

ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

**DETERMINANTS OF FERTILITY PREFERENCES AMONG
CURRENTLY MARRIED WOMEN IN OROMIA REGION, ETHIOPIA**

BY

FUFA BULTO

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This is to certify that the thesis prepared by Fufa Bulto Gawi entitled: **“Determinants of Fertility Preferences among Currently Married Women in Oromia Region, Ethiopia** and submitted in partial fulfillment of the requirements for the degree of master of science in population studies (Reproductive Health) complies with the regulations of the university and meets the accepted standards with respect to the originality and quality.

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Acronyms

CI= Confidence Interval

CSA= Central Statistical Agency

EA= Enumeration Areas

EDHS= Ethiopian Demographic and Health Survey

EU= European Union

FGD= Focus Group Discussion

GIS= Geographic Information System

GTP= Growth and Transformation Plan

IMF= International Monetary Fund

KII= Key Informant Interview

MoFED= Ministry of Finance and Economic Development

SNNP= Southern Nations, Nationalities and Peoples State

SPSS= Statistical Package for Social Scientists

TFR= Total Fertility Rate

UN= United Nations

UNFPA= United Nations Fund for Population

WHO= World Health Organization

ABSTRACT

Fertility preference, for this study, is the intention of women for desire of women for more children, the preferred waiting time to the next birth and the ideal number of children. Fertility preference studies are significant as the actual fertility depends mostly on women`s preferences of fertility. However, there is limited study conducted about fertility preferences in Ethiopia so far. As a result this study is necessitated to be conducted. The objective of the study to explore factors that affect the women`s desire for more children, preferred waiting time to the next birth and the ideal number of children. Binary logistic regression model was fitted for all the three dependent variables against the selected variables of socio-economic, cultural, demographic, geographic, contraceptive and standardized decision making index. Controlling for the effect of others, according to the result obtained from logistic regression model, ethnicity, current age of women, current contraceptive use, number of living daughter and number of living son were found to have statistically significant effect on the preferred birth interval. Moreover, these variables also had associations with the desire for more children except ethnicity. Religion had also statistically significant association with the desire for more children. Standardized decision making index, education, number of living daughter, religion and place of residence were found to have significant effect on the ideal number of children. Factors which were found to have statistically significant effect on each dependent variable needs to receive attentions by concerned bodies to make women to prefer fertility reasonably.

Keywords: *birth, children, desire, fertility, ideal, preference, Oromia, women*

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Fertility in sub-Saharan Africa is more than double of the replacement level which was 4.6 births per woman though it was 2.5 in Southern Africa (equal to the world total fertility rate) in 2016 (Population Reference Bureau, 2016). Fertility is still highly valued in sub-Saharan Africa (Sennott and Yeatman, 2012). The reason for higher level of fertility in Ethiopia and other countries is because of high demand for children in agricultural sector, domestic household chore, old age security and replacement against anticipated death (Deneke, 2015; Wubegzier and Alemayehu, 2011; Ojaka, 2008). For example, Deneke indicated that large number of children is needed to support activities in agriculture in rural areas besides involving in household chores (fetching water and collecting fire wood). This high fertility in combination with declining mortality gave rise to high population growth; the ideal number of children is a standard indicator of life time fertility (Bongaarts and Casterline, 2013).

Knowledge about individual fertility ideals can be used as an input for both demographers and policy makers (Hinet *et al.*, 2011). Fertility preferences are analyzed for purposes to interpret past trends, to measure and understand future prospects and reproductive decision making (Bhrolcháin and Beaujouan, 2015). Bhrolcháin and Beaujouan indicated that fertility intentions are strong predictors of fertility as compared to other characteristics. Fertility preferences are indispensable measures of fertility besides calculating levels of unwanted fertility and assessing the role of contraceptive in fertility regulation (Sennott and Yeatman, 2012; Masoud, 2009). However, these authors suggested that preferences of fertility are changing over time because of changes in the level of socio-cultural and economic development. In sub-Saharan Africa, it was found out higher prevalence of unrealized fertility among women at the end of their reproductive careers than in the other regions because of high level of actual fertility (Casterline and Han, 2017). The desire for more children will be strong only when children are psychologically, socially and economically valuable (Teller and Assefa, 2011).

Fertility study, in the current situation where mortality is declining, is an important component to resolve the problem of rapid population growth leading to rising demand for scarce resources in

developing countries (Khan and Bari, 2014). The desire to have another child, the preferred waiting time to the next birth and the ideal number of children needed are among fertility preference studies to mention (CSA and ICF International 2012). The desire to stop childbearing in Ethiopia was 32 percent in 2000 which then increased to 42 percent in 2005 but declined to 37 percent in 2011. It was 36 percent in 2016 (CSA and ICF, 2017). This implies that there is no consistent increase or decline over survey periods. The desire to limit child bearing for Oromia region was 29.9 percent in 2000 but increased to 40.3 percent in 2016. In Ethiopia, the ideal family size needed as reported by all women of reproductive age was 5.3 children in 2000 and then declined to 4.5 children in 2005 and to 4.3 children in 2011 but raised a little to 4.5 children in 2016 (CSA and ICF, 2017). The proportion of women who preferred to have births in less than 2 years time among currently married women in Ethiopia had not shown much, but irregular, change and it was 22.3 percent in 2000 (CSA and ORC Macro, 2001), 16.1 percent in 2005 (CSA and ORC Macro, 2006), 16.6 percent in 2011(CSA and ICF International, 2012) and 17.5 percent in 2016 (CSA and ICF, 2017).

Ethiopia had Total Fertility Rate (TFR) of about 5.2 in 1960, 6.6 in 1990, 7.7 in 1993, 5.5 in 2000, 5.4 in 2005, 4.8 in 2011 and 4.6 in 2016 (Teller and Assefa, 2011; CSA and ICF International, 2012; Office of Prime Minister, 1993; CSA and ICF, 2017) implying the country's high fertility by world and African standard. Ethiopia's TFR is projected to reach 3.99 in 2020, 3.11 in 2030, 2.28 in 2050 and 1.79 in 2100 in the medium variant projection (UN, 2015). Here, the ideal number of children is less than the actual TFR which implies that women in this country can play a role to reduce fertility level if conditions they need is fulfilled. However, in developed countries, fertility preference is higher than the actual fertility though generally lower as compared to developing countries' situation (Basten and Gu, 2013). Even though actual fertility is directly related to fertility preference (Bongaarts and Casterline, 2013), there is a failure in implementation of unwanted fertility into reality based on women's preference in Nigeria (Ibisomi, 2011).

Older women consider more children to be ideal than younger women. Women in the first reproductive age group (15-19) consider ideal family size to be 3.3 children while women in the age range 45-49 consider 5.7 children to be ideal(CSA and ICF International, 2012). CSA and ICF International (2012) and CSA and ICF (2017) reveals that variation is also observed in urban

and rural areas where the size in the rural area is in excess by 1 child than those in rural Ethiopia. According to CSA and ICF international (2012) and CSA and ICF (2017) among regions, lower ideal family size is demanded in Addis Ababa being 3.3 children in 2011 and 3.6 children in 2016 as compared to the large ideal family size demand of 9.7 children in 2011 and 10.6 children in 2016 in the Somali region. The ideal number of children in Oromia in 2011 was 4.3 but dropped to 4.1 in 2016. The ideal number of children demanded varies and is also affected by level of education, wealth quintile, residence, parity, age, region, etc (CSA and ICF International, 2012; Teller and Assefa, 2011; CSA and ICF, 2017). Contraceptive prevalence rate in Ethiopia was 8.3% in 1990 which increased to 15.8% in 2000, 29% in 2011 and 35.6% in 2016 (Teller and Assefa, 2011; CSA and ICF, 2016). Contraceptive use has an effect in determining the time and number of birth couples can have (Bankole and Audam, 2011). In Kenya TFR was 4.6 in 2008; 39% of the currently married women that time were using contraceptive method; 49 % of married women need no more children and the mean ideal number of children for the then currently married women was 4 where unmet need was 26% (Babalola *et al.*, 2015).

1.2 Statement of the Problem

Ethiopia had planned to reduce TFR to 4 in 2015 (Office of the Prime Minister, 1993) but the result was found to be 4.6 in 2016 (CSA and ICF, 2017). High population growth rates of over 2.6% per year, shock in weather conditions and environmental degradation have caused Ethiopia's continuous food insecurity and malnutrition over the last three decades (Teller and Assefa, 2011). Every year large number of individuals enter the labour force but Ethiopian market cannot accommodate newly entrant population into labour force as the population growth rate, though declining, is still high (Yared *et al.*, 2016). This high population growth rate becomes the major obstacle for poverty reduction and it also creates pressure on resource base and economy of the country by deteriorating health, reducing quality in education, exacerbating poverty, food insecurity and environmental degradation (MoFED, 2006). On the other hand, the government of Ethiopia has shown the benefit the country can earn from the nature of current demographics which is quoted as "When the pool of economically active members of the population increases in size, provide that they receive the support necessary to be productive, the country's work force plays in increased economic growth and development. For this reason

economic growth and development benefits from the opportunity presented by the nature of Ethiopian demographics” (MoFED and IMF, 2011).

Women and youth account for the dominant majority of the entire population in Ethiopia (National Planning Commission, 2016). Ethiopia is a country of rapid population growth, large size, young age structure, uneven geographic distribution and slow declining growth rate (MoFED, 2006; Teller and Assefa., 2011). The high fertility and thereby rapid population growth in Ethiopia is mainly attributed to early marriage and limits to the use of fertility control (Teller and Assefa, 2011). The desire for children is high at above replacement level though it is below the actual fertility (MoFED, 2006). Next to India, Nigeria, Pakistan, and Democratic Republic of Congo, Ethiopia is projected to be the fifth population increase contributor between 2015 and 2050 in the World (UN, 2015).

Fertility desire is an important predictor of levels of fertility (DaVanzo *et al.*, 2003). Moreover, Bloom and Canning (2004) and Prince (1996) indicated that the high fertility rates in sub-Saharan Africa, Ethiopia is included, are because of peoples` demand to have larger children than high levels of unmet need of contraceptive use. Even if fertility ideals might not adequately predict actual fertility levels, study about it may tell us directional trends (Hinet *et al.*, 2011). There are about two sources of bias in studying fertility preferences: non response (up to God, Allah or do not know) and superficial or rationalization (women may be reluctant to give ideal family size smaller than her current actual fertility) (Bongaarts, 1990; Bhrolcháin and Beaujouan, 2015). Rationalization and non response bias are common among old women than the younger ones (Bongaarts and Casterline, 2013).

Inadequate, untimely and lack of standard research on population and development to be used for population policies are the reasons for the challenges faced in the first Growth and Transformation Plan (GTP1) as cited by the Ethiopian Government (National Planning Commission, 2016). Literatures indicated that fertility preference, being a determinant factor of actual fertility as for example shown by Yohannes *et al.*, (2004), studies are limited in Ethiopia and Oromia region too. Study conducted in rural Southern Ethiopia, Butajira, tried to assess the effect of child mortality and fertility preferences on actual fertility (Yohannes *et al.*, 2004). Other study also tried to see the effect of the use of contraceptive method on fertility preferences in

Ethiopia (Bankole and Audam, 2011). Study conducted in Jimma, focused on spousal discordance on the desire for no more children and its effects to the use of family planning method (Tizitaet *et al.*, 2014). Suzan *et al.*, (2014) also tried to assess the effects of family planning use in Ethiopia, after child birth, on the desire to limit family size. Hence, there is no similar research conducted in Ethiopia with this one having the same contents, controlled independent variables, and scope of study. This study, therefore, tries to fill the gap on the lack of fertility preference studies. Fertility preferences for this study include the ideal family size, the desire for more children and the preferred waiting time to the next birth as revealed in CSA and ICF International (2012).

1.3 Objective of the Study

1.3.1 General Objective

The general objective of the research is to assess factors that affect fertility preferences among currently married women in Oromia region.

1.3.2 Specific Objectives

The specific objectives of the study are:

- A. To examine socio-cultural, economic, geographic, and demographic factors affecting the ideal number of children, the preferred birth interval and the desire for more children among currently married women in Oromia region.
- B. To explore the effect of contraception on the preferred birth interval and desire for more children among currently married women in Oromia region.

1.4 Hypotheses of the Study

The hypotheses that have been set for this study are.

- A) Larger ideal number of children is positively associated with women with low level of education, residing in rural areas, non working and followers of Islamic religion.
- B) Women not participating in decision making power, residing in rural areas and not using family planning methods prefer short ideal waiting time to the next birth.
- C) Old women, women with higher number of living children and early age at first marriage and, women with professional work do not want to desire more children.
- D) Women experienced child loss need higher ideal number of children.

1.5 Significance of the Study

This study is important for policy makers, researchers and planners as fertility preference can have strong relations with the total fertility rate since couples try to convert fertility preferences in to reality. Though the study relies on cross-sectional data, it signals an echo about the relationships between dependent and independent variables. Government bodies can understand the types of characteristics of women responsible for higher ideal family size, shorter preferred birth interval and the desire for more children. This may, therefore; help policy makers and planners to give attentions to change attitudes of women, in the future, to help women to have their choices reasonably. Besides, any concerned body that is to make better harmony of population-development nexus is expected to use this analytical finding as a baseline for successful implementation of its policy, plan or program. Researchers can also make use of the findings of this study for further studies on the gaps of the remaining fertility preference variables. The main reason to conduct this study in Oromia region is that the region is the home of diversities and availability of large sample size. So studying about the region can have meaningful effect on the country as well.

1.6 Limitation and Scope of the Study

The study is based on subjective measurement of fertility preferences that currently married women would like to decide and hence the study is oriented towards attitudinal analyses where respondents can change their stand about fertility preferences in the course of time. There are also considerable proportion of non numerical missing values which may pose influence for statistical analyses and interpretation. The data source is also limited to cross-sectional study that indicates, weak causation, effects of the independent variables on dependent variables. The reason for cross-sectional studies inability to lead causation is that there is no indication in time sequence of events (WHO, 2006). This study is also limited to Oromia region of the nine regions found in Ethiopia.

CHAPTER TWO

LITERATURE REVIEW

2.1 Theories of Values of Children

The values of children, as studies conducted by Friedman and colleagues (1994), are primarily important for the capacity to reduce uncertainty for household and to enhance marital solidarity between couples; parents` desire for children has been decreasing because of changes in norms, and preferences and shifts in economic constraints that posed costs on rearing children. Lai (2012) also revealed that rearing of children has costs, being direct (costs on food, health, clothing, education and shelter) and indirect being loss of freedom, worries on health, safety, ability, qualities of children and the opportunity costs of mothers in rearing children. Fertility decline theory, on the other hand, explains that the demand for children is of cultural rather than availability or knowledge of fertility regulation (Mason, 1992). In developing countries higher fertility ideals may be expected since parents derive economic benefit from their children (Vlassoff M., 1984). Economic theory states that fertility should be negatively related to income as child rearing takes time and hence more expensive for parents with higher wages; higher-wage people demand super child quality, making quantity more costly to invest on quality, and hence those parents prefer fewer children (Jones *et al.*, 2008).

Children in most developing countries are also considered as old age security where in the absence of social welfare institutions such as social security systems, unemployment insurance, free health care, nursing home and others are supposed to be provided to elders by children (Nauck, 2014). Moreover, children are valued as they bind husband and wife together (Hoffman *et al.*, 1978). Based on conventional demographic theory, high fertility in the early stages of the demographic transition is the result of high level of desired family size (Bongarts and Casterline, 2013). In line with this, Caldwell (1982) stated in his wealth flow theory that unless economic and social flow of wealth from children to parents decline, the demand for larger number of children by parents in developing countries continue to exist at a stable pattern.

Preference theory proposed by Catherine Hakim, as indicated by Vitali and colleagues (2009), showed associations of women`s lifestyle preferences and actual fertility in many European countries under different regimes. Study results showed that family-oriented women are the most

fertile, while work-oriented women are the least fertile if compared to other women pursuing different life style preferences. This result was without controlling for other variables. Life style preferences also affect fertility intentions in Denmark and England though it is insignificant for other European countries according to this source.

