

**Reproductive Preferences and the Demand for
Family planning among Women in Oromia State,
Ethiopia**

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Abstract

The subject of reproductive preferences is of fundamental importance for population policy and family planning programs because whether individuals or couples want to cease or delay childbearing determines the demand for family planning. This study intends to examine fertility preferences and the demand for family planning among women in Oromia state (Ethiopia), using data from the 2005 Ethiopian DHS. Descriptive Statistics and multivariate logistic regressions were used to analyze the data. It was observed that women desired on average 4.2 children while the actual fertility rate was 6.2 children per woman in 2005. With an observed wanted fertility rate of 4.3 children per woman, the gap with the actual TFR indicates that about a third of births are unwanted. Moreover, about 47% of women wanted to limit child bearing and another 34% wanted to space births for at least two years. The desire to limit child bearing was determined by age, sex composition of living children, knowledge and use of family planning and exposure to media on the logistic regression analysis.

The overall demand for family planning was estimated at 55%. While there is a higher overall demand for spacing than limiting, such a higher demand for spacing was observed among young women. About 75% of the demand was unmet, indicating the gap between fertility intentions and actual contraceptive behavior. Age, fertility intentions, number of living children, knowledge of family planning and exposure to family planning information through the media were the main factors that influence women's demand for family planning on the regression analysis. Similarly, the main reasons for unmet need among women who do not want any more child included fatalism, objections to use, health concerns and lack of knowledge about contraception and its sources. Overall, it is observed that the demand for children is lower than the actual fertility and women are motivated to control their fertility though the majorities are not actually able to control it. Thus, it is recommended that improving family planning information and service delivery, improved IEC on family size norms and family planning, improving informed choice of contraceptives (quality of care) and increasing male participation in reproductive health are important.

Key words: Fertility preferences, ideal family size, demand, family planning, unmet need.

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1. Introduction

1.1 Background

In the past few years, Demographic and Health Surveys (DHS) conducted in many countries of Sub-Saharan Africa have reported that fertility has begun to decline in most countries of the region. However, the pace of the decline is slower than transitions observed elsewhere in the developing world (Zlidar et al, 2003; UN, 2001). Average TFR in the region has declined from its highest level of about 7 children per woman in 1960's to about 5 children per woman in 2000-2005(UN, 2005), while during the same period a replacement level of fertility was achieved in many east Asian countries. In Ethiopia, fertility begun to decline very recently. Total Fertility Rate declined from 6.4 in 1990 to 5.4 in 2005(CSA, 1993; CSA and ORC Macro, 2006). The earlier skepticisms that fertility will not decline in the region and the slow decline in fertility in Sub-Saharan have been attributed to the high value of children, the extended family system and its socio-cultural norms, low levels of economic development and high infant and child mortality in the region(Caldwell and Caldwell, 1987; Mason, 1997).

The cause of fertility transition has been a central topic of demographic researches for many decades. Apparently, it was observed that the causes of the transition varied from the developed and developing world and among developing countries themselves. The general notion according to many researchers, who do not comply with the effects of economic development or "industrialization" on fertility in the developing countries, is that fertility transition involves key roles for changes in the demand for children as well as for the diffusion of new attitudes about birth control and for greater accessibility to contraception, a 'diffusion process' (Casterline, 2001; Demney, 2003; Cleland & Wilson, 1987). In view of that, most of the work in this regard is based on the idea that fertility declines either when couples' intended family sizes decrease, or when they are better able to achieve those intentions. Fertility preferences are treated as key drivers of fertility levels, mainly because fertility behavior is driven by fertility demand or motivation both of which are reflected in preferences that, in turn, influence contraceptive use (Dodoo, 2001; Aminur, 1993).

Indeed, various researchers have tried to examine the effects of fertility preferences on fertility and contraceptive use in the developing world (Bongaarts, 1993; Westoff, 1990). Many of these studies have shown that childbearing preferences influence fertility levels and contraceptive behavior significantly. Empirical analysis from the DHS data also shows that fertility decline is achieved by increased implementation of fertility preferences. By decomposing fertility decline in 12 developing countries, Bongaarts demonstrated that the increased implementation of fertility preferences accounted for 66% of the observed fertility decline in those countries (Bongaarts, 1993). Moreover, by comparing the reproductive behavior of women who wish to stop childbearing with the behavior of women who have not yet reached their desired family size, researches have shown that women who wish to stop child bearing have lower fertility and a higher contraceptive use than those who do not want to stop child bearing (Bongaarts, 1992; Westoff, 1990).

