employment for Ethiopian women curbs preferred fertility but the fertility intention higher women who reside far away from LAI than who live adjacent to LAI. Employed by large scale agricultural investment is the factor of fertility intention in the

community, so living far away and adjacent to large scale agricultural investment is the factor of fertility intention in the community.

5.2. Recommendations

Based on the findings of the study, the following recommendations are made:

- Place of residence of mother was associated with fertility, women who reside in adjacent to LAI have low fertility intention than far away from it. Therefore government must plan to provide contraceptive, awareness about contraceptive and so on for women who reside in far away from LAI, and also encourage large scale agricultural investment in the country collaborate with them in order to decrease total fertility rate in the country.
- Mother's age and contraceptive were found to be directly related with fertility. Measures are taken to decrease fertility status with expanding interventions to reduce the high fertility rate through addressed in planning and implementing of programs related with fertility in adjacent and far away from LAI, is recommended.
- Generally empowering women in contraceptive decision making, enabling them to have their own income have got positive role in decreasing fertility.

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Appendix

Survey Questionnaire

Direction to the Interviewer: The objective of this questionnaire is to gather data that will be used for investigating the **Effect of Large-Scale Agricultural Investment (LAI) on Maternal Fertility**. The quality of the study depends on the quality of the information to be provided. Please assure the respondents that the information they provide will be kept confidential and will be used only for the purpose stated here-above. Please request them to give you their genuine response.

Name of interviewer_____ **Signature** _____ **Date of interview**_____

Name of Region_____ **Zone** _____ **W*ereda***_____

Respondent category_____**(Within LAI=1; Outside of LAI=2)**

Household number _____

Part 1: Household information /ቤተሰብ አቀፍ መረጃ

Using the following table, please provide list of permanent household members and their socio-demographic characteristics/**በሚከተለው ሰንጠረዥ ላይ የቤተሰቡን አባላት ስም ዝርዝርና ተዛማጅ ማህበራዊና ኮኖሚያዊ ጉዳዮችን ይሙሉ**

S. No	1.1 Name of household member/የቤተሰቡ አባል ስም ዝርዝር	1. 2 Relation to HHH head/ከቤተሰቡ ኃላፊ ጋር የለው ግንኙነት **[Enter codes from list**1/ ከታች በቁጥር 1 የተዘረዘሩ ኮዶችን ይጠቀሙ**]**	1.3 Sex/ጸታ (Male/ ወንድ=1Female/ሴት=2)	1.4 Age in years/ዕድሜ	1.5 Ethnicity/ ብሄር-ብሄረሰብ (አኝዋክ=1; አማራ=2; ሀድያ=3; ከምባታ=4; አሮሞ=5; ትግሬ=6; ወላይታ=7; ሌላ=8)	1.6 Level of education(For ages 5 years & above/የትምህርት ደረጃ(ዕድሜው አምስት ዓመት ከሞላው) **[Enter codes from list 2/** ከታች በቁጥር 2 የተዘረዘሩ ኮዶችን ይጠቀሙ**]**	1.7 Primary occupation/ ዋና የመተዳደሪያ ስራ [**Enter codes from list 3/** ከታች በቁጥር 3 የተዘረዘሩ ኮዶችን ይጠቀሙ**]**	1.8 Marital status/ የጋብቻ ሁኔታ [**Enter codes from list 4/** ከታች በቁጥር 4 የተዘረዘሩ ኮዶችን ይጠቀሙ**]**	1.9 Religion/ሀይማኖት **[Enter codes from list 5/** ከታች በቁጥር 5 የተዘረዘሩ ኮዶችን ይጠቀሙ**]**	1.10 Helps on work/farm/ ቤተሰቡን በስራ የሚያግዝበት ሁኔታ [**Enter codes from list 6/**ከታች በቁጥር 6 የተዘረዘሩ ኮዶችን ይጠቀሙ**]**
1										
2										
3										
4										
5										
6										
7										
8										
9										

1.11 If never married (Q. 1.8), at what age do you think would you marry in the future/**ለጥያቄ ቁጥር** 1.8 **መልሱ *ያላገባ* ከሆነ፣ በስንት ዓመት/ሽ ለማግባት ነው ያሰብከው/ሽው**?