2.2 Socio- Economic and Cultural Factors

Socio-economic and cultural factors, among others, may affect fertility preferences of women (Kodzi, 2009). Economic, social, and religious factors may affect desired family size (Masoud, 2009). Education and religion are factors that have affected fertility preferences in Ethiopia (Suzan *et al.*, 2014). Cultural factors can affect the fertility preferences (Phan, 2016).

2.2.1 Education

Female education has consistently been found to be an important determinant affecting their fertility decision-making (Phan, 2016). Rising level of education leads parents to desire for smaller number of children and actual fertility (Bongaarts *et al.*, 2013; Wubegzier and Alemayehu, 2011; Anteneh, 2015 and Deneke, 2015; Khan and Bari., 2014). According to Phan (2016) higher level of women`s education leads to less available time for fertility thus reducing potential time for reproduction.

According to Dixon (1993) education reduces fertility in four ways. Firstly, in societies where sexual contact beyond marriage is low, the time spent for education increases age at marriage and also increases the probability of non marriage. Secondly, married couples aspire higher opportunities for their children and thus reduce the desire for large families. Thirdly, education may make couples to be apart from each other to undergo activities. Fourth, education increases knowledge about the use of family planning by couples to achieve the desired family size. According to Phan (2016) and Bongaarts (2003) increasing levels of education by women is also found to be a determinant for lower fertility preference. Larsen and Marida(2003) suggest that fertility preference is determined only by women`s education as compared to men`s education. According to Anteneh (2015), highly educated women have the capacity to implement their fertility preferences including their higher degree of decision making power, better access to information about fertility regulation as well as cooperation from their husbands.

The desire for more children increases with increasing number of women with no education (Rajan, 2014; Oyediran, 2005). This result was in contrary to the study conducted in Bangladesh (Alamet *et al.*, 2013). However, there is no effect of education on the desire for more children in Philippines (Aniceto and Orbeta, 2005). Fewer ideal numbers of children are desired by women with low level of education (Maytan, 2014). A study conducted in Southern Ethiopia showed that mothers with no education and primary education bear child in short birth interval (Samuel *et al.*, 2011; Desta and Teklemariam., 2016). However the result contradicts with study conducted in Bangladesh because of the late marriage of the women who tried hurriedly to get child (Jongeet *et al.*, 2014).

2.2.2 Religion

In traditional societies, the number of children to be born is decided by the extended families or by the husbands where child values are maximized by neglecting child costs and benefits; women who have larger number of children receive great reputation where religiosity has the direct influence on it (Masoud, 2009). Phan (2016) declared that Muslim societies prefer to have more children than Christians; cultural factors can affect the number of children women desire to have in their life time. Fertility preferences can be shaped by the fertility norms reflected in different religious groups though their roles seem to be diminished in the changing socio-economic activities (Mishra and Parasnis, 2013).

In Ethiopia other Christian faith followers and Muslims have higher fertility than Orthodox Christians (Teller and Assefa, 2011). There is strong association between high scores of religious beliefs and the ideal number of children, shorter time interval between marriage and birth of the first child (Khadivzade and Arghavani, 2014). In Nigeria, Muslims desire to stop child bearing than Christian counter parts (Oyediran, 2005). A study undergone in Bangladesh indicated that Muslim women tended to have shorter birth interval than other believers though religion is thought by many as non significant contributor of effects on the length of birth interval (Ahabet *et al.*, 2013).

2.2.3 Ethnicity

Ethnicity plays an important role for the determination of fertility and the use of contraceptive in Malawi (Palamuleni, 2014). According to Palamuleni, without controlling for other variables,

some ethnic groups are positively related while most are negatively related to fertility. Beginning of fertility decline varies with ethnic groups where some begin to reduce fertility earlier than some others. Minority ethnic groups demand large ideal number of children than the major ethnic group (Han) as study in China reveals (Basten and Gu, 2013). A study conducted in Iran showed that ethnicity does not have any relations with birth spacing because of similar religion that all ethnic groups share in common (Rasekh and Momtaz, 2007). Ethnicity affects fertility preferences as study undergone in Pakistan shows. The reason for the variation is attributed to intention differences by the ethnic groups in the utilization of family planning methods (Muhammad, 1996).

2.2.4 Women Empowerment

Empowerment is “the expansion of people’s ability to make strategic life choices in a context where this ability was previously denied to them” (Kabeer, 2001). The degree of women’s freedom for reproductive decision making may be affected by aspects like freedom of movement, their decision making ability to visit relatives, their communication about fertility regulation with partner, and their access to and control over resources (Gebremariam, 2007). Participation of women in household decision making is the most commonly used measure of empowerment of women (Study undergone in Southwest Nigeria showed that women’s health care decision rests mainly on husband as male dominance is supported by the culture of the society (Azuhet *et al.*, 2015). In traditional and patriarchal society women, study undergone in Iran, fail to undergo independent decisions including in household matters until their old-age (Hassan *et al.*, 2015). This study result is also supported by Stein *et al.*, (2014) where males impose their interests on women to the desires in having large family size through their breadwinner power.

According to Gebremariam women’s decision making power is the most important measure of women’s fertility preferences, particularly for sub-Saharan Africa where Ethiopia is included. In the 18 articles examined by Upadhyayet *al.* (2014), at least some variables of all articles reviewed shows positive associations between women empowerment and the ability to make fertility decisions; there was also a positive, negative and non significant association between women empowerment and ideal family size in another 7 studies. For at least some variables there was an inverse, though most show insignificant, relationship between the desire for more children and women empowerment in another 7 studies as Upadhyay and others’ reviews

disclosed. In their other three reviews strong decision making power of women was associated with long birth interval.

Increasing children results in decreasing health care decision making power of women as study conducted in Southern Ethiopia revealed (Mihiretu and Mengistu, 2017). According to study conducted in Jimma, Ethiopia, there is a substantial difference between husband and wife regarding the desire for fertility (Tizitaet *al.*, 2014). In sub-Saharan Africa the ideal number of children and desire for more children is higher for men than women (Bankole and Audam, 2011). According to Bankole and Audam, for this region, there is about 9% to 35% difference in the desire for more children between couples; disagreements on timing for the next child in less than 2 years and above also ranges between 18% and 39% among couples where husbands need the next child sooner. For this study, women`s household decision making status like decision for health care, large household purchase, controlling on husband`s earnings and the decision to visit relatives. The combination where in all four cases a woman passes decision either alone or jointly will be considered as a high level of empowerment otherwise not ((Upadhyay and Karasek, 2012). When women`s status is low, there would be a tendency of large family size, which makes it more difficult for families to improve their livelihood conditions. Hence to reverse this result, empowering women expands the power to decide which then will be responsible for managing fertility (Ojo and Adesina, 2014

2.2.5 Wealth Status

Economic factors like job, food shortage and housing conditions are important determinants of fertility preferences as study conducted in Malawi showed (Sennott and Yeatman, 2012). In Ethiopia fertility was found to be higher among women of low household food security though it is hard to find the cause and the effect of the two food shortage and high fertility nexus (Wubegzier, 2011). High income households have large number of children than those of low income households but income is inversely proportional to fertility preferences (Masoud, 2009). Increasing wealth increases level of fertility when educational capital is minimal but inversely/negatively associated with fertility when educational capital is highly supplied (Colleran et al., 2015).

A research undergone in Philippines showed that the poorest women demand fewer children than the women from richer households with additional effects that are increasing as one goes lower the wealth ladder (Aniceto and Orbeta, 2005). Mothers with poorest wealth index background have shorter birth interval than those of richest groups, the result is in contrary to a study conducted in Lemo district in Ethiopia (Desta and Teklemariam, 2016). The positive association of short birth interval with poor family was also documented (Abdel-Fattah et al., 2007). Wealth index affects ideal family size negatively in Pakistan (Khan and Bari, 2014). According to Maytan (2014) wealth index is significant where the third quintile prefer fewer children when fertility and women empowerment are controlled otherwise insignificant where there are only demographic variables included in to the model. A study conducted in Egypt showed that there was a positive correlation between wealth index score and the desire for more children (Mansour, 2015).

2.2.6 Work Status

According to Phan (2016) for employed women the opportunity cost of rearing children is higher than working. This is because, child care and cost of raising children is higher and maternal leave is small in anti natalist countries; thus, employed women try to delay their child bearing or prefer to have fewer children. According to Deneke (2015) households engaged in agriculture in Damotwoyde (South Ethiopia) have high fertility of about 6 children per woman as compared to the office employed and trader woman having as half size children as those engaged in agricultural activities where house wives are mostly engaging in household domestic chore.

However, women in non agricultural sector have higher fertility than those without job (Anteneh, 2015). It is related to lack of income for jobless to up bring children, Increasing women`s participation in the wage labour market challenges child rearing since resource and time available to support children is lacking (Masoud, 2009). Moreover, Salami and Oladosu (2014) found out negative relations of work and fertility preferences in Nigeria. In Malawi, employment has contributed to delay the subsequent child bearing (SennottYeatman, 2012). Employed women have longer birth spacing than non employed women in Bangladesh and Saudi Arabia as well (Ahbabet *et al.*, 2013; Abdel-Fattah *et al.*, 2007).

2.3 Demographic Factors

Age: old respondents are more likely to have a lower ideal number of children than younger ones (Liefbroer, 2009). In contrary to this, Masoud (2009) declared that younger generations desire to have fewer children than older generations. This is because; generations aspire to decline their fertility over time (Gebremariam, 2007). A study conducted in Niger reveals, however; that current age is only slightly related with woman's ideal number of children (Maytan, 2014). Current age of couples has negatively related to the preference for additional children (Oyediran, 2005; Wachira, 2001). Declining in TFR in Southeast Asian women was associated with increasing age at first marriage (Phan, 2016). As age increases, the desire for more children decreases in Bangladesh and Indonesia (Alam et al., 2013; Mellissa et al., 2010). The proportion of women practicing short birth interval decreases and the length of birth spacing increases with increasing age in Southern Ethiopia (Samuel et al., 2011).

2.3.1 Number of living Children

Women with children in Ethiopia desire to stop child birth which increases with increasing number of children; the mean ideal number of children increases with increasing number of living children (Susuman et al., 2014). Moreover, study undergone in Kenya showed that increasing number of living children significantly affected fertility preferences (Wachira, 2001). In Ethiopia the proportion of women to stop child bearing is increasing with increasing number of living children of 4 and above (Teller and Assefa, 2011). Moreover, increasing number of living children decreases the desire for more children in Indonesia (Mellissa et al., 2010). However, a study undergone in Southern Ethiopia showed that desire for more children was not associated with increasing fertility (Yohannis et al., 2004). The desire to length of child bearing for the next birth is inversely related to the number of living children in Malawi (Sennott et al., 2012). The less the number of living children, the less the length of birth spacing and vice versa as study in Saudi Arabia indicated (Abdel-Fattah et al., 2007). Both men and women aspired to limit to two to three children in India to reduce expenses related to care-taking, to provide adequate food, shelter, education, and opportunities to succeed (Rimal, 2015).

2.3.2 Child Loss Experience

Child mortality in Ethiopia in 2000 was 77 per thousand live births (CSA et al., 2001) and it was reduced to 31 in 2011 (CSA and ICF International, 2012). It has further reduced to 20 deaths per thousand live births in 2016 (CSA and ICF, 2017). High child mortality leads parents to demand for additional children to replace against losses (Bongaarts and Casterline, 2013; Phan, 2016). A study conducted in rural area of Southern Ethiopia also shows that mother who experienced child death has a tendency to increase level of fertility (Yohannis et al., 2004; Wubegzier and Alemayehu, 2011; Anteneh, 2015). Fertility preferences are also high in high child mortality areas for insurance and replacement effect since parents anticipate death occurrences to some of currently living children (Wubegzier and Alemayehu, 2011). The death of child leads to shorter birth interval through psychological reasons (stoppage of lactation) and supply effect (expectation of another death and replacement for the already died child) (Ojakaa, 2008; Abdel-Fattah et al., 2007).

2.3.3 Ideal Family Size, Desire for More Children and Preferred Birth Interval:

Where the demand for children is higher, there are shorter birth intervals (Ojakaa, 2008). Phan (2016) indicated that desired family size is the total ideal number of children a woman intends to have in her life time fertility which affects the actual fertility. Fertility is modeled in terms of the desired number of children a woman would like to have by concentrating on fertility preferences (Mishra, 2014). A research conducted in EU indicated that only 43% have managed to achieve their fertility desires where about 41% achieved fewer than desired (but some are still in the reproductive age) where as about 6% goes for those who responded “do not know” (Rita, 2006).

The ideal number of children in European Union (EU) is greater than the actual total fertility rate as Rita explained. Individual fertility preferences showed fluctuations overtime based on a panel survey undergone 8 times from 1998 to 2003 in Ghana (Kodzi, 2010). Masoud (2009) relates high fertility, which resulted from high demand for ideal number of children, with fear of population death because of war at West Bank and baby boom after Second World War in Europe and North America. In sub-Saharan Africa the desire for more children is higher for men than women. Stoppage about the desire for more children is mostly observed either when the ideal family size is achieved or based on the socio-economic or reproductive conditions at the

time of decision making (Kodzi, 2010). Kodzi confirmed that women, in Ghana, who have not achieved ideal family size attempt to be pregnant soon. Short birth interval has negative economic and health impacts on the father, child, mother and the family in general (Destae *et al.*, 2016). Ideal number of children affects birth interval because women prefer short birth interval when their ideal number of children are large and viseversa in developing countries (Abdel-Fettah *et al.*, 2007). According to CSA *et al.* (2016), the average ideal number of children was 4.5 children, the intended waiting time for the next birth within 2 years was 17.5% and the desire for no children was 36% in Ethiopia. The desire for no more children was 40% and the ideal number of children being 4.1 in Oromia. The total fertility rate in Oromia was 5.4 in 2016, which is above the national average of 4.6. Oromia`s total fertility rate was the third highest next to Somali and Afar.

2.3.4 Age at First Marriage

The median age at first marriage for women aged 25-49 in 2000 was 16 years which when disaggregated gives rise to 16.9 years for urban and 15.9 years for rural (CSA and ORC Macro, 2001). The median age at first marriage among women age 25-49 in Ethiopia was 16.5 years in 2011 (CSA and ICF International, 2012). It was 18.1 years for urban and 16.3 years for rural women in the country. In 2016 the median age at first marriage for the same age group became 17.1years (CSA and ICF, 2017).

A woman to whom early marriage happens has a probability of having many children if they start giving birth in teen age (Wubegzier and Alemayehu, 2011; Anteneh, 2015). Age at marriage is determined by cultural norms being in the teen range in traditional societies (Masoud, 2009). Women with long and medium durations of marriage were less likely, by 3.27 and 2.11 times respectively, than women with short duration of marriage to desire for more children (Susuman *et al.*, 2014). Age at marriage is an indispensable factor affecting fertility in a low level utilization of family planning programs in countries like Ethiopia (Yohannis and Alemayehu, 2004). A study conducted in Saudi Arabia indicated that age at first marriage and duration of marriage are the most significant factor affecting fertility behavior (Khraif, 2001). The recent decline in fertility in Ethiopia is parts due to increasing age at first marriage and contraceptive use (Teller and Assefa, 2011). In Bangladesh, the desire for no more children is higher for women married

before age 18 (Alamet *al.*, 2013). This might be because of the ample time available to achieve their desired family size early at their reproductive age.

2.4 Place of Residence

In Ethiopia, according to CSA and ICF (2017), TFR varies between rural and urban areas where in the former it has declined from 6 children in 2000 to 5.2 children in 2016. In urban place of residence, TFR has reduced from 3 to 2.3 children per women over the same period. In Ethiopia, mean ideal number of children in urban areas was 3.8 in 2016; it was 4.6 in rural areas. The desire to limit child bearing was 30% for urban and 38% for rural areas. Women in rural areas in Butajira (South Ethiopia) have 1.3 times more children than urban areas (Wubegzier and Alemayehu, 2011). The reason for having less number of children in urban areas, according to Wubegzier and Alemayehu is the use of family planning and positive attitude towards smaller family size because of better services, knowledge and better access to media. Moustafa (1988) and Gebremariam (2007) also showed evidence that urban women have lower TFR performance and fertility preferences than women of rural areas. However study conducted in Pakistan Showed that place of residence has no effect on ideal number of children (Khan and Bari, 2014). A study undergone in Southern Ethiopia showed that women of rural settlers were 2.66 times more likely than urban dwellers to practice birth interval length less than 3 years (Samuel *et al.*, 2011).