The importance of reproductive preferences has been further advanced by the 1994 International Conference on Population and Development (ICPD) which focused more on 'reproductive rights' and 'needs' than attaining demographic targets and goals. With the

ICPD it was made clear that individuals should be enabled “to decide freely and responsibly the number, spacing, and timing of their children and to have the information and means to do so”(UN, 1994). The fundamental and important population policy guidance should therefore be the premise that individuals or couples should realize their reproductive intentions and preferences.

However, in many countries of Africa and Ethiopia in particular, individual reproductive preferences are a far cry from being met either for demographic purposes or to fulfilling reproductive rights. As fertility starts to decline, the gap between reproductive preferences and actual fertility increased and the unmet need for family planning rose. Researches elsewhere show that as the fertility transition gets underway, ideal family size declines, the percentage of women who want to stop child bearing rises and unwanted fertility increases because women are not able to fully implement their reproductive preferences (Bongaarts, 1997; Lightbourne, 1985). DHS conducted in many countries of the developing world also indicated that many women of reproductive age in developing countries want to stop child bearing, many have more children than they want and many who do not want to become pregnant are sexually active but nevertheless not using any contraceptive method (Zlidar et al, 2003).

Family planning programs are expected to provide individuals/couples with the resources they need to meet their fertility goals, and hence the gap between fertility demand and actual births would decline as contraceptive prevalence rises. But, contraceptive use is very low in Ethiopia. Only 14.7% of currently married women used contraceptives as of 2005(CSA and ORC Macro, 2006).This figure is only 11% for rural areas. Such level of contraception, particularly of rural areas, is too low to influence fertility level significantly or to meet fertility desires and intentions of women. The failure of individuals to use contraception when they would like to forego childbearing has been hailed as the ‘unmet’ need for contraception (Westoff and Bankole, 1995). About 34% of women expressed such an unmet need for contraception in Ethiopia in 2005. The problem in Ethiopia is not only of high fertility and low family planning use, but also of rural-urban and inter-regional variation in the level of fertility and family planning use.

The analysis of Fertility preferences is of fundamental importance for family planning program purposes and for population policy as they determine the demand for contraception and the potential impact on the rate of reproduction (Westoff and Bankole, 1995).The fertility intentions of people, whether individuals (couples) want to cease or delay childbearing determines the demand for family planning. However, studies on the nature and determinants of fertility preferences and its influence on demand for family planning are very limited in Ethiopia. Particularly, demographic analysis at the regional level is very scarce in Ethiopia.

The objective of this study is to examine the level and determinants of fertility preferences and the demand for family planning among married women in Oromia state, one of the regional states in Ethiopia. Oromia State is preferred for this study because it is the state with the largest population and the highest fertility rate in Ethiopia.

1.2 Research Questions

In light of the above facts, we formulate our main research questions as follows “what are the levels and determinants of fertility preferences and its Influence on the demand for family planning among women in Oromia state, Ethiopia?” Sub questions include,

1. What is the level of fertility preferences of women in the state and how do fertility preferences vary with social, demographic, and economic characteristics of women?
2. What factors influence fertility intentions of women in the State, specifically the desire to limit child bearing?
3. What is the level of met and unmet demand for family planning and how does this demand vary with socio-economic and demographic characteristics of women?
4. What factors influence the demand for family planning and how do the fertility preferences of women influence the demand for family planning?

1.3 Organization of the Thesis

This thesis is organized into six chapters. Chapter one contains the background, objective and research questions of the study. Chapter two addresses the theories that underlie this research and the conceptual framework that guides the research. In chapter three, the data and methods used in the study are discussed. Chapter four provides analysis of the levels and determinants of fertility preferences. Similarly, chapter five discusses the level and determinants of the demand for family planning. Finally chapter six draws conclusion. This chapter concludes with discussion of main findings and recommendations for policy and future research.

2. Theory and Conceptual Frame work

2.1 Fertility and Family planning in Ethiopia

Ethiopia is one of the poorest countries in Africa with a large and rapidly growing population. The country is administratively divided into 11 Regional States, of which Oromia is the largest of the states constituting for more than 35% of the country. With an estimated population of 73 million by mid 2005 (CSA, 2006), Ethiopia ranks second after Nigeria in Sub-Saharan Africa in population size. The population size has been increasing rapidly since the 1950's. It was estimated that at the turn of the last century, the country had only 11.8 million people. This doubled to 23.6 million by 1960, to 47.4 million by 1990 and further to 73 million in mid 2005 (CSA 1991, 1999, 2006). With the present growth rate of about 2.7%, the population is expected to double in about 26 years. Continued high birth rates along with declining mortality rate are the two demographic factors responsible for the rapid increase in the Ethiopian population.