_____(For interviewer: Write code '9' for 'Do not know' response/ **ውድ ጠያቂ: የተሰጠው መልስ *አላውቅም* ከሆነ** '9' **የጻፉ**).

HOUSEHOLD DEMOGRAPHICS CODE LIST

HH Relationship Codes/ከቤተሰብ ጎላፊ ጋር ያሉ ግንኙነቶች ኮድ (1)		Education Codes/ የትምህርት ደረጃ ኮድ (2)		Occupation Codes/የዋና የመተዳደሪያ ስራ ኮድ (3)		Marital Status Codes// የጋብቻ ሁኔታ ኮድ (4)		Religion Codes/ የሀይማኖት ኮድ (5)		Helps on work/farm/ ቤተሰብን በስራ የማገዝ ሁኔታ (6)	
01	Head/ የቤተሰብ ጎላፊ	01	Illiterate/ያል ተማረ	01	Labor on own farm - unpaid/ በራሱ ማሳ ላይ የሚሰራ - የማይከፈለው	01	Married/ የገባ	01	Orthodox Christian/ ኦርቶዶክስ	01	Fully/ሙሉ ጊዜውን
02	Spouse/ ባል ወይም ሚስት	02	Read and write only/ ማንበብና መጻፍ ብቻ የሚችል	02	Labor on other farms - paid/ በሌላ ሰው ማሳ ላይ የሚሰራ - የሚከፈለው	02	Never married/ ያላገባ	02	Protestant Christian/ ፕሮቴስታንት	02	Partly/የተወሰነ ጊዜውን
03	Son/daughter of head and/or spouse/ ከቤተሰቡ ጎላፊ ወይም ከባል ወይም ከሚስት ወይም ከባልና ከሚስት የተወለደ ልጅ	03	Schooling attended/መደበኛ ትምህርት የተከታተለ [Specify grade attained/ስንተኛ ክፍል እንደደረሰ ይጠቀስ]	03	Livestock rearing - unpaid/ የራሱን ከብቶች የሚያረባ - የማይከፈለው	03	Divorced/separated/ የተፋታ/የተለያዩ	03	Islam/ እስላም/ሙስሊም	03	Never/ ምንም
04	Son /daughter of head/ ከቤተሰቡ ጎላፊ የተወለደ ልጅ			04	Livestock rearing -paid/ የሌሎችን ሰዎች ከብቶች የሚያረባ - የሚከፈለው	04	Widowed/ ባል ወይም ሚስት የሞተባት/ችበት	04	Other [Specify]/ሌላ ካለ		
05	Son/daughter of spouse/ ከባል ወይም ከሚስት ወይም ከባልና ከሚስት የተወለደ ልጅ			05	Casual off-farm labor- paid/ ከእርሻ ውጪ ሌሎች ስራዎችን መስራት - የሚከፈለው	05	Cohabited/ ከጋብቻ ውጪ አብሮ የሚኖር ወይም የምትኖር				