2.5 Contraceptive Use

Family planning is used for delaying birth or the first birth and stop child bearing when the desired family size is achieved (Ojaka, 2008). Child preference declines with increasing development which also leads to reduced actual fertility due to implementation of fertility regulation (Bongaarts and Casterline, 2013). The authors indicated that in order to achieve their intended levels of fertility, sexually active women who are in the reproductive age must use contraception and/or undergo abortion to prevent unplanned pregnancies.

However, substantial numbers of women in developing countries who do not want to get child are not using contraception. The reason being; lack of knowledge about the sources of supply and use of method; poor quality and lack or limited availability (cost of method, services, travel, and time); side effects; husbands' disagreements; and other psychological and social issues

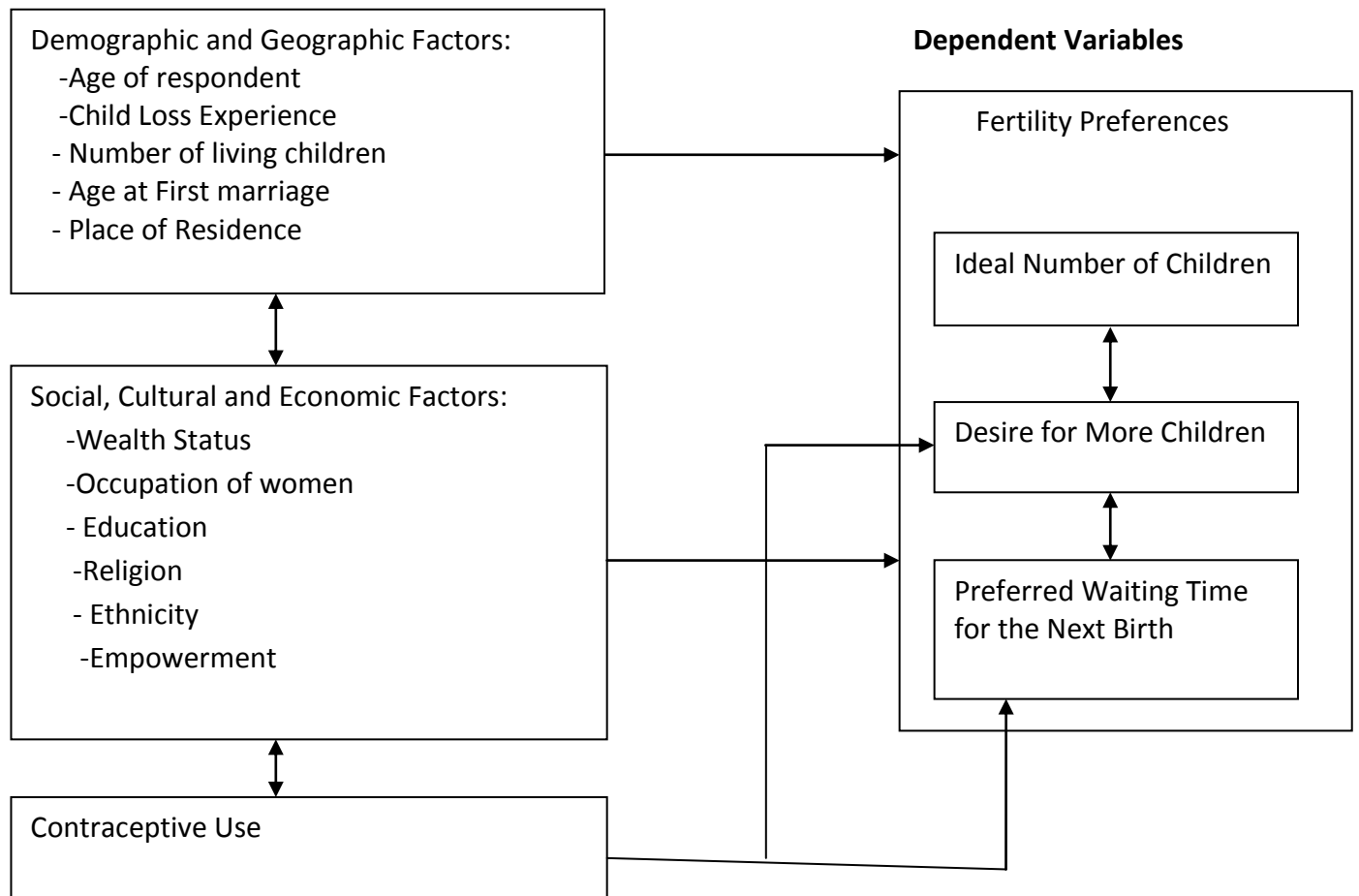
(Cleland, 2006). Contraceptives can help women to decide the number and time they want to have children (Phan, 2016). The low level of contraceptive use and high fertility in Nigeria shows high fertility preferences (Babalola *et al.*, 2015). Mothers who use any method of family planning services have longer durations of birth interval than those who have not used as study in Bangladesh confirms (Ahbabet *et al.*, 2013).

2.6 Analytical Framework

Occupation, education, marital status, family income, place of residence, region of residence and other cultural variables are among the known fertility determinants (Deneke, 2015; CSA and ICF International., 2012; Anteneh, 2015). Level of socio-economic development can have a significant influence on desired family size. It may radically alter the demand for children by couples and shift their preferences from having large families to having optimum small and moderate sized ones. According to the above noted authors both couples have equal chance of deciding the number of children. Fertility preferences in Ethiopia vary based on women's socio-economic, demographic, and cultural backgrounds (Susumanet *et al.*, 2014). The same source showed that 38 % of women in Ethiopia wait at least two years before getting the next child. Contraceptive use plays a vital role converting the ideal family size into actual family size (Bankole and Audam, 2011). The socio-economic, demographic and cultural factors are responsible for the level of occurrences of fertility preferences. The ideal number of children affects the preferred birth spacing and the desire for more children. The desire for more children also affects the preferred birth interval. The link between the dependent and independent variables are shown diagrammatically as follows.

Fig 2.1: Analytical framework

Predictor Variables



Source: Derived from empirical findings

CHAPTER THREE

DESCRIPTION OF THE STUDY AREA AND RESEARCH METHODOLOGY

This study mainly employed quantitative research approach. The study design employed is cross-sectional/correlational. The qualitative research approach was also adopted to support the main findings of the quantitative analyses. The study is based on EDHS dataset of Oromia Region, Ethiopia.

3.1 Description of the Study Area: Oromia Region

Oromia is one of the 9 ethnically based federal regions of dominant Oromo lineage and the Eastern Cushitic family of Afro Asiatic phylum speaking Afan Oromo language (Jeylan, 2004). Nearly 88% of the total population of Oromia are from ethnic Oromo, ethnic Amhara constitute about 7.2% and the remaining share goes to other 82 different ethnic groups found in Ethiopia (CSA, 2010).

3.1.1 Gada System and Oromo

Oromos are from Cushitic people living in the Horn of Africa, mostly in Ethiopia and Kenya. Oromia is a home of very attractive political and cultural center that had been governed by Gada System in the past before its collapse. Oromos had been governed by Gada system- the most democratic institution in the world giving power, to the people, not to the governors. Every political and economic institution was used to be guided by Gada system. Oromos developed calendar which helped them to know the day and month simply by looking at the position of stars. In Gada system, every Oromo has a legally designated power to practice with 8 years longevity from the onset of birth to over 10 decades: chronological grades (Geda, 1988; Asmarom, 1973). In Gada system, marriage for male is taken place between 25 and 32 years of age and fatherhood is expected after age 32 though it is earlier for female (Geremew, 2012).

3.1.2 Economy and Livelihood

Oromia region, like other regions in the country, is the home of majority of population engaged in farming and animal husbandry which is lagging behind in terms of progressing forward into secondary and tertiary economic activities. In some parts of the region, cattle-rearing is still the

main occupation of rural communities. Relatively, Oromia has favorable climate and fertile soil to grow crops either twice from the same field or once a year. These crops are cereals (wheat, barley, *teff*, sorghum, corn, millet, etc.), fiber crops (cotton), root crops (potato, sweet potato, yam, inset, *anchote*, etc.), pulses (peas, beans, chick-peas, lentils, etc.), oil crops (*nugi*, flax, etc.), fruit trees (orange, mango, avocado, banana, lemon, pineapple, peach, etc.), spices (onion, garlic, coriander, ginger, etc. - coriander and ginger also grow wild) and a variety of vegetables like okra. Oromia is also the home of coffee (www.gadaa.com/theeconomy.html, accessed on March, 2018).

3.1.3 Geography

The region is the largest in area in the country and is sharing boundaries with SNNP, Gambella, BenishangulGumuz, Sudan (international boundry), Amhara, Afar, Harari, Somali and Kenya(international boundry). Oromia has four river basins: Awash, Abay, Genale and Gibe. The region has low altitude in Eastern, South and south eastern areas. However, in some areas in Arsi, Bale and Shewa the region has altitudes rise above 3000 meters above mean sea level (CSA et al., 2011). Oromia region is located between 3⁰ N to 12⁰ N latitude and 38⁰ E to 48⁰ E longitude.

3.1.4 Demographic Characteristics of the region

Oromia region had 27 million (12% urban-least urbanized as it was below 16% national average) in 2007 and expected to reach 42.7 (19% urban) million in 2025. In 2007, based on source computed using CSA data, population under age 15 was 47%. The proportion of population under 15 in rural areas of all rural dwellers was 48%. The value is, however, 36% in urban areas indicating fewer proportions as compared to rural areas. Population ≥ 65 years was around 3% for each. The dependency ratio for the region was 101% in 2007. But when the data is disaggregated in to place of residence, dependency ratio for urban dwellers was 65% indicating 65 persons dependent on 100 persons. Dependency ratio for rural dwellers was 107% indicating 107 persons` dependence on 100 persons. From this result, one can understand that one person is needed to help more than one dependent person which is problematic. The high dependency ratio in rural areas was due to high level of fertility (CSA, 2013).

Table 3.1: Dependency ratio of Oromia population for two different points

year	Total population		Total Dependent Population (000s)						Total = Urban + Rural
			Young (<15)		Old (≥65)		Total		
	Urban	Rural	Urban	Rural	urban	Rural	Urban	Rural	
2007	3,329.8	23,732.6	1211.1	11511.3	101.4	765.9	1312.5	12277.2	13589.7
2017	5,353.7	30,113.0	1,734.0	13,178.1	142.3	855.7	1,876.3	14,033.9	15,910.1
	Total population		Dependency Ratio						
			Young		Old		Total		Total
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	
2007	3,329,800	23,732,600	60%	100.5%	5%	6.7%	65%	107%	101%
2017	5,353,740	30,113,045	49.9%	82%	4.1%	5.3%	54%	87.3	81.4%

Source: Computed (CSA, 2013)

In 2017, data based on medium variant projection, the size of total population of Oromia was 35,466,785 of which 5,353,740(15%) lived in urban areas. Dependency ratio for the region was 81% in the same year indicating 81 persons dependent on 100 persons which has improved the dependency situation compared to 2007, though the data was projection results based on assumptions.

The region had a total fertility rate (TFR) of 6.3 children in 2007 which was declined to 5.4 children in 2016; TFR for the region is projected further to reduce to 3.9 in 2025 (CSA, 2013; CSA, 2017). Currently Oromia is the third fertile Region in Ethiopia in terms of actual fertility next to Somali (TFR=7.2) and Affar (TFR= 5.5) but above the country average of 4.8 (CSA and ICF, 2016).The region had life expectancy at birth of 55 years for males and 59 years for females in 2007 and 57 years for males and 62 years for females in 2012. The migration status was 25 in migrants and 24 out migrants which resulted in 1 net in migrant per thousand populations in 2012.

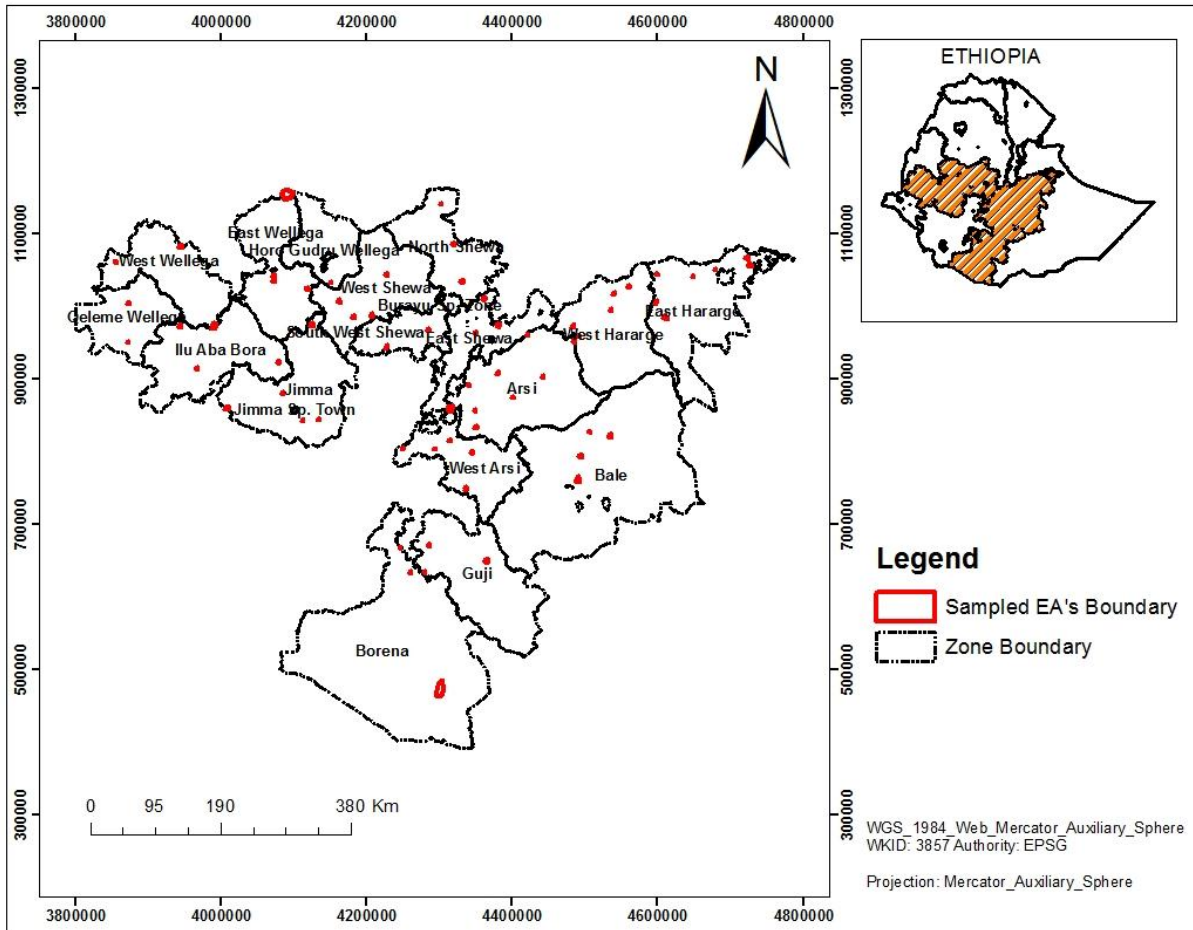
3.2 Data Sources

Ethiopian Demographic and Health Surveys (EDHS) focus on population issues including health as usual. The surveys followed the same procedures for all the four studies conducted in 2000,

2005, 2011 and 2016. However, sample sizes have been increasing over survey periods which were 539 EAs in 2000 but grown to 645 in 2016. EDHS 2016 samples were selected by adopting a stratified, two-stage cluster sample design. Enumeration Areas (EAs) were the sampling units for the first stage. Sampling frames utilized for EA selection were the 2007 population and housing census data. For this study, EDHS 2016 dataset was utilized to make understanding about determinants of fertility preferences for Oromia region. The study design, as DHS surveys are known by, is cross-sectional.