To harmonize the rate of population growth with the rate of economic development, a national population policy was put into place in Ethiopia in 1993. The policy was based on a close scrutiny of the demographic and development situations in the country which revealed that demographic and developmental factors reinforce each other. It was observed that the high fertility and rapid population growth of the country exert negative influences on economic and social development and low levels of social and economic development provide the conditions favoring high fertility and rapid population growth (National population policy, 1993). The policy aimed at reducing the fertility rate of the population to 4 children per woman by 2015. But, the fertility level is still as high as 5.4 children per woman in 2005.

The main feature of fertility in Ethiopia is that it had been (and still is) at a high level but appears declining at present. The total fertility rate was about 7.5 in 1984, but declined to 6.4 in 1990, and further to 5.4 in 2005 (CSA 1991, 1993 and 2006). It is expected that fertility will continue to decline as the country is implementing a population policy since 1993. But, the problem is that of regional and rural – urban variation in Fertility and differentials with socio-economic status within regions. In 2005, TFR in rural Ethiopia was 6.0 as compared to 2.4 children per woman in urban areas. In the capital, Addis Ababa, TFR was 1.4 children per woman, in other regional states like Oromia and Somali it was 6.2 and 6 children per woman respectively. The difference with education is also remarkable. Illiterate woman had on average 6.1 children, while women with a secondary and higher education had 2 children on average (CSA and ORC Macro, 2006). This was due to the differences in the determinants of fertility like contraceptive use.

Similarly contraceptive use and other proximate determinants of fertility varied significantly between rural and urban areas and between the States in Ethiopia. About 47% of currently married women living in urban areas used contraceptives as compared to only 11% of women in rural areas in 2005 (CSA and ORC Macro, 2006). Among the States, the lowest contraceptive prevalence was observed in Somali regional state, a prevalence of mere 3%. Contraceptive prevalence was very low in the dominantly rural regions like Somali (3.1%),

Afar (6.6%), SNNP (11.9%), Oromia (13.6%) and Amhara (16.1%). Such level of contraception is too low to influence fertility levels significantly.

2.2 The Links Between Fertility Preferences, Fertility and Contraception

The links between fertility preferences, fertility and contraception have been dealt with in relation to fertility transition. Demand for smaller families is the primary force determining birth rates (Demney, 2003; Cleland & Wilson, 1987) and Contraceptive use is the main mechanism thorough which peoples desired number of children is attained. Fertility transition is a process that involves key roles for changes in the demand for children as well as for the diffusion of new attitudes about birth control and for greater accessibility to contraception (Cleland & Wilson, 1987; Demney, 2003).The changing balance between costs and benefits of child bearing, resulting in reduced parental demand for children is the fundamental force behind fertility decline. It is observed that women who want to limit or space child bearing will implement this preference through an increase in contraceptive use. Changing reproductive preferences are also assumed to result in a rise in deliberate efforts at birth control and this in turn brings about a decline in fertility. Westoff (1990), using data from 84 societies demonstrated that the aggregate proportion of women who want no more children is strongly correlated with both fertility and contraceptive prevalence.

Other studies have taken a more direct (micro level) approach by comparing the reproductive behavior of women who wish to stop childbearing with the behavior of women who have not yet reached their desired family size (Bongaarts, 1992). These studies have shown that women who wish to stop child bearing have lower fertility than those who do not want to stop child bearing. Bongaarts, using DHS data from 18 countries demonstrated that the average fertility rate of women who want no more children is 43% below the rate observed among women who have not yet completed their desired childbearing, and 49 % of women who desire no more births used contraceptives as compared to 24% among the latter (Bongaarts, 1992).

In the 1970's and 1980's data from the World Fertility Surveys were used to show that fertility would decline in developing countries if women are able to fully implement their reproductive preferences. The contrasts observed between the TFR and average desired family size was used in assessing the likelihood and potential magnitude of fertility change in developing countries (Lightbourne,1985). Empirical analysis from the DHS data after the 1980s also show that fertility decline can be achieved by increased implementation of fertility preferences. For instance, by decomposing fertility decline in 12 developing countries, Bongaarts showed that the increased implementation of fertility preferences accounted for 66% of the observed fertility decline (Bongaarts, 1993).Studies have also shown that there is a strong correlation between measure of reproductive intentions and contraceptive prevalence. The explanation may be that populations in which high proportions of women want no more children are likely to have large proportions of couples practicing fertility control (Westoff, 1990).