06	Mother/father of head/ spouse/ የቤተሰቡ ኃላፊ ወይም የባል ወይም የሚስት ወይም የባልና የሚስት ወላጅ			06	Household/domestic/housewife - unpaid/ የቤት እመቤት ወይም የቤት ውስጥ ስራ የሚሰራ - የማይከፈለው						
07	Sister/brother of head/spouse/የቤተሰቡ ኃላፊ ወይም የባል ወይም የሚስት ወይም የባልና የሚስት			07	Childcare/domestic work - paid/ የህጻናት ሞግዚት ወይም የቤት ሰራተኛ - የሚከፈላት						
08	Foster child/የማደጎ ልጅ			08	Rope making/ ገመድ ፈታይ ወይም ሻጭ						
09	Godchild/ የክርስትና ልጅ			09	Civil service/official/ የመንግስት ሰራተኛ ወይም የስራ ኃላፊ						
10	Grandchild/ የልጅ ልጅ			10	School teacher/መምህር						
11	Other relatives /ዘመድ			11	Trading/business/ ንግድ						
12	Non-relatives/ ዝምድና የሌለው ሌላ ሰው			12	Chief/village elder/ የአካባቢ ሽማግሌ ወይም መሪ						
				13	Unable to work due to illness/ በህመም ምክንያት መስራት የማይችል						
				14	Retired/elderly/ ጡረተኛ ወይም በእርጅና ምክንያት መስራት የማይችል						
				15	Child/student/ ህጻንበመሆኑ መስራት የማይችል						
				16	Other/specify/ ሌላ ካለይጠቀስ						

Part 2: Fertility information (for women)/ ውልደት ወይም አወላለድና ተዛማጅ ጉዳዮች (ለሴቶች)

2.1Are you currently married/ **አሁን አግብተሻል**? _____ (Yes/**አዎ**=1; No/**አይ**=2)

2.2 Do you have a child/children of your own/ **የራስሽ ልጅ ወይም ልጆች አሉሽ**? _____ (Yes/**አዎ**=1; No/**አይ**=2) (If *No*, skip to Q. 2.4/ **መልሱ *አይ* ከሆነ ወደ ጥያቄ ቁጥር 2.4 ይለፉ**)

2.3 Number of children born to the spouse(s) in this household/ **ከአንቺ ወይም አሁን ካለው ባለቤትሽ ወይም ከሁለታችሁም የተወለዱ ልጆች ቁጥር**_____

2.4 Do you or your spouse have a child/children not living with you (in another place or household)/ **አንቺ ወይም ባለቤትሽ አሁን ከናንተ ጋር አብረው የማይኖሩ ልጆች አላችሁ**? _____ (Yes/**አዎ**=1; No/**አይ**=2)

2.5 Has the household currently received a loan/ **ይህ ቤተሰብ በአሁኑ ሰዓት የተበደረው ገንዘብ አለ**? (Yes/**አዎ**=1; No/**አይ**=2) _____**(If response is 'No' go to Q. 2.9/ መልሱ *አይ* ከሆነ ወደ ጥያቄ ቁጥር 2.9 ይለፉ)**

2.6 Who received the loan/ **ብድሩ በማን ስም ነው የተሰጠው**? _____ (Female spouse/**በሚስት**=1; Male spouse/**በባል**=2; Both spouses jointly/**በሁለቱም**=3; Son/daughter/**በልጆች**=4)

2.7 What was the source of the loan/**ብድሩ የተገኘው ከምንድን ነው**? (Bank/**ባንክ**=1; MSE/**አነስተኛ የገንዘብ ቁጠባና ብድር ተቋም**=2; *Equb/እቁብ*=3; Private lender, relative/**ግለሰብ ወይም ዘመድ**=4; Other/**ሌላ**=5) (Specify/**ይጠቀስ**) _____

2.8 How much was the loan/**የብድሩ መጠን ምን ያክል ነው**? _____ (in birr)

2.9 Is the female spouse in this household currently working in any paid employment/**በአሁኑ ሰዓት አንቺ ደሞዝ ወይም ክፍያ የሚያስገኝ ስራ በመስራት ላይ ነሽ**? _____ (Yes/**አዎ**=1; No/**አይ**=2)

2.10 Is the male spouse in this household currently working in any paid employment/**በአሁኑ ሰዓት ባለቤትሽ ደሞዝ ወይም ክፍያ የሚያስገኝ ስራ በመስራት ላይ ነው**? _____ (Yes/**አዎ**=1; No/**አይ**=2)?