This first stage selection of EAs was undertaken in 9 regional states and two city administrations where sample EAs included 645 EAs: 202 in urban areas and 443 in rural areas. For Oromia region, 10 EAs were selected from urban areas and 64 EAs were selected from rural areas which together added up to give 74 EAs. EAs are the division of the lowest administrative unit (*kebele*) in Ethiopia containing on average 181 households in rural areas and 150-200 housing units in urban areas for 2007 census. The 9 regions are, Oromia, Amhara, Tigray, Somali, Afar, Gambella, Harari, Benishangul-Gumuz, Southern Nations, Nationalities and Peoples State (SNNPs) and, the two city administration are Addis Ababa and Diredawa. This study was conducted in Oromia, the largest region in Ethiopia in terms of population size and geographical area. The Distribution of sampled EAs is shown, by red marked spots/patches, in Fig 3.1.

Fig. 3.1: Distribution of study samples for Oromia Region



Source: Analyzed for this study only, on request, by GIS and cartographic directorate (CSA)

In the second stage sampling, a complete listing of households was carried out in each of the 645 selected EAs from which representative sample of 18,008 households (28 households per EA) were selected for the 2016 EDHS though 17067 Households were covered where interview was made on 16650 giving a response rate of 98%. Out of households interviewed, 16,583 eligible women were identified for individual interview though complete interviews were conducted for 15,683. There were 1892 eligible women interviewed for the survey in Oromia Region.

There are household questionnaires, women questionnaires and men questionnaires in EDHS where the first two questionnaires were used for this study. Fertility preferences are some of the several demographic data collected in women questionnaires in EDHS and was utilized for this

study. Fertility preferences here include the ideal number of children, the preferred waiting time to the next birth and the desire for more children.

Qualitative data was also collected regarding the variables under study by undergoing FGD (focus group discussions), in-depth interviews and key informants interviews which were found to be necessary additional instruments contributing a lot for the success of the study. These qualitative data were collected in four dissimilar social, cultural and economic areas in Oromia region to triangulate and further explain the statistical findings. These four areas are the central cereal growing region, the western coffee growing areas, the eastern chat growing areas and the pastoralist areas. In all the four areas, key informant interviews (KII), focuses group discussions (FGD) and in depth interviews were held. Key informant interviews were carried out with elderly and health extension workers. Focus group discussions were held with young and old women with or without children and education. In-depth interviews were also conducted on young and old women, educated and uneducated women and women with or without children. The selection of districts for interviews was done randomly and only one district represented each for the four locations. Selections of persons interviewed were done purposively.

3.3 Classification and Types of Dependent Variables

Data on fertility preferences as dependent variable and others as independent variables that utilized EDHS 2016 dataset were cleaned, organized and recoded where necessary and analyzed using SPSS. Since the objective of the study was to examine the determinants of fertility preferences living in marital union, appropriate data on currently married women of ages 15-49 were included. Out of 1892 women surveyed for Oromia Region, 1317 were currently married women. The dependent variables for this study are women's fertility preferences (the preferred waiting time to the next birth, the desire for more children and the ideal number of children). In using DHS data for sub samples, descriptive statistics like percentage, mean and median need to be weighted while it is inappropriate to use weighted data to calculate regression and correlation coefficients (Rutstein and Rojas, 2006). Data on the weighted and unweighted for Oromia Region utilized for descriptive bivariate and analytical multivariate respectively is shown in Table 3.2.

Table 3.2: Weighted and unweighted women sample data utilized for fertility preferences

Dependent Variables	Characteristics	Weighted data		Unweighted data	
		Frequency	Percent	Frequency	Percent
Preferred waiting time to the next birth	≤2 years	766	18.8	291	22.1
	>2 years	884	21.8	246	18.7
	Sub Total	1650	40.6	537	40.8
	Missing	2412	59.4	780	59.2
	Total	4062	100	1317	100
Desire for more children	No more	1451	35.7	483	36.7
	Have another	1778	43.8	579	43.9
	Sub Total	3229	79.5	1062	80.6
	Missing	833	20.5	255	19.4
	Total	4062	100	1317	100
Ideal number of children	≤4 children	1921	47.3	640	48.6
	>4 children	1517	37.3	503	38.2
	Sub total	3438	84.6	1143	86.8
	Missing	624	15.4	174	13.2
	Total	4062	100	1317	100

Source: Computed from EDHS 2016 dataset

3.3.1 Classification of the Desire for More Children

One of the dependent variables is the desire for more children: it is the intention of a woman to either to continue to have children or to limit or stop. The dependent variable was categorized as “no” and “yes”. A response to the question on the desire for more children that states “Would you like to have (a/another) child, or would you prefer not to have any (more) children?” was considered. The analytic multivariate results for the desire for more children were done on 1062 sample women. The data utilized for calculating percentages and frequencies in the descriptive statistics is 3229 weighted sample women equivalent to 1062 unweighted sample. Women provided non numerical answers and those reported as pregnant were excluded from the analyses.

3.3.2 Classification of the Preferred Waiting Time to the Next Birth

The other dependent variable is the preferred waiting time to the next birth. The birth interval preferred by women was categorized into less than or equal to 2 years (short) and greater than 2 years (long) (CSA and ICF, 2016). For those who responded to have another child in the desire for more children they were asked further question about the preferred waiting time to the next birth. A response to the question that asks as “how long would you like to wait from now before the birth of (a/another) child?” was utilized. Data of 537 women were utilized to process the multivariate analysis for the preferred waiting time to their next birth. The weighted data used to run descriptive statistics is 1650 (equivalent to 537 unweighted sample) as can be visualized from Table 3.2. Pregnant women, women who reported to have no more child and women who provided non numerical responses were excluded from the analyses.

3.3.3 Classification on the Ideal Number of Children

The ideal number of children is defined as the number of children a woman would intend to have in her life course. It is a continuous variable and therefore was categorized as less or equal to 4 (4 is the target TFR for Ethiopian government that had been aimed at to achieve in 2015 as indicated in the national population policy document) and more than 4. Less or equal to 4 ideal number of children is considered as small and large, otherwise.

In order to obtain data on the ideal number of children for women who already have living children, responses to a question “If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be?” was used. For women who do not have children, a response to the question that asks “If you could choose exactly the number of children to have in your whole life, how many would that be?” was used. To find results for the ideal number of children data on 1143 currently married women was utilized. The equivalent weighted data used to run percentages and frequencies is 3438. Data were not considered for women who have decided not to report numeric responses.

3.4 Classification of Independent variables

For all the outcome variables the same independent variables were used except current contraceptive use. Data on contraceptive use was not utilized for ideal number of children.

Age of women: refers to the completed age of a woman at the time of the survey. It was categorized into age ranges 15-24, 25-34, and above 34.

Number of living children: refers to the total number of children previously ever born alive to a woman. It was categorized into 0, 1-2 and greater than 2 children. The number of living children was disaggregated into sex components (as living daughter and son) to see whether or not there exist variations in affecting the dependent variables.

Age at first marriage: refers to the age in years when a woman married for the first time. It was classified as less than 18 and 18 and above.

Child loss experience: refers to whether or not a woman ever faced child death in her life.

Place of residence: It is a woman's usual place of residence (urban/rural) at the time of the survey.

Household wealth status: The wealth index used in EDHS is used to measure household characteristics in the use of health, other services and health outcomes. It was categorized as poorest, poorer, middle, richer and richest.

Education: refers to the highest level of education attended by a woman under investigation. It was categorized into three levels: no education, primary school (1-8) and secondary (9 and above) or higher.

Women's Occupation: refers to working status of women or the type of employment a woman was engaged in at the time of the survey. It was categorized as not working, working for family, self-employed and employed.

Religion: The belief in supernatural power like God/Allah or other. It was categorized as Orthodox, Protestant, Muslim, and others (Catholic and *Waqeffata*-the belief in one super natural power called *waqa* (God)).

Standardized decision making index: refers the decision made on health care, household large purchases, visit to family and what to do with money husband earns. The combination of all factors into one variable is standardized household decision-making index. A woman is considered to be participated in decision making process only when she passes decision in the standardized decision making index of all the four cases, otherwise not.

Contraceptive Use: refers to whether or not sexually active non pregnant currently married women have been using contraception during the interview time.

Ethnicity: It is a group of people having a common culture, tradition or ancestor. It is categorized as, Oromo, Amhara, and others (Gedeo, Hadiya, Wellaita, Gurage, Keficho and Silte). The “others” group is dominantly found in the Southern Nations Nationalities and Peoples Regional State.

3.4 Methods of Analysis

3.5.1 Methods of Analysis of Quantitative Data

Logistic regression model was fitted to run the analyses for all the quantitative outcome variables. All the independent variables are also categorical. The dependent variables are the desire for more children, the preferred birth interval and the ideal number of children.

The desire for more children: data on whether women responded to show desires in having another child or not was dichotomous and hence was used directly without re-categorizing responses of women whereby binary logistic regression model was fitted directly.

The preferred birth interval: the preferred length of time women reported was categorized in to less or equal to and greater than 2 years as indicated before. Logistic regression model was fitted again to assess associations between the dependent variable and independent variables.

The Ideal Number of Children: though the ideal number of children is continuous variable/ numeric values are assumed, it was dichotomized and run using logistic regression model.

Bivariate descriptive statistics showing frequency and percentage distributions of socio-cultural, economic, demographic and other characteristics of women was performed and will be presented under section three. Multivariate analysis was also performed using multiple logistic regressions for controlled variables, as indicated above, to estimate the strength of associations (effects)

between the dependent variable and independent variables. In multivariate analyses all the independent variables were analyzed together to control the effect of others in relation to fertility preferences. The purpose of using multivariate analyses is to see how far the independent variables have an influence on women's ideal number of children, the preferred length of birth spacing and the desire for more children (dependent variables). In line with this, unadjusted odds ratios were also performed to assess the effects of each independent variable on the dependent variables without controlling for other variables.

The logistic regression model for 'n' independent ($x_1, x_2, x_3 \dots x_n$) independent demographic, cultural, socio – economic and other variables is therefore given by (Field, 2009):

$$\text{logit} \left(\frac{p}{1-p} \right) = b_0 + b_1x_1 + b_2x_2 \dots b_nx_n$$

$$\text{Odds} = \left(\frac{p}{1-p} \right) = \exp^{b_0 + b_1x_1 + b_2x_2 \dots b_nx_n}$$

Where:

$b_0, b_1, b_2 \dots b_n$: are coefficients of the independent variables.

$X_1, x_2, x_3 \dots X_n$: denote the independent variables that are thought to affect women's ideal number of children, desire for more children and the length of time preferred to the next birth.

The Exp (B) or Odds ratio is determined from the logistic regression which shows the increase or decrease chance of fertility preferences in women for each independent variable controlling the effects of others. An odds ratio gives an estimate of the magnitude of association between the dependent variable and predictor variables. Each of the three dependent variables was analyzed independently and the results and discussions were undergone separately. The analyses for the three dependent variables were done after checking for assumptions of binary logistic regression.

Sample size: the number of samples found in each category must be sufficient to run the model for the analyses.

Multicollinearity: the independent variables must not be related strongly to each other but to the outcome variable. The tolerance and its inverse, VIF (Variance Inflation Factor) respectively must not be less than 0.1 and greater than 10.

Model fit: the fitness of the model is checked by Hosmer and Lemeshow Test. The model is fit only when the test is insignificant (p value > 0.05). All these assumptions were not violated for this study.

3.5.2 Methods of Analysis of Qualitative Data

Qualitative data was analyzed as the qualitative information has been utilized to supplement statistical findings from the quantitative data. In this research the results of qualitative analyses were used to explain the reasons for the effects of independent variables on ideal number of children, preferred birth spacing and the desire for more children. Responses of the respondents were recorded using tape recorder followed by transcription. Categorization of data for purposes of classifying and coding was also followed. Thematic analysis technique was employed to explain the results.

CHAPTER FOUR

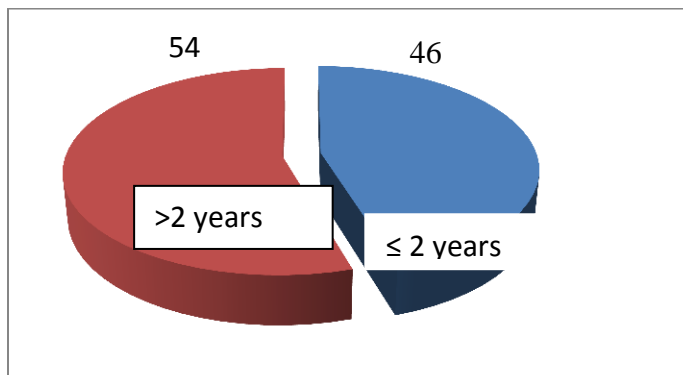
RESULTS OF THE STUDY

In this section findings of the study will be presented which encompasses bivariate and multivariate results. Frequency and percentage distribution of variables against the dependent variables will be presented under sub-sections of each of the dependent variables. The multivariate results of association between explanatory and outcome variables were also performed which is to be presented.

4.1 Bivariate Results of Preferred Waiting Time to the Next Birth

Women who prefer to have births within short period of time (less or equal to 2 years) as can be seen from Fig. 4.1, were 46%. On the other hand, 54% wanted to have births in the longer period of time (after 2 years).

Fig 4.1: Women`s Preferred waiting time to the next birth



Source: Processed from EDHS 2016 dataset.

4.1.1 Socio-economic and Cultural Factors

Standardized decision making index: Roughly 46% of women who had participated in the standardized decision making index either exclusively or jointly with their partner preferred shorter birth interval. Similarly of all women who had not participated in decisions 47% of them preferred to have births within 2 years.

Education: Except women who achieved secondary and above, fewer proportions of uneducated women and other group of educated women preferred shorter birth interval as can be seen from

Table 4.1. The result is surprising since educated women are expected to prefer to give births in the longer period of time. The reason for the result is that most women with secondary and above had no child and hence they became eager to get child soon.

Occupation: except for employed women, fewer women who were not working, working for family and self employed wanted to have births in a shorter period of time.

Wealth Index: with regard to wealth index less than half of women considered for this study in each category preferred to have births within short period of time except the richest women.

Ethnicity: most women from ethnic Amhara wanted to have births within shorter period of time than Oromo and others.

Religion: Except for Orthodox Christians, most women in the rest religious categories wanted to have births in longer period of time.

4.1.2 Demographic, Contraceptive and Geographic Factors

Child loss Experience: most women who ever faced child loss wanted to have births within 2 years. Out of all women who never faced child loss, most of them need to deliver births in longer period of time.

Age at first marriage: the proportion of women who married before age 18 who wanted to deliver births within 2 years is less than those who preferred to have births in longer period of time. On the other hand, women married after age 18 who wanted to have births within and after 2 years is roughly equal.

Current age of women: Except older women (≥ 35 years), most women in the age ranges of 15-24 and 25-34 wanted to deliver births after 2 years.

Number of living daughters: out of all women considered in each group, women with 1-2 and more than 2 daughters wanted to enjoy births after 2 years though 63% of women with no living daughter wanted to have births within 2 years. .

Number of living sons: except women with 1-2 living sons (demanded to prefer longer birth interval), women without living son and those who have more than 2 living sons were roughly 50% in demanding to have births within and after 2 years.

Type of place of residence: most women living in urban areas needed to have births within 2 years and the result is reverse for rural areas. This result was not expected.

Current contraceptive use: About 62% of women using contraceptive preferred to have births after 2 years. However, 63% of women who were not using contraceptive wanted to have births within short period of time.