In many countries of Africa, it is observed that the demand for larger family size is changing. Ideal family size has declined significantly since the 1990's and the proportion of women

who want to limit child bearing has increased (Westoff, 2006). This may be attributed to the decline overtime in the benefits of children and a rise in the costs of child rearing. These changes in the cost benefit ratio lead parents to want fewer children, and mortality decline raises child survival so that families need fewer births to achieve the desired number of surviving children (UN, 2001). These trends in turn raise the demand for birth control. In fact, DHS data shows that a significant proportion of women who want to stop or space child bearing are not using any contraceptive method. This gap has been named as the unmet need for contraception. Currently married women are said to have an unmet need for family planning if they say that they want no more children (unmet need for limiting) or want to wait at least two years before having another child (unmet need for spacing) but are not using contraception (Westoff and Ochoa, 1991).

The estimates of unmet need along with the proportion currently using Contraception are intended to measure the total demand for family planning. In the whole of developing countries, it is estimated that more than 100 million (about 17%) married women would prefer to avoid pregnancy but are not using any method of family planning (Ashford, 2003). In sub-Saharan Africa, data compiled by Westoff from DHS surveys between 1996 and 2005 shows that unmet need for family planning ranged from 13 percent in Zimbabwe to 38 percent in Rwanda (Westoff, 2006). It was found that unmet need is most prevalent in sub-Saharan Africa. Implementing the fertility preferences of couples by meeting their family planning demand has a significant implication for fertility transition. For instance, it was suggested that the fertility level in sub-Saharan Africa could be reduced by about one birth per woman if it were possible to meet the unmet need for family planning (Robey et al., 1996).

2.3 Theoretical Framework

The analysis of reproductive preferences can be approached at two levels; macro demographic level (regional) and the micro (individual) level. In this study, we pursue a Micro (individual) level analysis. In this section, we will try to emphasize some conventional theories of fertility which will help us explore the linkages between individual fertility goals (demands or preferences) and the components that affect the demand for children.

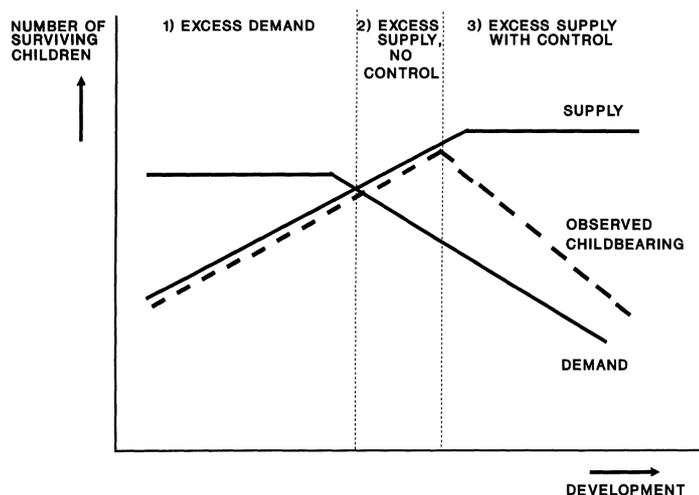
In the 1980's the value of children model of Hoffman and Hoffman, which depicted that demand for children (and hence fertility) is higher in societies where children contribute to satisfying the material, social and intrinsic needs of the parents, was popular. According to this model the perceived value of children is considered as an intermediate variable in the explanation of the relation between socio-economic, cultural and gender aspects and fertility behavior (Fawcett, 1989; Bruijn, 1998). Hence, one may suppose that in a dominantly agricultural society like Ethiopia where the value of children is high, this approach would be more relevant to the study of fertility preferences. But, the value of children approach was criticized for producing few generalizations about how background variables influence the perceptions of satisfactions and costs of children in order to affect fertility preferences and behavior (Fawcett, 1983; Bruijn, 1998). Moreover; it is hardly possible to use the DHS data to apply concepts from this model because such determinants are not represented in the DHS data regarding fertility. Most studies of the determinants of fertility and contraceptive use in

the developing world, specifically those focusing on the supply and demand for children used the Easterlin's "synthesis framework"(supply-demand framework) of fertility determination (Bulatao and Lee, 1983;National Research Council,1993).This framework assumes that attempts to limit family size follow from consideration of the supply of children, the demand for children, and fertility regulation costs (Easterlin, 1975, 1978).

The Easterlin's Supply- Demand framework is a model of behavioral and biological factors affecting fertility in developing countries. The model assumes that all determinants of fertility work through the categories of demand for children, the supply of children and the costs of fertility regulation (Easterlin 1975, 1978). According to Bongaarts, these three factors play a crucial role in any comprehensive analysis of fertility, because they mediate between the more basic social and economic determinants on the one hand, and fertility on the other (Bongaarts, 1993). In the model, social and economic modernization and other basic determinants are seen as affecting reproductive outcomes by operating through the three mediating variables of demand, supply and cost of fertility regulation.