2.11 Is there any child or member other than spouses working for the household or help with any member of the household fulltime/**ከአንቺና ከባለቤትሽ ውጪ እዚህ ቤት ውስጥ ሙሉ ጊዜውን ለቤተሰቡ ስራ የሚሰራ ወይም እናንተን የሚያግዝ ሰው አለ**? (Yes/**አዎ**=1; No/**አይ**=2)

2.12 Do you want or have a plan to have a new child within the coming 3 years/**በሚቀጥሉት 3 ዓመታት ውስጥ ልጅ ለመውለድ ፍላጎት ወይም ዕቅድ አለሽ**? _____ (Yes/**አዎ**=1; No/**አይ**=2)

2.13 If your answer to (2.12) is *No*, why not/**ለጥያቄ ቁጥር 2.12 መልሱ *አይ* ከሆነ ለምን**? (For multiple answers, please put reasons in order of their importance/**ከአንድ በላይ ለሆነ መልስ ለምክንያቶችሽ በጥንካሬያቸው መሰረት የቅደም ተከተል ቁጥር አስቀምጭ**)

_____ I want to work to earn my family's living/ **የቤተሰቤን መሰረታዊ ፍላጎት ለማሟላት መስራት ስላለብኝ**

_____ I want to work first and have a child later on/ ***መጀመሪያ* መስራት አለብኝ፤ ከዚያ በኋላ እወልዳለሁ**

_____I already have enough number of children/ I don't need any more child/children/ **በቂ ልጆች ስላሉኝ**

_____ I don't have enough to feed them or to meet their needs/ **የምቀልባቸው ወይም የመስብሳቸው ስለሌለኝ**

_____ I am unable to have a child any more (due to health or other reasons)/ **በጤና ወይም በሌላ ምክንያት መውለድ ስላልቻልኩ**

_____ My partner doesn't want any more child/children/ **ባለቤቱ ወይም ጓደኛዬ ልጅ ወይም ተጨማሪ ልጅ ስለማይፈልግ**

_____ Other reasons (please specify)/ **በሌላ ምክንያት (ይጠቀስ)**

Using the following table, please tell us about your sociodemographic characteristics/**የማህበራዊና ስነ-ተዋልዶ ሁኔታ**

2.14 What was your age when you married your first husband/ **የመጀምሪያ ባልሽን ስታገቢ ዕድሜሽ ስንት ነበር**? **(Skip this if *No* to Q. 2.1/ለጥያቄ ቁጥር** 2.1 **የተሰጠው መልስ *አይ* ከሆነ ይህን ጥያቄ እለፈው)**	2.15 What was your age when you deliver your first child// **የመጀምሪያ ልጅሽን ስትወልጂ ዕድሜሽ ስንት ነበር**?? **(Skip this if *No* to Q. 2.2/ለጥያቄ ቁጥር** 2.2 **የተሰጠው መልስ *አይ* ከሆነ ይህን ጥያቄ እለፈው)**	2.16What was the highest grade you completed when married to your first husband/ **የመጀምሪያ ባልሽን ስታገቢ ስንተኛ ክፍል ነበርሽ**? (‘0’ if no schooling/**መደበኛ ትምህርት ካልገባች** 0 **ይጻፍ**) **(Skip this if *No* to Q. 2.1/ለጥያቄ ቁጥር** 2.1 **የተሰጠው መልስ *አይ* ከሆነ ይህን ጥያቄ እለፈው)**	2.17 What was the highest grade you completed when you delivered your first child/ **የመጀምሪያ ልጅሽን ስትወልጂ ስንተኛ ክፍል ነበርሽ**? (‘0’ if no schooling/**መደበኛ ትምህርት ካልገባች** 0 **ይጻፍ**) **(Skip this if *No* to Q. 2.2/ለጥያቄ ቁጥር** 2.2 **የተሰጠው መልስ *አይ* ከሆነ ይህን ጥያቄ እለፈው)**	2.18 What is the highest grade you completed currently/**በአሁኑ ሰዓት ስንተኛ ክፍል ደርሰሻል**? (‘0’ if no schooling/ **መደበኛ ትምህርት ካልገባች** 0 **ይጻፍ**)	2.19 What is the highest grade your husband has completed/ **በአሁኑ ሰዓት ባለቤትሽ ስንተኛ ክፍል ደርሷል**? (‘0’ if no schooling/**መደበኛ ትምህርት ካልገባ** 0 **ይጻፍ**)