Table 4.1: Bivariate cross tabulation between preferred waiting time and its covariates

Covariates		Preferred birth interval		
		N	≤2 years n(%)	>2 years n(%)
Child loss experience	Yes	318	164(51.6)	154(48.4)
	No	1332	602(45.2)	730(54.8)
Standardized decision making index	Yes	1056	487(46.1)	569(53.9)
	No	595	280(47.1)	315(52.9)
Education	No education	883	410(46.4)	473(53.6)
	Primary	595	250(42.0)	345(58.0)
	Secondary and higher	171	106(62.0)	65(38)
Occupation	Not working	937	420(44.8)	517(55.2)
	Working for family	379	184(48.5)	195(51.5)
	Employed	39	24(61.5)	15(38.5)
	Self employed	293	137(46.8)	156(53.2)
Ethnicity	Oromo	1430	673(47.1)	757(52.9)
	Amhara	123	68(55.3)	55(44.7)
	Others	98	26(26.5)	72(73.5)
Age at first marriage	<18 years	951	419(44.1)	532(55.9)
	≥18 years	699	1347(49.6)	352(50.4)
Current age of women	15-24	638	302(47.3)	336 (52.7)
	25-34	768	303(39.5)	465(60.5)
	≥ 35	243	161(66.3)	82(33.7)
Current contraceptive use	Not using	1094	552(50.5)	542(49.5)
	Currently using	556	214(38.5)	342(61.5)
Number of living daughters	0	548	347(63.3)	201(36.7)
	1-2	834	312(37.4)	522(62.6)
	≥2	268	107(39.9)	161(60.1)
Number of living sons	0	502	261(52)	241(48)
	1-2	856	359(41.9)	1497(58.1)
	≥2	293	147(50.2)	146(49.8)
Religious affiliation	Orthodox	332	177(53.3)	155(46.7)
	Protestant	311	145(46.6)	166(53.4)
	Muslim	936	411(43.9)	525(56.1)
	Others	71	34(47.9)	37(52.1)
Place of residence	Urban	185	112(60.5)	73(39.5)
	Rural	1465	654(44.6)	811(55.4)
Wealth index	Poorest	317	150(47.3)	167(52.7)
	Poorer	323	146(45.2)	177(54.8)
	Middle	359	141(39.3)	218(60.7)
	Rich	340	154(45.3)	186(54.7)
	Richest	311	175(56.3)	136(43.7)
Total		1650	766 (46.4)	884(53.6)

Source: Computed using cross-tab method between preferred birth interval and its covariates

4.2 Multivariate Results for Preferred Waiting Time to the Next Birth

The dependent variable, preferred waiting time to the next birth, was dichotomized and binary logistic regression model was fitted to examine the effect of proposed independent variables on it. The results of multivariate logistic regression are shown in the Table 4.2. . Out of 13 variables examined, only five variables (ethnicity, current age of women, current contraceptive use, number of living daughters and number of living sons) were found to have significant effects on the preferred waiting time to the next birth. The other predictor variables had no significant effects on the dependent variable after controlling for all explanatory variables.

Regarding ethnicity, other ethnic groups in combination had an effect on the preferred waiting time to the next birth. They were 68% less likely to have births within shorter period of time than the comparison group: Oromo. Moreover, other ethnic groups were 59% less likely to prefer short birth interval than Oromo without controlling for other variables as indicated in Table 4.2.

Current age of women was found to have statistically significant effect on preferred waiting time to the next birth. Older women aged 35 and above were positively associated to births preferred to be awaited within short period of time. This group of women was 4.17 times more likely to have births within short period of time as compared to women under 25. Similarly, older women were 2.4 times more likely to prefer to have births within short period of time than women aged 15-24 without controlling for other variables as can be seen from Table 4.2.

Women who currently use contraceptive method were negatively associated with short preferred waiting time to the next birth. Women using contraceptive currently were 50% less likely to prefer to have births within short period of time as compared to the reference group who were not using contraception. In the gross effect model women using contraception were 37% less likely to prefer short birth interval.

The other significant factors were number of living sons and daughters. Women with 1-2 living daughters were 70% less likely to prefer to have shorter birth interval than women with no daughter. Moreover, women with 2 and more children were 81% less likely to have births within short period of time than the reference group (women with no living daughter). Without controlling for the effect of other variables, women with 1-2 living daughters and more than 2

living daughters respectively were 61.5% and 60% less likely to prefer short birth interval than women without living daughters.

Number of living sons found to have posed significant effects on the preferred waiting time to the next birth. Women with 1-2 living son were 37% less likely to prefer shorter birth interval than women with no living son.

Type of place of residence was found to have no association with the preferred waiting time to the next birth. However, without controlling for the effect of other variables, women living in rural were 49% less likely to wish to have births within short period of time than urban women.

Table 4.2: Logistic regression significance level and odds ratio for currently married women`s preferred waiting time to their next birth

Variables	Characteristics	Preferred Waiting Time			
		UAOR	S.E	AOR	S.E
Child loss experience	No	1.00		1.00	
	Yes	1.390	0.221	1.260	0.257
Standardized decision making	No	1.00		1.00	
	Yes	1.020	0.170	0.965	0.204
Education	No education	1.00		1.00	
	Primary	0.805	0.186	0.802	0.234
	Secondary and above	1.724	0.312	0.944	0.462
Occupation	Not working	1.00		1.00	
	Working for family	1.154	0.214	1.131	0.240
	Self employed	0.976	0.236	0.915	0.275
	Employed	1.725	0.597	0.691	0.735
Ethnicity	Oromo	1.00		1.00	
	Amhara	1.563	0.333	1.119	0.406
	Others	0.412*	0.380	0.316**	0.436
Age at first marriage	<18 years	1.00		1.00	
	≥18 years	1.264	0.175	0.857	0.213
Current age of women	15-24	1.00		1.00	
	25-34	0.777	0.191	1.189	0.262
	≥35	2.361**	0.271	4.171***	0.389
Current contraceptive use	Not using	1.00		1.00	
	Currently using	0.627*	0.186	0.499**	0.225
Number of Living daughters	No daughters	1.00		1.00	
	1-2	0.385***	0.199	0.304***	0.210
	>2	0.404**	0.269	0.190***	0.333
Number of Living sons	No son	1.00		1.00	
	1-2	0.682	0.199	0.626*	0.235
	>2	0.945	0.255	0.759	0.332
Religious affiliation	Orthodox Christian	1.00		1.00	
	Protestant Christian	0.756	0.273	0.854	0.325
	Muslim	0.678	0.225	0.643	0.278
	Others	0.895	0.509	0.775	0.616
Place of Residence	Urban	1.00		1.00	
	Rural	0.512*	0.301	0.690	0.490
Wealth Index	Poorest	1.00		1.00	
	Poorer	0.899	0.284	0.771	0.312
	Middle	0.745	0.276	0.661	0.307
	Richer	0.913	0.274	0.861	0.312
	Richest	1.430	0.291	1.131	0.429

Source: Result obtained from binary logistic regression analysis

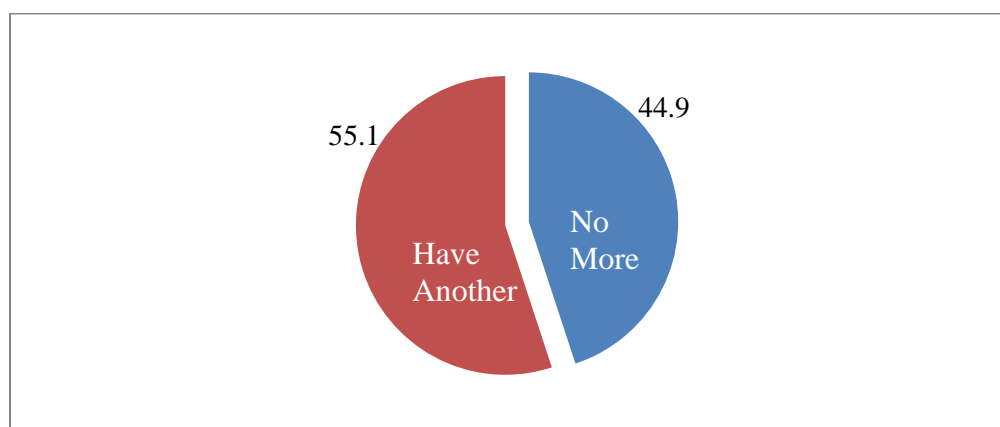
***P<0.001 **P<0.01 *P<0.05

AOR= Adjusted odds ratio UAOR= Unadjusted odds ratio SE= Standard error

4.3 Bivariate Results of the Desire for More Children

Under this sub-section the analyzed bivariate and multivariate results for the desire for more children will be presented. Fig. 4.2 shows the desire for more children. The desire for no more children and have another in Oromia Region is 44.9% and 55.1% respectively when the missing values are excluded from the denominator.

Fig. 4.2: The desire for more children among currently married women in Oromia Region



Source: Processed from EDHS 2016 dataset

Table 4.3 depicts bivariate results for the desire for more children and their covariates among currently married women in Oromia Region.

4.3.1 Socio-economic and Cultural Factors

Standardized decision making index: in each group about 55% (women who participated and did not participate in decision making affairs) wanted to have another child. About 45% of women in each group wanted to limit child bearing.

Education: about 52% of uneducated women wanted to have additional births and 48% wanted no more births. The proportion of women with elementary education who wanted to have more children was increased to 65.5%. About 76% of women with secondary and above level of education wanted to have more children. The reason is related to what was mentioned under preferred waiting time to the next birth.

Occupation: most women, in all groups of different occupation types, desired to have another child with percentage share of maximum of roughly 57% in the non working group to minimum of 54% for those working for family members.

Wealth Index: Fewer numbers of women who desired to have another child were the poorer women whose percentage share was 47%. Most women in the rich, the middle, the richest and the poorest categories desired to have no more children. The degree of wanting no more child decreases according to the categories listed here (rich through to poorest).

Ethnicity most proportion of women in all ethnic groups wished to have the desire for more children than to limit family sizes.

Religion: the proportion of women who desired to have more children is equal to those desired no additional child for Protestant Christians. However, most women intended to have another child for Orthodox Christians (51%), Muslims (58%) and others: *waqeffata* and Catholic in combination (69%).

4.3.2 Demographic, Contraceptive and Geographic Factors

Child loss Experience: only 39% of women who ever faced child death wanted to have another child. However, most women (62%) who never faced child death wanted to have more children. This result is also unexpected.

Age at first marriage: about 51% of women married before age 18 desired for more children. However, proportion of women who married at or after age 18 who desired for more children was increased to 62%. The legal marriage age in Ethiopia is at least 18.

Current age of women: As age of women increases, the proportion of women who desired to have another children increases where 87% of women in the age group 15-24 desired to have another children. The proportions for women aged 25-34 and 35 and above who desired to have another child respectively decreased to 58% and 27%. The result may be related to the current number of children women have at hand.

Number of living daughters: the proportion of women desired for more children decreased from 82% for women with no living daughter to 55% for those having 1-2 living daughter to still 34% for women who had more than 2 living daughters.

Number of living sons: similarly the proportion of women desired for more children decreased from 86% for women with no living son to 60% for those having 1-2 living sons. The proportion of women having more than 2.living sons who had the desire to have additional child decreased further to 30%.

Type of place of residence: about 58% of women living in urban areas and 55% of women living in rural areas had the desire to additional child. .

Current contraceptive use: about 56% of women who were not using and 54% of women who were using contraceptive desired to have another child.

Table 4.3: Bivariate cross tabulation results of the desire for more children against its covariates

Covariates	Characteristics	Desire for more children		
		N	Yes(have other)	No (no more)
			n(%)	n(%)
Child loss experience	Yes	912	353(38.7)	559(61.3)
	No	2317	1425(61.5)	892(38.5)
Standardized decision making index	Yes	2099	1157(55.1)	942(44.9)
	No	1130	621(55.0)	509(45.0)
Education	No education	2021	962(47.6)	1059(52.4)
	Primary	967	633(65.5)	334(34.5)
	Secondary and higher	241	183(75.9)	58(24.1)
Occupation	Not working	1794	1016(56.6)	778(43.4)
	Working for family	574	312(54.4)	262(45.6)
	Employed	96	54(56.2)	42(43.8)
	Self employed	184	101(54.9)	83(45.1)
Ethnicity	Oromo	2791	1530(54.8)	1261(45.2)
	Amhara	234	134(57.3)	100(42.7)
	Others	205	114(55.6)	91(44.34)
Age at first marriage	<18 years	2019	1024(50.7)	995(49.3)
	≥18 years	1211	754(62.3)	457(37.7)
Current age of women	15-24	775	675(87.1)	100(12.9)
	25-34	1429	831(58.2)	598(41.8)
	≥ 35	1025	272(26.5)	753(73.5)
Current contraceptive use	Not using	2140	1195(55.8)	945(44.2)
	Currently using	1090	583(53.5)	507(46.3)
Number of living daughter	0	700	577(82.4)	123(17.6)
	1-2	1615	893(55.3)	722(44.7)
	≥2	914	307(33.6)	607(66.4)
Number of living son	0	631	543(86.1)	88(13.9)
	1-2	1538	919(59.8)	619(40.2)
	≥2	1060	316(29.8)	744(70.2)
Religious affiliation	Orthodox	714	367(51.4)	347(48.6)
	Protestant	638	318(49.8)	320(50.2)
	Muslim	1756	1010(57.5)	746(42.5)
	Others	121	83(68.6)	38(31.4)
Place of residence	Urban	355	207(58.3)	148(41.7)
	Rural	2873	1570(54.6)	1303(45.4)
Wealth index	Poorest	552	351(63.6)	201(36.4)
	Poorer	708	334(47.2)	374(52.8)
	Middle	677	389(57.5)	288(42.5)
	Rich	702	360(51.3)	342(48.7)
	Richest	591	344(58.2)	247(41.8)
Total		3229	1778(55.1)	1451(44.9)

Source: cross-tabulated, using EDHS data, between desire for more children and its covariates.

4.4 Multivariate Results for the Desire for More Children

The dependent variable, the desire for more children, was dichotomized and the independent variables were entered into binary logistic regression model to examine the effect of associations between outcome variable and explanatory variables. The results of multivariate logistic regression are shown in Table 4.4. Out of 13 variables examined, five variables had associations with the desire for more children after controlling for all variables. These are current age of women, contraceptive use, number of living daughter, number of living son and religion. The other predictor variables had no effect on the dependent variable.

Current age of women had significant association with the desire for more children. Young women (15-24) were about 75% more likely to wish to have another child as compared to women found in the age group 25-34. Women aged 35-49 years were 66% less likely to desire for more children. In the absence of net effect, women in the age group 15-24 were 4.7 times more likely to desire for more children than women aged 25-34. Women aged above 35 and above were 74% less likely to desire for more children.

Contraceptive use had also a negative significant association with the desire for more children. Women using contraception were 35% less likely to have the desire for more children.

Number of living daughters had an effect on the desire for more children. Women with no daughter were 2.79 times more likely to wish to have a/another child as compared to those women who had 1-2 daughters. However, women with greater than 2 living daughter were 38% less likely to wish another child as compared to women who had 1-2 living daughters. Without absence of controlling for other variables, women with no living daughter were 3.89 times more likely to wish to have more child than women having 1-2 living daughters. On the other hand, women with more than 2 living daughters were 59% less likely to have the desire for more children.

Like the number of living daughter, number of living son also had an effect on the desire for more children. As shown from Table 4.4, women without living son were 3.41 times more likely to desire for more children as compared to those women with 1-2 living son. Women who had more than 2 sons were 53% less likely to wish for another child. On the other hand, without controlling for other variables, women with no living son were 4.4 times more likely to desire to

have additional child than women with 1 or 2 living sons. However, women with more than 2 living sons were 71% less likely to have the desire for more children.

Religion was also associated with the desire for more children except Protestant Christian. Muslim women were 1.85 times more likely to desire more children than Orthodox Christian. Moreover, women from other religious groups (*waqeffata* and catholic Christian combined) were 2.6 times more likely to desire more children. Without controlling other variables, Muslim women were 1.4 times more likely to have the desire for more children than Orthodox Christians as shown in Table 4.4.

Education was not associated with the desire for more children in the net effect. On the other hand, women with primary education were 2.2 times more likely to desire for more children than women with no education in the gross effect model. Educated women with secondary and above were 3.15 times more likely to desire to have additional/another child as can be seen from Table 4.4. The result seem to be paradoxical. But it is true because, most educated women had less than 2 children.