Demand refers to the number of surviving children parents would have if fertility regulation were costless, while by Supply he means the number of surviving children couples would have if they made no deliberate attempt to limit family size. The cost of fertility regulation included the economic, psychic, health, and social costs of acquiring and using contraception or abortion(Easterlin,1975).According to the model, motivation to limit fertility only occurs if the supply of children exceeds their demand and the greater the excess of supply over demand, the greatest this motivation. Figure 2.1 below shows the relationship between the supply of, demand for and number of surviving children as hypothesized by Easterlin (Easterlin and Crimmins, 1986).

Fig 2.1: Hypothetical Trends in Supply of, demand for and number surviving children in Easterlin's model



Source: Easterlin and Crimmins, 1986

Easterlin states that these variables change over the course of development and thus determine the actual number of children couples have. The transition from excess demand to excess supply by development is shown by the figure. Excess demand exists in traditional societies where average desired family size is high and couples may find that they can not achieve their reproductive objectives. At this stage there is no motivation to control fertility and actual fertility is constrained to its supply level (Easterlin and Crimmins, 1986). As a society modernizes, demand typically declines due to changing costs and benefits of children and supply rises largely as a result of declining child mortality. These trends produce an excess of supply condition in which couples become motivated to use birth control. In this phase therefore actual fertility remains at the supply level and couples bear unwanted children to the extent that supply exceeds demand (Easterlin and Crimmins, 1986). With continued declines in demand and/or increases in supply, motivation reaches the point at which it exceeds the cost of regulation, and couples begin to adapt birth control. For the remainder of the transition, the trend in the actual rate of child bearing is determined by trends in costs, demand and supply.

The Easterlin's framework is suggested to be simple and has strength in linking theory to policy and programme interventions (Bulatao and Lee, 1983). But, the model was criticized for its failure to quantify the three factors in acceptable manner (Bongaarts, 1993). Bongaarts (1993) proposed an alternative approach to the implementation of the original model of Easterlin. The model by Bongaarts measures reproductive performance in terms of births and additionally introduced a new variable called the degree of preference implementation to quantify the roles of the costs of fertility regulation and unwanted childbearing. But yet, this new variant enables a macro level analysis and also requires longitudinal data which is difficult to implement to our data at this time.

The present study focuses on the demand aspect (of children and contraception). The theory mentioned above does not provide enough backgrounds for fertility preferences and demands for family planning. Hence, we turn to looking at other researches and Literatures to identify the determinants of fertility preferences and the demand for family planning.

2.4 Determinants of Fertility preferences and family planning demand

Fertility preferences can be measured in several ways; ideal family size and desire for more children are the most commonly used indicators. This discussion will therefore concentrate on the determinants of fertility desires (ideal family size) and fertility intentions (desire for more children). Pullum (1983), assessing various studies on fertility preferences, organized the various factors influencing fertility desires and intentions into four categories; socio-economic factors, life cycle factors, gender preferences and the knowledge and use of family planning. On the other hand, Lee and Bulatao (1983) focusing on the value of children model identified factors like the costs and benefits of children, opportunity costs of child bearing, tastes and personal preferences as determinants of fertility preferences. These factors identified by Pullum and Lee and Bulatao are quite similar and in many circumstances overlap, except for the concept of costs and benefits of children, as we describe in detail below.

According to Pullum (1983) socio-economic factors which influence fertility desires and intentions include level of education, place of residence, occupation, income and wealth of

individuals or couples. Some of these were referred to by Lee and Bulatao as opportunity costs of child bearing, activities that parents must give up to spend the time required to bear and rear children. Since women are predominantly responsible for child bearing, these indicators of opportunity costs focus on women's characteristics. Women's education and occupation are the two main indicators used (Lee and Bulatao, 1983; McCarthy and Oni, 1987). Accordingly, studies have shown that women with higher levels of education and those employed in modern occupations are more likely to prefer small family size. In their analysis of DHS data, Westoff and Bankole (1995) observed such factors as urban residence, and education of women were significantly associated fertility desires and intentions of women.

The influence of income and wealth on fertility preferences is seen through different mechanisms. It is argued that income and wealth can be used to purchase substitutes for child services in the short run or to provide old age security that does not require the contribution of one's children in the long run (McCarthy and Oni, 1987; Pullum, 1983). Income and wealth may also indicate a greater exposure to new commodities and ideas. Hence, it is observed that women in higher income and wealth groups prefer smaller families than women in lower income and wealth groups. However, the effects of these socioeconomic variables is indirect and do not appear to be strongly predictive of fertility desires and intentions.