Using the following table, please tell us about your sociodemographic characteristics/**የማህበራዊና ስነ-ተዋልዶ ሁኔታ** (... **ከላይ የቀጠለ**)

2.20 Have youever used any contraceptives since your first marriage/ **የመጀምሪያ ባልሽን ካገባሽ ጀምሮ የወሊድ መከላከያ ወስደሽ ተውቂያለሽ**? (Yes/**አዎ**=1; No/**አይ**=2) **(Skip this if *No* to Q. 2.1/ለጥያቄ ቁጥር** 2.1 **የተሰጠው መልስ *አይ* ከሆነ ይህን ጥያቄ እለፈው**	2.21 If ‘Yes’ to (2.20),what was the source/**ለጥያቄ ቁጥር** 2.20 **መልሱ አዎ ከሆነ የወሊድ መከላከያውን ከየት ነበር የምታገኝው**? (public health institutions/**ከመንግስት የጤና ተቋም**=1; private health institutions/**ከግል የጤና ተቋም** =2; LAI health institutions/**ከሰፋፊ እርሻዎች የጤና ተቋም**=3; NGOs/**መንግስታዊ ያልሆኑ ድርጅቶች**=4; Other/**ሌላ**=5)	2.22Was there any time when you wanted contraceptives but were unable find/**የወሊድ መከላከያ መድሃኒት ለመውሰድ ፈልገሽ መድሃኒቱን ያላገኘሽበት ጊዜ አለ**? (Yes/**አዎ**=1; No/**አይ**=2)	2.23 How long has it been since your last delivery (in years)/ **የመጨረሻውን ልጅሽን ከወለድሽ ስንት ዓመት ሆነሽ**? **(Skip this if *No* to Q. 2.2/ለጥያቄ ቁጥር** 2.2 **የተሰጠው መልስ *አይ* ከሆነ ይህን ጥያቄ እለፈው)**	2.24 Do you currently breast-feed/**በአሁኑ ሰዓት ጡት ታጠቢያለሽ**? (Yes/**አዎ**=1; No/**አይ**=2) **(Skip this if *No* to Q. 2.2/ለጥያቄ ቁጥር** 2.2 **የተሰጠው መልስ *አይ* ከሆነ ይህን ጥያቄ እለፈው)**	2.25 No. of school age children (ages>=5) who attended or are attending school/**እድሜያቸው 5 ዓመት የደረሱና ት/ቤት የገቡ ተማሪዎች ቁጥር**	
						No. of school age children(ages >=5)/ **እድሜያቸው 5 ዓመት የደረሱ ልጆች ቁጥር**	children who attended or are attending school/**ት/ ቤት የገቡ ልጆች ቁጥር**

2.26 Do you get family planning education/training from the nearby LAI/**በአካባቢያችሁ ካለው ሰፋፊ የእርሻ ድርጅት የቤተሰብ ምጣኔ ትምህርት ወይም ስልጠና ታገኛላችሁ?**(Yes/**አዎ**=1; No/**አይ**=2)

2.27 Do you get contraceptivesfrom the nearby LAI/ **/በአካባቢያችሁ ካለው ሰፋፊ የእርሻ ድርጅት የወሊድ መከላከያ መድሃኒት ታገኛላችሁ?**(Yes/**አዎ**=1; No/**አይ**=2)

2.28 Are you currently Pregnant/ **በአሁኑ ሰዓት እርጉዝ**? (Yes/**አዎ**=1; No/**አይ**=2)

2.29 Have you ever been employed by the LAI in the nearby/ **/በአካባቢያችሁ ባለው ሰፋፊ የእርሻ ድርጅት ተቀጥሮሽ ታውቂያለሽ**? (Yes/**አዎ**=1; No/**አይ**=2)