Wealth status was found to have no significant effect on the desire for more children. However, without controlling for the effect of other variables, the poorer women were 35% less likely to desire for additional children than the richest women as Table 4.4 shows.

Child loss was found to have no association with the desire for more children. However, without controlling for the effect of other variables, women who ever faced child loss experience were 87% less likely to desire for more child than women who never experienced child loss. This result is also unexpected. The reason is that most women with larger number of living children are women who ever faced child loss.

Age at first marriage of women was found to have an effect on the desire for more children only in the gross effect model. Women married after age 18 were 65% more likely to desire for another children.

Table 4.4: Logistic regression significance level and odds ratio for currently married women`s desire for more children

Variables	Characteristics	Desire for more children			
		UAOR	S.E	AOR	S.E
Child loss experience	No	1.00		1.00	
	Yes	0.391***	0.141	0.820	0.174
Standardized decision making index	No	1.00		1.00	
	Yes	0.992	0.130	0.971	0.163
Education	No education	1.00		1.00	
	Primary	2.199***	0.141	1.084	0.190
	Secondary and	3.154***	0.278	1.219	0.411
Occupation	Not working	1.00		1.00	
	Working for family	0.806	0.150	0.881	0.188
	Employed	1.050	0.391	0.795	0.497
	Self employed	0.958	0.170	1.160	0.208
Ethnicity	Oromo	1.00		1.00	
	Amhara	1.127	0.240	1.418	0.312
	Others	1.063	0.236	1.365	0.293
Age at first marriage	<18 years	1.00		1.00	
	≥18 years	1.652***	0.129	1.345	0.167
Current age of women	15-24 years	4.656***	0.207	1.745*	0.257
	25-34 years	1.00		1.00	
	≥35 years	0.263***	0.154	0.336***	0.180
Current contraceptive use	No	1.00		1.00	
	Yes	0.905	0.130	0.649*	0.171
Number of Living daughters	No daughter	3.856***	0.195	2.786***	0.227
	1-2	1.00		1.00	
	>2	0.415***	0.150	0.620 **	0.182
Number of Living sons	No son	4.378***	0.223	3.411***	0.253
	1-2	1.00		1.00	
	>2 sons	0.294***	0.147	0.470***	0.176
Religion	Orthodox	1.00		1.00	
	Protestant	0.965	0.186	1.216	0.238
	Muslim	1.377*	0.155	1.848**	0.211
	Others	1.909	0.394	2.598*	0.474
Place of Residence	Urban	1.00		1.00	
	Rural	0.811	0.215	1.713	0.378
Wealth Index	Poorest	1.126	0.215	0.889	0.345
	poorer	0.648*	0.200	0.555	0.321
	Middle	0.994	0.202	0.904	0.319
	Richer	0.768	0.196	0.878	0.310
	Richest	1.00		1.00	

Source: Computed using Logistic regression analysis

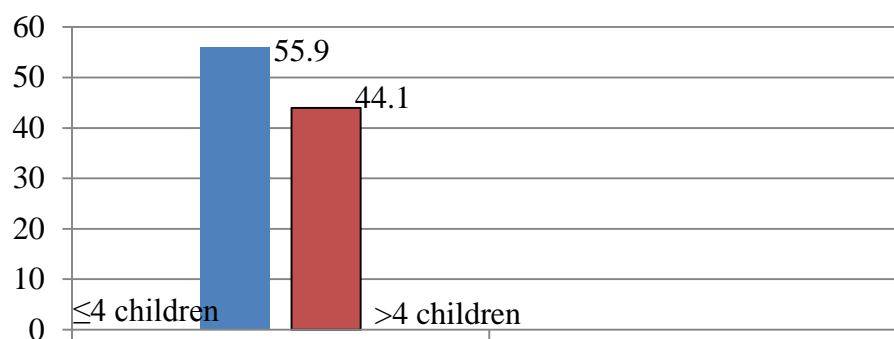
***P<0.001 **P<0.01 *P<0.05

AOR= Adjusted odds ratio UAOR= Unadjusted odds ratio SE= Standard error

4.5 Bivariate Results for the Ideal Number of Children

Figure 4.3 shows proportion of women intended to have the cited ideal number of children. 56 percent of women included in the analysis intended to have a maximum of 4 children. The remaining 44 percent wanted to have more than 4 children.

Fig 4.3: Percentage of women`s preference of ideal number of children



Source: Processed from EDHS, 2016 Dataset

4.5.1 Socio-economic and Cultural Factors

Standardized decision making index: Roughly 62% of women who participated in making decisions, wished to have a maximum of 4 children. However, about 45% of women who fail to participate in passing decisions wanted to have at most 4 children.

Education: 46% of women with no education wished to have 4 children and the proportion of women who wanted to have up to 4 children were decreased to 66% for women with primary education. The percentage of women who wanted to have a maximum of 4 children was reduced further to 89% for women with secondary and higher level of education. This implies that education plays a role in reducing ideal family size.

Occupation: In all occupational types fewer women wished to have more than 4 children though the proportion in each case differs. About 48% of non working women, 41% of self employed, 40% of those working for family and 28% of those who were employed wanted to have larger number of children.

Wealth Index: about 27% of the richest, 42% of the middle, 45% of the rich, 50% of the poorer and 57% of the poorest wanted to have more than 4 children. This implies that as the degree of wealth status decreases the likelihood of women to have larger number of children increases.

Ethnicity: About 27% of Amharas, 45% of Oromos and 52% of others (different ethnic groups combined) wanted to have more than 4 children. From this figure one can infer that Amharas prefer smaller family sizes.

Religion: roughly 28% of Orthodox Christians, 42% of Protestant Christians, 51% of Muslims and 52% of others wanted more than 4 children to be their ideal number. From this one can infer that women from Orthodox Christians need smaller family sizes.

4.5.2 Demographic and Geographic Factors

Child loss Experience: about 56% of women who experienced child loss want more than 4 children to be their ideal number. However, only 39% of women who never experienced child loss wanted to have more than 4 children. This implies that child loss increases the likelihood of women to wish to have larger number of children.

Age at first marriage: About 48% of women who got married before age 18 wished to have larger ideal number of children. However about 39% of women who married before age 18 wished to have more than 4 children.

Current age of women: Roughly 32% of women aged 15-24, 43% of women aged 25-34 and 56% of women aged 35 and above wanted to have larger ideal number of children. This implies that increasing age of women increased the likelihood of women to have larger ideal number of children.

Number of living daughters: women with, no living daughter (29%), 1-2 living daughters (42%) and those having more than 2 living daughters (60%) wanted larger number of children which implies that increasing number of living daughters increases the chance of women to wish to have larger ideal number of children.

Number of living sons: women with, no living son (30%), 1-2 living sons (41%) and more than 2 living daughters (58%) wanted to have larger number of children.

Type of place of residence: Only 14% of urban women reported to have larger ideal number of children while nearly half of rural women wished to have larger ideal number of children.

Table 4.5: Bivariate cross tabulation results of the ideal number of children against its covariates

Covariates	Characteristics	Ideal number of children		
		N	0-4 n(%)	>4 n(%)
Child loss experience	Yes	943	410(43.5)	533(56.5)
	No	2495	1511(60.6)	984(39.4)
Standardized decision making index	Yes	2238	1385(61.8)	853(38.1)
	No	1201	536(44.6)	665(55.4)
Education	No education	2094	971(46.4)	1123(53.6)
	Primary	1063	699(65.8)	364(34.2)
	Secondary and higher	281	251(89.3)	30(10.7)
Occupation	Not working	1928	1008(52.3)	920(47.7)
	Working for family	783	472(60.3)	311(39.7)
	Self employed	617	362(58.7)	255(41.3)
	employed	109	78(71.6)	31(28.4)
Ethnicity	Oromo	2992	1642 (54.9)	1350(45.1)
	Amhara	253	186(73.5)	67(26.5)
	Others	194	93(47.9)	101(52.1)
Age at first marriage	<18 years	2109	1105(52.4)	1004(47.6)
	>18 years	1329	816(61.4)	513(38.6)
Current age of women	15-24	879	602(68.5)	277(31.5)
	25-34	1501	851(56.7)	650(43.3)
	> 35	1060	469(44.2)	591(55.8)
No. of living daughters	0	775	552(71.2)	223(28.8)
	1-2	1711	990(57.9)	721(42.1)
	≥2	953	380(39.9)	573(60.1)
No. of living sons	0	719	501(69.7)	218(30.3)
	1-2	1651	968(58.6)	683(41.4)
	≥2	1068	452(42.3)	616(57.7)
Religion	Orthodox	725	520(71.7)	205(28.3)
	Protestant	717	417(58.2)	300(41.8)
	Muslim	1884	930(49.4)	954(50.6)
	Others	111	53(47.7)	58(52.3)
Place of Residence	Urban	378	324(85.7)	54(14.3)
	Rural	3060	1597(52.2)	1463(47.8)
Wealth Index	Poorest	545	233(42.8)	312(57.2)
	Poorer	758	376(49.6)	382(50.4)
	Middle	741	429(57.9)	312(42.1)
	Rich	768	423(55.1)	345(44.9)
	Richest	626	460(73.5)	166(26.5)
Total		3438	1921(55.9)	1517(44.1)

Source: cross-tabulated, using EDHS data, between ideal number of children and its covariates

4.6 Multivariate Results for the Ideal Number of Children

The ideal number of children as a dependent variable was dichotomized into women intended to have up to 4 and more than 4 children. The independent variables were entered into binary logistic regression model to examine the effect of associations between outcome and explanatory variables. The results of multivariate logistic regression are shown in Table 4.6. Out of 12 variables examined, the standardized decision making index, education, number of living daughter, religion and place of residence were the independent variables found to have statistically significant effect on the ideal number of children. The other predictor variables had no statistically significant effect on the dependent variable.

Women participated in the standardized decision making index was found to be important predictor of ideal number of children. Women who had participated to decide in four factors (passing decisions on utilization of husband's earnings, large household purchases, family visit and health care) combined were negatively associated with the ideal number of children. Women who participated in decision making were 41% less likely to have greater than 4 children (large number of children) as compared to those women who fail to participate in the standardized decision making index. Women who participated in the decision making process were 49% less likely to have larger ideal number of children in the gross effect model.

Education was also another variable found to have an effect on the ideal number of children. Women with primary education were 27.5% less likely to wish to have greater than four children than those who were never educated. Moreover, women with level of education of some secondary and above were 63% less likely to intend to have greater than four children. Without controlling for other variables, women with primary education and secondary and above were respectively 53% and 87% less likely to have more than 4 ideal children.

Number of living daughters had affected the ideal number of children. Women with more than 2 daughters were 1.5 times more likely to wish to have larger number of children as compared to women with 1-2 daughters. However, women without living daughter had no effect. Without controlling for other variables, women with no living daughter were 44% less likely to possess larger ideal number of children than women with 1 or 2 living daughter/s. On the other hand,

women with more than 2 living daughters were 2 times more likely to desire to have larger number of children than women having either 1 or 2 daughters

Religion was also found to be predictor of ideal number of children. Women with Islamic faith were found to be roughly 2.1 times more likely to wish to have greater than four children as compared to Orthodox Christian. Women with *Waqeffata* (a belief by Oromos in one supernatural power called *waqa* (God)) and Catholic religion were 2.43 times more likely to wish larger number of children. Without controlling for other variables, Protestant Christians were 1.8 times more likely to wish to have larger ideal number of children than Orthodox Christians. Moreover, Muslim women and women from other religious groups respectively were 2.6 and 2.9 times more likely to enjoy larger number of children.

Women resided in rural areas were 2.41 times more likely to have larger ideal number of children than those of the urban counterparts. In the gross effect model, rural women wish to have 4.62 times more likely to have larger ideal number of children than urban women.

In the absence of controlling variables, women working for family were 25% less likely to have larger ideal number of children than women not working. Women employed by others were 57% less likely to have larger ideal number of children than jobless women.

Wealth status was found to be significant in the absence of controlling variables. Women from poorest, poorer, middle and richer wealth status were respectively 3.1, 2.4, 1.7 and 1.9 times more likely to have larger ideal number of children than richest women as shown in Table 4.6 Without controlling for other variables, women from ethnic Amhara were 52% less likely to have larger ideal number of children than ethnic Oromo.

Child loss experience was found to be significant in the absence of controlling variables. Women who experienced child loss were 2 times more likely to have larger ideal number of children than women who never faced child death.

Without controlling for the effect of other variables, women in the age group of 25-34 were 58% less likely to wish to have more than 4 children than women aged between 25 and 34 without controlling the effect of other variables. Older women (greater or equal to 35) were 1.6 times more likely to have greater than 4 ideal children than women in the age range of 25-34. Without controlling for other variables, women without living son were 36% less likely to wish to have

larger number of children than women with 1 or 2 living sons. Like the case of daughters, women with more than 2 sons were 1.83 times more likely to desire for larger number of children.

Table 4.6: Logistic regression significance level and odds ratio for currently married women`s ideal number of children

Variables	Characteristics	Ideal number of children			
		UAOR	S.E	AOR	S.E
Child loss experience	No	1.00		1.00	
	Yes	2.013***	0.135	1.299	0.154
Standardized decision making index	No	1.00		1.00	
	Yes	0.512***	0.126	0.589***	0.139
Education	No education	1.00		1.00	
	Primary	0.467***	0.135	0.725*	0.160
	Secondary and above	0.130***	0.331	0.374*	0.389
Occupation	Not working	1.00		1.00	
	Working for family	0.746*	0.147	0.883	0.163
	Employed	0.432*	0.401	1.145	0.481
	Self employed	0.743	0.165	0.936	0.184
Ethnicity	Oromo	1.00		1.00	
	Amhara	0.477**	0.254	0.860	0.296
	Others	1.161		1.325	0.267
Age at first marriage	<18 years	1.00		1.00	
	≥18 years	0.726*	0.124	0.922	0.145
Current age of women	15-24 years	0.421***	0.125	0.761	0.248
	25-34 years	1.00		1.00	
	≥35 years	1.548**	0.129	1.297	0.165
Number of Living daughters	No daughter	0.563***	0.163	0.784	0.183
	1-2	1.00		1.00	
	>2	2.073 ***	0.142	1.508*	0.162
Number of Living sons	No son	0.638**	0.166	0.980	0.189
	1-2	1.00		1.00	
	>2 sons	1.828***	0.137	1.276	0.159
Religion	Orthodox	1.00		1.00	
	Protestant	1.781**	0.191	1.399	0.213
	Muslim	2.566***	0.163	2.069***	0.186
	Others	2.857**	0.392	2.427*	0.437
Place of Residence	Urban	1.00		1.00	
	Rural	4.618***	0.272	2.411*	0.377
Wealth Index	Poorest	3.059***	0.219	1.038	0.297
	poorer	2.365***	0.202	0.882	0.276
	Middle	1.684*	0.203	0.623	0.274
	Richer	1.904**	0.199	0.791	0.266
	Richest	1.00		1.00	

Source: Computed using Logistic regression analysis

***P<0.001 **P<0.01 *P<0.05

AOR= Adjusted odds ratio UAOR= Unadjusted odds ratio SE= Standard error

CHAPTER FIVE

DISCUSSION OF THE STUDY FINDINGS

5.1. Preferred Waiting Time to the Next Birth: a function of ethnicity, current age of women and contraceptive use, number of living sons and daughters

The dichotomized, outcome variable, preferred waiting time to the next birth of currently married non pregnant women in Oromia region was assessed against 13 independent variables whether or not the explanatory variables can pose significant effect on the outcome variable. Out of 13 independent variables utilized to analyze their effects on the preferred waiting time to the next birth, only 5 variables were found to be statistically significantly associated with the preferred birth interval.

Ethnicity is among the variables which was associated with the preferred waiting time to the next birth. The “others” ethnic group, minor, was found to be less likely to have short birth interval as opposed to ethnic Oromo. On the other hand, ethnic Amhara was found to have no effect on the dependent variable. The reason for minorities to be less likely to prefer short birth interval as a key informant health extension worker in West Shewa, Ambo, rural explains “*when we are giving trainings regarding the relative importance of long birth spacing and shortcomings of short birth interval and any other related affairs, mostly those of the minorities in terms of ethnic origins have positive attitude towards what we are training them to do. It may be related to get the services we provide them and the confidence they have developed about us to solve their problems. Most dominant groups are reluctant with unknown reasons. We grasp such information when we collect feedback data*”. The fact ethnicity affects preferred birth spacing was also shown by a study conducted in Kenya (Lunani, 2014).