Lifecycle factors which influence fertility desires and intentions include number of children already born, marital duration, sex composition of children, age at first marriage, and current age (Pullum, 1983). With regards to lifecycle factors, researchers focused on how fertility preferences change over the lifecycle. Some support for this argument is provided by the fact that ideal family size most of the time shows a strong positive correlation with actual family size (number of children already born). The effects of age and the number of living children on fertility desires and intentions has also been reported by various studies, in which it was observed that the mean number of children desired and the desire to limit child bearing increases as both age and the number of living children increase (Westoff and Bankole, 1995; Short & Kiros, 2002). Pullum (1983) observed that other life cycle factors such as age at marriage and marital duration appear to have negative effects on desired family size when controlling for actual family size.

Various researchers have shown the influence of preferences for certain combinations of sons and daughters on fertility desires and intentions (Williamson, 1976; Pullum, 1983). Lee and Bulatao (1983) call this the tastes and personal preferences of children. In both terms, it is observed that preference for sons is higher in most traditional economies, particularly in Asia. But, since gender preferences can not be implemented, the actual impact of gender preferences may appear as a stated preference for additional children of unspecified gender, given the respondent's current family composition. It is observed that a couple whose family has a less preferred sex composition will be more likely to want another child (Pullum, 1983; Bairagi and Langsten, 1986). In Bangladesh, Bairagi and Langston (1986) observed that women with a higher proportion of sons are less likely to want more children and are more likely to practice contraception. Moreover, comparing the proportion of women at all two child compositions who want more child (data from UN population Division) Pullum (1983) observed that a stated desire to stop child bearing is generally more common among women with two sons than those with two daughters. Such influence of sex preference has also been observed in Ethiopia (Susan and

Kiros, 2002), Nigeria (McCarthy and Oni, 1987) and Botswana (Campbell and Campbell, 1997) in Africa.

Previous studies have also identified the knowledge, approval and use of family planning as important factors influencing fertility preferences. Most studies found that the greater the knowledge of and access to family planning methods, the smaller the desired family size and the more salient their fertility preferences (Namboodiri, 1970 cited in Pullum, 1983; Mohamed and Ringheim, 1997). Using multivariate analyses, Mohammed and Ringheim have shown that couple's approval of family planning, knowledge of family planning and discussion about family planning are correlated with the desire to have no additional children in Pakistan. It is concluded that Knowledge of and access to family planning will affect family size desires directly.

Related to the knowledge and approval of family planning is the influence of exposure to mass media, particularly those promoting family planning on fertility related behaviors of women (Westoff and Bankole, 1997; Gupta et al, 2003). The effects of exposure to mass media on behavioral change was explained by the ideation model derived from diffusion of innovation theory (Rogers, 1995 cited in Mohamed and Ringheim, 1997; Cleland and Wilson, 1987), and several steps to behavioral change were adapted from this theory. According to the ideation model the steps to behavioral change consists of five major stages of changes; knowledge, approval, intention, practice and advocacy (Gupta et al, 2003). So, it is likely that fertility and contraceptive behavior be influenced by these stages of behavior change.

Studies have also reported the influence of infant and child mortality on the demand for children (Heer, 1983; Sah, 1991). What is more commonly known from previous researches, but yet complex, is the strong relationship between child mortality and fertility. Heer (1983) and Sah (1991) have presented a number of propositions under which child mortality influences subsequent fertility behavior. Two of these propositions relevant in this case are that; the number of previous child deaths to a woman (couple) will be positively associated with that of demand for subsequent births and the magnitude of the impact of prior child deaths on the number of subsequent births to married couples depends on the costs of birth control. From the first proposition, Heer (1983) has shown that the number of surviving children demanded will be inversely associated with the number of previous child deaths. Using the second proposition, he suggested that where the costs of birth control are high, the number of prior child deaths will have little or no effects on the optimal number of subsequent births and where they are low; the magnitude of prior child deaths will have a much stronger effect on the optimal number of subsequent births. But, there are few empirical studies which have tested these propositions to evaluate their worth.

Similarly, researches have identified a number of factors related to family planning demand. The problem with this side is that, although information on potential demand for family planning has considerable demographic and policy significance, most demographic studies so far conducted have focused on the determinants of use and unmet need for family planning. Few studies have attempted to study the determinants of overall demand for contraception. We therefore use similar set of factors used in the study of unmet need for contraception and the met need for contraception for the purpose of studying the determinants of overall demand since these two elements constitute the overall demand for contraception.