As expected, contraceptive played a role in delaying the preferred waiting time. Women who were using contraception were less likely to prefer to wait shorter period of time (less than or equal to 2 years for this study) as they were supported by the use of family planning methods (Ojaka, 2009). The reason is straightforward. Women using contraception are aimed at either limiting child bearing or to space births (here they used contraceptive to space births). The qualitative information obtained in different areas to corroborate this study discloses that women who want to give birth in a shorter period of time are not using contraceptives. This study is

complied with the study undergone in India and Southern Ethiopia (Samuel *et al.*, 2010; Rajan, 2014).

A focus group discussion and in-depth interview held at Chiro and other areas indicated that women want to use contraceptive mostly to space births than stopping births though there are limited number of women who use contraceptive for permanently halting births. A focus group discussion held with old women living in rural area in West Hararghe (Chiro) a woman replied as, the ideas was also agreed by other members in a group *“most of us in this village (Kiliso) are using contraceptive method to space births than limiting the number of our family sizes. Mothers are beneficiary economically and health wise when spacing births apart. Children also get time to milk breast and supplied with better food contents when we give births by spacing apart. Hence using contraceptive helps us to meet our desires. But women who do not want to space births do not use contraceptives”*.

With regard to the number of living daughters and living sons the result of study indicated that the variables have found to have statistically significant effects on predicting women`s preferred waiting time to the next birth. According to the findings, as the number of living daughters decrease, the likelihood of women to have births within short period of time increases. Similarly, women with one or two living son/s were less likely to prefer shorter birth interval than women with no sons though women having more than 2 sons do not have associations with the preferred waiting birth interval. This study finding was found to have similar results with study done in Kenya. In Kenya, women with children decided to wait for longer period of time than those without children. The preferred length of time to their next birth also increased with increasing number of living children in that country (Lunani, 2014).

The qualitative information indicated that as the number of children increases, be it son or daughter, women learnt that the effect of short birth interval and want to prefer spacing they can receive opportunity for their health and child care. An in-depth interview made at West Sewa, rural Ambo, with old educated women *“The time I delivered successive births within shorter period of time, I learnt that it is difficult for children to prosper well which is related to my poor capacity in provision of food, milking breast, and also caring for their health. I was also in problem health wise since I did not prefer longer spacing between the two consecutive births. I have learnt this from my previous birth spacing”*. FGD held at Chiro, West Harghe with young women living in rural area, shared idea, stated as: *“women prefer to have births soon when the number of son alive is smaller than number of daughter and vice-versa. We want to have equal*

number of children of opposite sex. We are hurry to get the child with fewer sexes. But we are more eager to hurriedly give birth if the number of living male is very small or none as compared to living female”.

5.2 Desire for More Children is affected by current age of women, contraceptive use, religion, number of living sons and daughters

Among independent variables that have statistically significant effect on the dependent variable, the desire for more children, is current age of women. Older women desired for no more children as compared to women aged between 25 and 34. But younger women desired to have more children as study finding of this result indicates. It may be related to the implementation of desired family size for most women who were older.

Key informant interview held at Kerayu, pastoralist area, on an elderly and FDG held at Jimma on old uneducated women living in rural area indicated that young women like to have more children than the older women since the youth are not satisfied with current size of children as it is lower than the size they want to have in their life. The young women also expect child loss to occur and want to give more births if some of the live births may die to assure child. In-depth interview done with educated young mother held at West Shewa (Ambo), indicated also that young women need to have more children, which is quoted as *“I want to add more children because my son does not want to be alone. I know that large number of children is difficult to up-bring but I want more children since children are important for consolidating husband and wife together. Who knows this single son may not be as good as we need him to be. So options are vital for our livelihood”*. This study complies with the study undergone in Kenya. The study revealed that older women were less likely to have the desire for more children than the young women (Wachira, 2001). Moreover, in Indonesia older women, 33 and above, desire not to have additional children as compared to the younger ones (Mellissa *et al.*, 2010).

Contraceptive use played an indispensable role in decreasing women`s likelihood to desire to have another child. The reason according to study done in 24 sub-Saharan African countries was consciousness of women regarding using contraception that was considered to stop child bearing; it was found that wives were decision maker for the desire for more children than their husbands (Bankole and Audam, 2011). FGD interview made at Jimma on young women living in rural

area, contraceptive is important in controlling excess fertility though women feel not comfortable with using family planning method. Focus group discussants argue that using contraceptives do not go with current rural women`s livelihood as users of family planning need to be involved only in light work load and must feed nutritious food. Bleeding, headache and increasing weight are some of the negative outcomes of family planning method: health extension worker living in, East Shewa, Kerayu. FGD held on old women at pastoralist area, kerayu, East shewa confirmed the role of contraceptive in controlling fertility. The argument of one woman of the discussants is stated as *“I wanted to space my births formerly and since I had seven children I decided to stop birth and I am using contraceptive which is playing a role in stopping my menstruation”*.

Regarding number of living daughters, as the number of daughters women have at hand increases, the likelihood of women to desire for additional children declines as this study result reveals. This study finding matches with study conducted in South-Western Nigeria where increasing number of living children became responsible for decisions to end the desire for more children (Oyediran, 2005). In all areas data obtained from discussants/interviewees conducted using qualitative method, it was understood that women who have either no or small number of daughters want to have a/additional daughter even if the number of children they want to have in their life is reached. This is also similar for sons as the fewer the number of sons women have, the more they need to have additional children. A key informant interview done with uneducated elderly in Kerayu (pastoralist area), East Shewa, argues which is stated as *“we need more boys than girls but we also need girls since their importance is different. Sons are important as they play role in expanding tribes and make parents more reputable and receiving respect. Nobody can be transgressed when he/she has more boys. Girls are important for multiplying relatives. Girls are acting just like tree roots. Trees cannot stand and live without roots. Girls also play a role in bringing additional relatives as families of her spouse, particularly her husband, contribute a lot for mothers and fathers in-law. The husband of one`s daughter is considered as son of that person”*. A health extension worker, in East Shewa (pastoralist area) on her key informant interview also saidd that women themselves belief as if daughters belong to someone else since they are married out but indicated also that daughters are important for parents when viewed from different dimensions and hence needed more when their number in a household is limited.

Similarly, women with no living son wish to have a child as compared to women with 1-2 living son. On the other hand, women who had more than 2 sons desire to stop than the reference group. Women with large number of children were more likely to stop child bearing than those with no or fewer children as these women might have actualized their ideal number of children. A key informant interview made with uneducated elderly living in rural area held at Jimma confirmed that women with no or limited number of son desire to have additional children than women with more sons as sons are considered by women in particular and society in general as hope or potential support for their family during old age, prevent oppressions from their parents and inherit and hold the homestead. The key informant also indicated the unequal positions given for daughters as their importance to parents is not equivalent to sons.

Regarding religion, Muslim, Catholic and *Waqeffata* women desire to have other children than women from Orthodox Christians. Protestant Christians, however, had no statistically significant associations with the desire for more children. Muslim women were more likely to desire more children as studies undergone in rural Ethiopia, Tanzania and Kenya shows (Susumanet *al.*, 2014; Muhozaet *al.*, 2014). Some qualitative information obtained indicates the reason for Muslim women to have additional children than Orthodox Christian is related to the nature of their religion but others oppose the argument. A health extension worker in East Shewa, Kereyu says “*Muslim women in our area do not need to stop child birth as they believe that stopping child bearing is in contrary to what Allah needs*”. Based on most interviews made to find out why most Muslim women do not need to stop child bearing responded similar answers: as if Islamic religion prohibits fertility control. Moreover, an in-depth interview done with old rural women undergone in Chiro stated as “*it is haram (curse), not acceptable, to stop child birth*”. The same answer was replied from other respondents and discussants. However, a mother of 6 children, Muslim and uneducated living in Chiro town replied that there was nothing mentioned in our Holly Koran that forces us to rear children without intervention but it is peoples` perception that is making them to link it with religion.

On the other hand, key informants also indicated that women with *Waqeffata* religion are bounded by traditions and they do not want to limit their children as children by themselves are considered as property and hope in many aspects to their parents and tribes.

5.3 Ideal Number of Children varies with level of education, decision making power, place of residence, religion and number of living daughters

Women who participated in decision making in the standardized decision making index were found to have no larger ideal number of children as compared to women who fail to decide. The qualitative study result indicated the reason for women who are unable to decide in the standardized decision making index is that it is their husbands who decide the number of children women would bear. But husbands need more children than their wife FGD interview held in West Shewa, Ambo among young women living in town which they agreed on an idea of a woman stated as *“a woman who is unable to decide does not need to limit the number of children. She has burdens imposed up on. She never says I must stop. She has no idea about what will happen to her livelihood in the future. She accepts what her husband says. She does not also think about the quality and amount of food to be consumed, the dresses needed, and the health and education costs. But the number of women of this kind is currently declining as health extension workers and other government sectors also teaching us to have family sizes that we are able to rear in good quality”*. This study is backed by a study undergone in Guinea. The standardized decision making index result for Mali, Namibia and Zambia, however, became insignificant (Upadhyay and Karasek, 2010). Women who decided large household purchases and day-to-day household purchases (either alone or jointly with others) were less likely to have large ideal number of children than those women where final decision is made by their husbands though the result is reversed for family visit (Gabremariam, 2007).

Educated women tended to have smaller family sizes than uneducated women as this study result reveals. Women who progressed beyond primary school were more likely to reduce the ideal number of births as compared to those who were in primary school and uneducated women. The likelihood of women preferring larger number of children has been found to be declining with increasing level of education as expected.

The reason is that uneducated women do not have awareness about the disadvantage of large number of children can have on parents and themselves as qualitative information from all types of interviewees and discussants from all areas reveal. A key informant health extension worker living in Ambo in West Shewa states *“uneducated women want to have large number of children as they are bound to traditions. They do not have much awareness the effect of large number of*

children can have on their health. They think of the fertility situations of their foremothers and mothers. When you advise them to have smaller number of children they become angry and reply 'nobody except me to help my children to grow and it is up to me to decide'. Therefore, if you want to create awareness to make them to accept smaller family size, they refuse and it is difficult to convince them, particularly rural women as these women claim to up bring by their hard efforts". This study result is supported by the study conducted in Eritrea. In Eritrea women with primary, and secondary and above were found to be 0.79 and 0.44 times less likely to have larger ideal family size as compared to women who were not educated (Gebremariam, 2007). Similar study result was also found from study undergone in Jimma (Ethiopia), Cambodia, Indonesia and Philippines (Bedassa and Sisay, 2001; Phan, 2016).

Regarding the number of living daughters, women with larger number of living daughters wish to have larger ideal number of children. Women with no living daughter was found to be insignificant. The finding of this study result matches with study undergone in Eritrea (Gebremariam, 2007). The larger ideal number of children demanded by women with currently larger number of daughter may be related to their interest to implement their ideal number of children. An in-depth interview held at West Shewa, with young educated woman with one child, in Ambo emphasized that women with larger number of daughter desire to have large number of children as their desire was set originally to have large number of children. The issue is also related to level of education. Most women in the old age category are uneducated as compared those women from younger age category. The sex of children alive also matters in determining the ideal number of children. A key informant elderly from Jimma zone stated as *"I personally know woman who has 6 daughters but still giving birth and continue to bear until she bears son"*

For this study it was found that women with Muslim religion intend to have greater than four children as compared to women from Orthodox Christians. The association was also found to be very strong. The qualitative information indicated that Muslim women wish to have as much number of children as Allah allows as it is a curse to reduce fertility by using family planning services. A health extension worker in East Shewa (Kereyu), pastoralist area gave an explanation to why Muslim women have large ideal number of children which is stated as *"Muslim women have the belief that reducing the number of children is unacceptable in Islamic religion. Muslim*

women do not like to use family planning method since they believe Allah punishes if they dare to do it. This issue has created problems to our works since women, particularly uneducated, are rigid against the use of family planning method. They believe also that it is the order from Allah to give births without interruption in their reproductive ages: 15-49". They further believe that it is the work of supernatural power to decide the number of children they want to have and hence prefer to lift their hands off artificial acts against reducing family sizes as Muslim women claim. This study result matches with study undergone in Jimma, Ethiopia, where there was at least in excess by one child for Muslim women than Christian counterparts (Bedassa and Sisay, 2001). The ideal number of children in Cambodia was also found to be more for Muslim women, increases the odds by 1.8 times, than Buddhist women; in Philippines the odds for ideal number of children was 10.6 times more for Muslim women than Catholic women (Phan, 2016).

Women from *Waqeffata* and Catholic religion also found to be intended to have greater number of children than women in the comparison Orthodox Christians. Traditions are very much associated with *waqeffatas* as they wish to have large number of children since they claim that children given by God are considered as blessing. The traditional cultural values supporting high number of fertility from *waqeffata* religion followers are common to rural, no or limited use of family planning method and uneducated women. Protestant Christians also demanded higher ideal number of children. This may be related to weak attitude towards using family planning methods as the qualitative information also supports this argument. Out of all women in each category, 52% from Orthodox Christians, 38% from protestant Christians, 18% from Muslims and 16% from other religious groups have been using contraceptive as EDHS cross-tabulated data for Oromia region shows.

Women living in rural areas demand to have large number of children than those residing in urban areas. This may be due to the differences and cumulative effects of factors involved in the analysis between rural and urban place of residence, particularly level of education, family planning use, access to information and occupation. This study result was supported by a study done in Bangladesh (Uddinet *al.*, 2011). In all areas information obtained from interviewees and discussants indicate that women from rural place of residence want to have large number of children as they are uneducated and fail to understand the costs needed to up-bring children. Women in rural areas do not want to take family planning methods as they claim children are the

blessings of God and need to involve their children to agricultural sectors but there is limited area to absorb children in urban areas when grown.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATION

6.1 Summary

Ethiopia is one of the Sub-Saharan African countries characterized with declining but still has high population growth. The high population growth is attributed to the high demand of labour force in agriculture, the belief that children are vital for old age security, household domestic chore and considered as blessings and reputations in areas that are tied strongly with traditions as this study and similar other studies reveal. Demand for fertility is expressed in terms of ideal family size, desire for more children and the preferred waiting time to the next birth. These three variables, together are known as fertility preferences, are the dependent variables explored in this study. That is to fill the gap as the study of fertility preferences is limited in Ethiopia in spite of its importance in predicting the actual fertility. The objective of this study was to assess variables that were thought to affect fertility preferences in Oromia Region.

The preferred birth interval was dichotomized in to those women preferred to have births in two years time and before, and after two years. The desire for more children was also categorized into two groups with “no” or “yes” responses. The ideal number of children was regrouped into 2 categories with women demanding less than or equal to 4 and above. Logistic regression model was utilized to assess the effect of independent variables on all the dependent variables. Almost the same independent variables were used to explore their effects on the three dependent variables.

Based on the 2016 EDHS data, both the descriptive and analytical results were processed. Descriptive results were used to help inculcate the distributions of all socio-cultural, economic, demographic and other characteristics against each independent variable. The independent, all are categorical, variables are child loss experience, decision making power, age of women, age at first marriage, ethnicity, level of education, contraceptive use, wealth status, occupation, number of living son, number of living daughter, type of place of residence and religion.

Controlling for the effect of others, according to the result obtained from logistic regression model, ethnicity, current age of women, current contraceptive use, number of living daughter and

number of living son were found to affect the preferred birth interval. Moreover, these variables also had associations with the desire for more children except ethnicity. Religion had also statistically significant association with the desire for more children. Standardized decision making index, education, number of living daughter, religion and place of residence were found to affect the ideal number of children.

6.2 Conclusions

The limited fertility preference studies in Ethiopia, Oromia region, initiated this study to emerge. Data on currently married women were utilized to assess the associations between the each dependent variables and considered independent variables.

For this study, among all independent variables considered, significant number of variables was found to affect the dependent variables. With regard to the preferred waiting time to the next birth, demographic, ethnicity and contraceptive variables were the best important variables found to have affected it. The desire for more children was also affected mostly by the demographic variables, religion and contraceptive. Diverse variables (geographical, socio-cultural) were found to have affected the ideal number of children. Most of the findings obtained from this study were found to be compatible with other studies undergone worldwide.

The number of daughters women currently possess has an effect on women to prefer to have birth spacing. The same is true for women having 1-2 living sons. Women using contraceptive currently preferred not to have births within short period of time which needs encouragement. The fact older women needs to have births soon can pose impact on their health which implies that officials have not made much effort about the betterment of woman health issues.

Women using contraceptive desire not to have another child indicate the importance of contraception in reducing the potential children. Differences in desiring for more children between women from different religious groups show the lack of awareness by some groups than others. It is easy to guess whether women want to have another child or not by simply looking at the current number of sons and daughters women have at hand.

The fewer ideal number of children demanded by educated women is related to the degree of awareness which implies the need to educate women if one wants to reduce the number of

children women want to have in their life course. Women with strong decision making power reduce ideal family size which signifies women to be empowered if ideal number of children needs to be reduced. Urbanization also contributes a lot in reducing ideal number of children women want to have.

Some, though limited, unexpected results were also obtained in this study. Among the unexpected results, wealth status, child loss experience and occupation were variables that posed no statistically significant effects on any of the dependent variables. Occupation was found to have effect on none of the three dependent variables which is also unexpected.

6.3 Recommendations

Based on the results of this study the following recommendation can be forwarded to help women to shift towards their reasonable best fertility preferences.

1. Better preferred waiting time could be chosen when women are supplied with contraceptive use and must therefore be encouraged by district health offices and nin governmental organizations working on reproductive health.
2. Providing education to women by regional education bureau, through adult education programs, is indispensable so that they could shift their demand to shorten their family sizes.
3. It is important to focus by district health office on Muslim women to help them to have reasonable number of children to protect the health of mother and child and quality of children.
4. Empowering women by district women and youth affairs is important in reducing the number of births women demand in their life.
5. Educating rural women by district health office, to prevent excess fertility, about the importance of small family size is important.
6. Since educated women resulted in reduced ideal family size, the regional government must work on supplying education to all women to at least some primary so that actual fertility will also be reduced. Hence, considering gross population as an opportunity for development is not indispensable; government must revise its outlook on population

matter and should develop clear population policy. It is not clear whether the current population policy is in effect or not.

7. There is a need to provide information to women by district health office experts regarding the number of children they prefer in their life based on scientific evidence and their capacity to rear children.
8. Muslim women are linking the issue of non use of family planning method and hence not controlling fertility to Islamic religion, while as some evidence shows, that is not the case. So regional, zonal and district level health offices must work through religious leaders to shape Muslim women to have reasonable number of children and convincing them to use contraception.
9. The issue of contraceptive use is not as such accepted by rural women as compared to urban counterparts and hence works need to be done more by experts from health office and non government organizations working on reproductive health.
10. Fertility preference studies in Ethiopia must be undergone in the future by combining women and men background information and the actual fertility at national level so that the study will be more meaningful.

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Appendices

Appendix 1: Multicollinearity index between independent variables for the desire for more children.

Coefficients							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.474	.158		3.004	.003		
Standardized decision making index	-.030	.030	-.029	-1.005	.315	.956	1.046
Child loss experience	-.114	.033	-.103	-3.454	.001	.886	1.129
Education	.138	.027	.171	5.121	.000	.708	1.413
occupation	-.006	.013	-.012	-.424	.672	.919	1.088
Ethnicity	.019	.025	.022	.757	.449	.950	1.053
age at first marriage	.065	.030	.063	2.192	.029	.942	1.062
Current contraceptive Use	-.071	.032	-.067	-2.205	.028	.849	1.178
Religion	.052	.018	.090	2.903	.004	.828	1.207
Type of place of residence	.094	.058	.055	1.616	.106	.693	1.443
Wealth index	-.002	.013	-.004	-.127	.899	.681	1.468
Age of women	-.103	.017	-.180	-5.978	.000	.874	1.144
Number of living daughters	-.043	.012	-.110	-3.727	.000	.906	1.104
Number of living sons	-.089	.016	-.159	-5.396	.000	.913	1.095

Appendix 2: Dependent Variable (ideal number of children) Encoding and categorical variable coding

Original Value	Internal Value
Less or equal to 4 children	0
Greater than 4 children	1

Categorical Variables Coding						
		Frequency	Parameter coding			
			(1)	(2)	(3)	(4)
Wealth Index	Poorest	175	1.000	0.000	0.000	0.000
	Poorer	248	0.000	1.000	0.000	0.000
	Middle	250	0.000	0.000	1.000	0.000
	Richer	276	0.000	0.000	0.000	1.000
	Richest	194	0.000	0.000	0.000	0.000
Religion	Orthodox Christian	245	0.000	0.000	0.000	
	Protestant Christian	250	1.000	0.000	0.000	
	Muslim	618	0.000	1.000	0.000	
	Others	30	0.000	0.000	1.000	
Employment Type	Not working	644	0.000	0.000	0.000	
	Working for family	268	1.000	0.000	0.000	
	Employed	32	0.000	1.000	0.000	
	Self employed	199	0.000	0.000	1.000	
Number of living sons	1-2 sons	546	0.000	0.000		
	No son	235	1.000	0.000		
	2 and above	362	0.000	1.000		
Ethnicity	Oromo	985	0.000	0.000		
	Amhara	82	1.000	0.000		
	Others	76	0.000	1.000		
Education	No education	703	0.000	0.000		
	Primary	353	1.000	0.000		
	Secondary and above	87	0.000	1.000		
Age of women	25-34	489	0.000	0.000		
	15-24	291	1.000	0.000		
	35 and above	363	0.000	1.000		
Number of living daughter	1-2 daughters	571	0.000	0.000		
	no daughter	253	1.000	0.000		
	3 and above	319	0.000	1.000		
Standardized decision making index	no decision	394	0.000			
	yes	749	1.000			
Child loss experience	none	831	0.000			
	1 or more	312	1.000			
Age at first marriage	less than 18 years	704	0.000			
	greater than or equal to 18	439	1.000			
Type of place of residence	Urban	106	0.000			
	Rural	1037	1.000			

Appendix 3: Appendix 3: Dependent Variable encoding (preferred waiting time to the next birth) and categorical variable coding

Original Value		Internal Value				
Greater than 2 years		0				
Less than or equal to 2 years		1				
Categorical Variables Codings						
		Frequency	Parameter coding			
			(1)	(2)	(3)	(4)
Wealth index combined	Poorest	96	0.000	0.000	0.000	0.000
	Poorer	104	1.000	0.000	0.000	0.000
	Middle	121	0.000	1.000	0.000	0.000
	Richer	121	0.000	0.000	1.000	0.000
	Richest	95	0.000	0.000	0.000	1.000
Occupation	Not working	308	0.000	0.000	0.000	
	Working for family	122	1.000	0.000	0.000	
	Employed	12	0.000	1.000	0.000	
	Self employed	95	0.000	0.000	1.000	
Religion	Orthodox Christian	108	0.000	0.000	0.000	
	Protestant Christian	107	1.000	0.000	0.000	
	Muslim	304	0.000	1.000	0.000	
	others including Catholic Christian	18	0.000	0.000	1.000	
Ethnicity	Oromo	459	0.000	0.000		
	Amhara	40	1.000	0.000		
	Others	38	0.000	1.000		
Age of women	15-24	207	0.000	0.000		
	25-34	247	1.000	0.000		
	34 and above	83	0.000	1.000		
Number of living daughters	No daughter	176	0.000	0.000		
	1-2 daughter	274	1.000	0.000		
	>2 daughter	87	0.000	1.000		
Number of living sons	No son	163	0.000	0.000		
	1-2 sons	275	1.000	0.000		
	> 2 sons	99	0.000	1.000		
Education	No education	288	0.000	0.000		
	Primary	199	1.000	0.000		
	Secondary and above	50	0.000	1.000		
Standardized decision making index	No decision	192	0.000			
	Yes	345	1.000			
Current contraceptive use	No	354	0.000			
	Yes	183	1.000			
Type of place of residence	Urban	51	0.000			
	Rural	486	1.000			
Age at first marriage	Less than 18 years	307	0.000			
	≥to 18 years	230	1.000			
Child loss experience	None	436	0.000			
	1 or more	101	1.000			

Appendix 4: Dependent Variable encoding (desire for more children) and categorical variable coding

Original Value		Internal Value				
No more children		0				
Have another		1				
Categorical Variables Codings						
		Frequency	Parameter coding			
			(1)	(2)	(3)	(4)
Wealth index	Poorest	176	1.000	0.000	0.000	0.000
	Poorer	229	0.000	1.000	0.000	0.000
	Middle	225	0.000	0.000	1.000	0.000
	Richer	249	0.000	0.000	0.000	1.000
	Richest	183	0.000	0.000	0.000	0.000
Occupation	Not working	597	0.000	0.000	0.000	
	Working for family	253	1.000	0.000	0.000	
	Employed	28	0.000	1.000	0.000	
	Self employed	184	0.000	0.000	1.000	
Religion	Orthodox Christian	240	0.000	0.000	0.000	
	Protestant Christian	222	1.000	0.000	0.000	
	Muslim	568	0.000	1.000	0.000	
	others including catholic Christian	32	0.000	0.000	1.000	
Ethnicity	Oromo	906	0.000	0.000		
	Amhara	77	1.000	0.000		
	Others	79	0.000	1.000		
Education	No education	669	0.000	0.000		
	Primary	321	1.000	0.000		
	Secondary and above	72	0.000	1.000		
Current Age of women	25-34	460	0.000	0.000		
	15-24	253	1.000	0.000		
	35 and above	349	0.000	1.000		
Number of living sons	1-2	501	0.000	0.000		
	No child	205	1.000	0.000		
	3and above	356	0.000	1.000		
Number of living daughters	1-2 daughter	536	0.000	0.000		
	No daughter	226	1.000	0.000		
	3 and above	300	0.000	1.000		
Standardized decision making index	No decision	366	0.000			
	Yes	696	1.000			
Age at first marriage	Less than 18 years	665	0.000			
	Greater than or equal to 18 years	397	1.000			
Child loss experience	none	764	0.000			
	1 or more	298	1.000			
Type of place of residence	Urban	98	0.000			
	Rural	964	1.000			
Current contraceptive use	No	699	0.000			
	Yes	363	1.000			

Appendix 5: qualitative Questionnaire

Focus Group Discussions (FGD) and Key Informant Interviews

My name is _____ I am collecting data on fertility preferences among currently married women in Oromia Region. You are the person/s who fit/s to respond questions about fertility preferences in the region. The data will be utilized for the partial fulfillment of Masters of Science in population studies and in turn used by policy makers, planners and will be a base for other researchers. Hence, I request your willingness to be involved in providing genuine responses concerning the following questions lasting a maximum of 1 hour.

I. Questions on Ideal Number of Children

1. Taking number of living daughter into account, who do you think of currently married women in the reproductive age aspire to have large number of children? Why?
2. Which category of religious group (mention) of currently married women would you think like to have large number of children? Why?
3. Considering level of education of women, who would you think of currently married women like to bear large number of children? Why?
4. Who do you think of currently married women would like to have large number of children taking their decision making power into consideration? Why?
5. Who do you think of currently married women prefer to have large number of children regarding place of their residence? Why?
6. Generally, who do you think of currently married women prefer to have large number of children? Why?

II. Questions on Desire for More Children

1. Considering current age of women, who do you think of currently married women in the reproductive age desire for more children? Why?
2. Taking number of living son into account, who do you think of currently married women in the reproductive age desire for more children? Why?
3. Taking number of living daughter into account, who do you think of currently married women in the reproductive age desire for more children? Why?

4. Does ethnicity and religion affects the decision of currently married women to desire for more children? Which ethnic group and religious type desire for more children? Why?
5. Does contraceptive use matters in determining women`s desire for more children? How?
6. Generally, who do you think of currently married women prefer to have the desire for more children? Why?

III. Questions on Preferred Birth Interval

1. Do you think current age of women affects the decision of currently married women in the reproductive age in preferring birth interval to the next birth? Who do you think would prefer longer birth interval? Why?
2. Does number of living son matter in affecting currently married women`s decision to prefer birth interval to their next birth? Why? Who do you think would prefer longer birth interval? Why?
3. Does number of living daughter matter in affecting currently married women`s decision to prefer birth interval to their next birth? Why? Who do you think would prefer longer birth interval? Why?
4. Which ethnic group of currently married women do you think would prefer to wait long birth interval to their next birth? Why?
5. Does contraceptive use matter in shaping women`s decision on the preferred length of time to the next birth? How?
6. Generally, who do you think of currently married women prefer to wait long birth interval for the next birth? Why?

In-depth Interviews

I. Questions on Ideal Number of Children

My name is _____ I am collecting data on fertility preferences among currently married women in Oromia region. You are the person/s who fit/s to respond questions about fertility preferences in the region. The data will be utilized for the partial fulfillment of Masters of Science in population studies and in turn used by policy makers, planers and will be a base for other researchers. Hence, I request your willingness to be involved in providing genuine responses concerning the following questions lasting a maximum of 1 hour.

1. How many children do you want to have in your whole life considering number of your current living daughter (mention) into account? Why? In your opinion, is this number optimum, large or small? Why?
2. Given your religious commitment (mention your religion), how many children are you expected to have? Why? Why not?
3. Are there differences in the number of children that educated and uneducated woman want to have? Why? How about you compared to other groups?
4. Does women`s decision making power affects the number of children she wishes to have? How? Could you please tell us your experience?
5. Is there difference in the number children to have in one`s lifetime among rural and urban residents? Why and How? Could you please tell me about yourself compared to your counterpart?
6. Generally, how many children do you want to have in your whole life? Why?

II. Questions on The Desire for More Children

1. Considering your age into account do you want to have a/another child (mention your age)? Why? Why not?
2. Do you think having son or daughter affect a woman to have another child? Why? Why not?
3. Does your ethnic member expect you to have another child? Why? Why not?
4. Do you currently use contraception? Why? Why not?
5. Generally do you want to have a/another child? Why? Why not?

III. Questions on the Preferred Waiting Time to the Next Birth

1. If you have child/children what is the age of your recent child? Why the age of woman`s last child affects woman to have a child sooner or later?
2. Do you think current age of woman affects the preferred waiting time to the next birth? How? What about you?
3. Does the number of living son matter for a woman to shape the preferred waiting time to your next birth? Why? What will be the ideal birth interval for you from now (mention your number of son)?

4. Does number of living daughter affects woman`s preferred waiting time to the next birth? How? What about the ideal birth interval you wait to your next birth from now (mention your number of daughter)?
5. Does ethnicity affects woman`s preferred birth interval? How? What is the time you prefer to wait from now to your next birth (mention your ethnicity)?
6. How contraceptive use affects woman`s preferred waiting time to their next birth? What about yours? Could you tell us your ideal birth interval from now to your next birth? Do you currently use contraception? Why? Why not?
7. Generally, what is the length of time you prefer to wait to your next birth from now? Why?

Appendix 6: Number and Type of Interview by Location

Type of Interview	Interview Area							
	Jimma		Hararghe		Shewa		Borena	
	rural	urban	rural	urban	rural	urban	rural	urban
FGD	2	2	2	2	2	2	2	2
Old woman	1	1	1	1	1	1	1	1
Young woman	1	1	1	1	1	1	1	1
KII	2	2	2	2	2	2	2	2
HEWs	1	1	1	1	1	1	1	1
Elderly	1	1	1	1	1	1	1	1
IDI	4	4	4	4	4	4	4	4
Young Educated women	1	1	1	1	1	1	1	1
Old Educated Women	1	1	1	1	1	1	1	1
Young Uneducated Women	1	1	1	1	1	1	1	1
Old Uneducated Women	1	1	1	1	1	1	1	1

Note that all participants are women except elderly.