Westoff and Ochoa (1991) using data from 25 countries included in DHS-I have shown that the overall demand for family planning varies with age, number of living children, residence and level of education of women. Particularly, the relationship between the number of living children and the demand for family planning was found to be consistently positive for almost all of the countries involved in the study. The effects of socio-economic factors like education, wealth and occupation on contraceptive behavior has been observed in many studies (National Research Council, 1993). Here, it is indicated that contraceptive practice is higher among women with higher education and employment status as compared to women with no education and no formal employment.

Unmet need can result from supply side factors that render family planning services unavailable or from other constraints that serve to prevent individuals from acting on their stated preferences (Casterline and Sinding, 2000). The most important of these constraints are lack of necessary knowledge about contraceptives, social opposition to contraceptive use and health concerns about side effects related to use. Analysis of DHS data from 13 countries by Bongaarts and Bruce (1995) showed that lack of knowledge, fear of side effects, and Husband's disapproval were the principal reasons for nonuse among women who were otherwise motivated to use family planning.

Similarly, Westoff and Bankole (1995) using DHS data observed that lack of information about family planning, opposition to family planning, and ambivalence about future childbearing were the principal factors responsible for unmet need for family planning. Other studies have found fertility desires of women, number of surviving children and the intention to have more children as factors affecting demand for contraception (National Research Council, 1993). More recent studies have focused on the role of communication about family planning, exposure to media, quality of services particularly availability of method choice, distance to services as important factors for use and non use of contraception (Westoff & Bankole, 2000).

In this research, we will find out whether these factors are important in influencing the fertility intentions and family planning demands of women in Oromia State, Ethiopia. Most of the social, economic and lifecycle (demographic) factors or contexts are treated as background variables in our study, while variables like knowledge and attitudes towards family planning, exposure to media, decision making about family planning, sex composition of living children and child mortality are considered as intermediate variables due to their expected direct influence. We use this information to build our conceptual model of the study in the next section.

2.5 Conceptual Framework

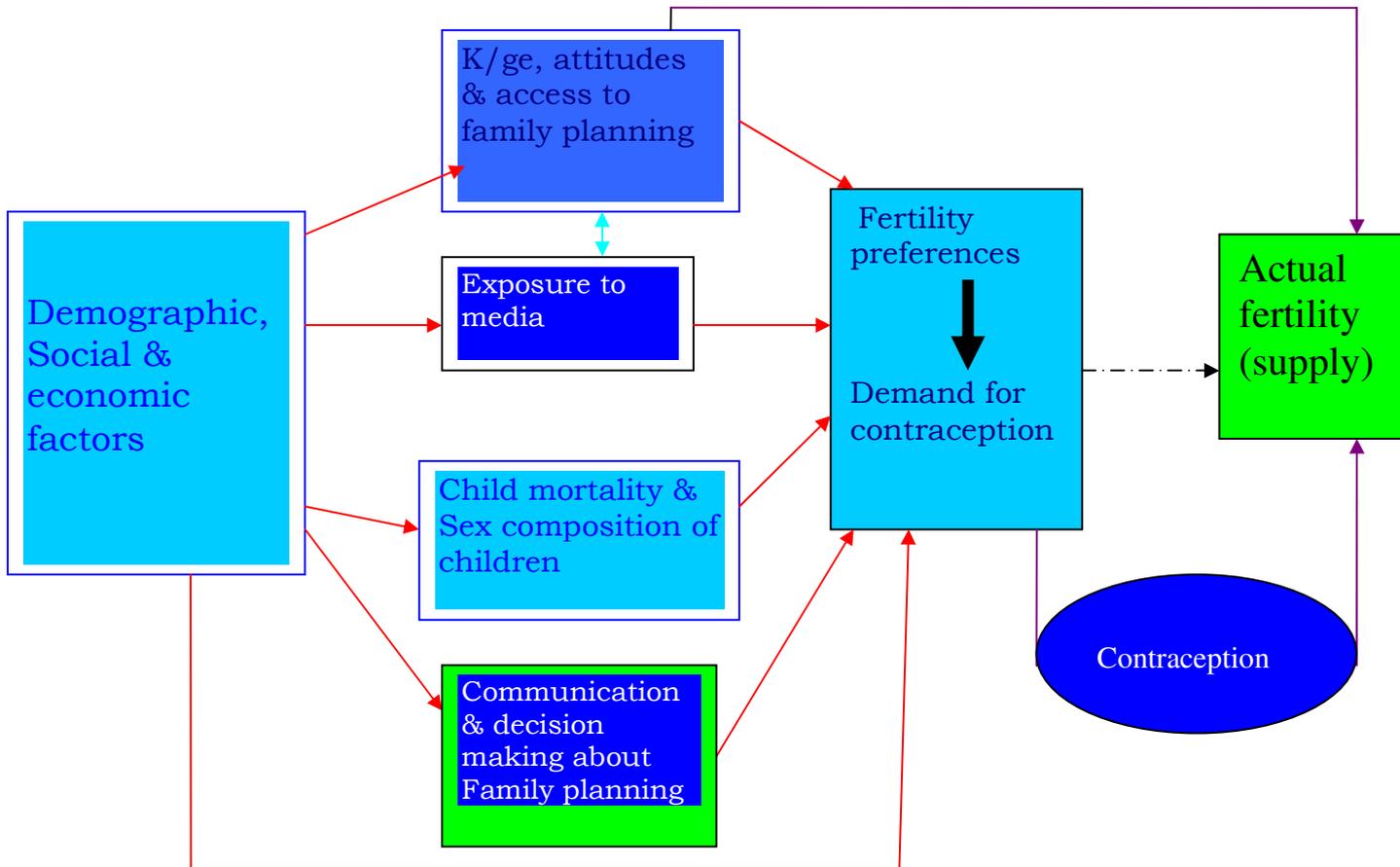
The conceptual framework we present in figure 2.2 is built up on the theoretical frameworks mentioned above, mainly the Easterlin's Supply-Demand framework and the determinants of fertility preferences and demands for family planning drawn from different studies. Concepts of demand (fertility preferences and demand for contraception), supply and fertility regulation come from Easterlin's framework. The demand aspect is treated as our dependent variable in this study. Variables listed in the first box of figure 2.2, the backgrounds – demographic, social and economic factors are drawn from studies by Pullum (1983), Lee and Bulatao (1983), McCarthy and Oni (1987) and Westoff and Bankole (1995, 1997). Demographic factors, also called life

cycle factors by Pullum (1983), include number of children already born, marital duration, age at first marriage, and current age of women. Social and economic factors which influence fertility desires and intentions include education, place of residence; occupation, income and wealth of individuals and couples. These factors are believed to influence fertility preferences of women and their demand for contraception indirectly through the intermediate variables. However, some variables like age and number of living children will also directly influence the number of children desired and the intention to limit child bearing and thus the arrow going from the first box to the third box indicates this relationship. The intermediate variables of the study (the second boxes in figure 2.2); knowledge and attitudes towards family planning, exposure to media, decision making about family planning, sex composition of living children and child mortality come from a number of empirical studies including a study by Pullum (1983), Bairagi and Langston (1986), Susan and Kiros (2002), Westoff and Bankole (1997 & 2000), Heer (1983), Sah (1991), Gupta et al (2003), Bongaarts and Bruce (1997), and Mohamod and Ringheim (1997). These variables are believed to influence fertility preferences and the demand for family planning directly. The case of exposure to mass media is different because it can influence fertility preferences and the demand for family planning indirectly through its effect on knowledge's and attitudes towards family planning and also can influence the fertility preferences of people directly by influencing their family size norms. The effect of mass media on behavioral change goes beyond knowledge and approval and includes intention, practice and advocacy (Gupta et al, 2003).

In most of these theories and literatures studied, it is observed that the factors listed above (labeled as background variables and intermediate variables) influence fertility preferences and the demand for family planning. We expect that these various determinants will influence fertility preferences and the demand for family planning among women in Oromia State (Ethiopia) and our study thus intends to find out whether these sets of factors also work in the Ethiopian setting. Our Outcome variables, fertility preferences and the demand for family planning, both focusing on the demand side are linked to fertility as proposed by the Easterlin model. Easterlin's model assumes that all determinants of fertility work through the categories of demand for children, the supply of children and the costs of fertility regulation (Easterlin 1975, 1978). Hence, assuming that any attempts to limit family size follows from the consideration of the demand for children, supply of children and the costs of regulation; we linked the three in the conceptual framework.

Based on these concepts, the following conceptual framework is developed to study the factors that influence fertility preferences and the demand for family planning (Fig 2.2). And, few working hypothesis have been developed from this expected relationships.

Fig 2.2: Conceptual Framework of factors associated with Fertility Preferences and the demand for family planning



2.6 Hypothesis

The following hypotheses are put forward to study the level and differentials of fertility preferences and the demand for family planning as well as the factors that influence fertility preferences and the demand for family planning.

1. Ideal family size and the intention to limit child bearing increase as age and parity of women increases.
2. Women from the richest wealth group are more likely to desire to limit child bearing as compared to women from the poorest wealth group in Oromia State.
3. The desire to limit child bearing is associated with women's knowledge and practice of family planning.
4. There is higher unmet need for family planning among younger women and women living in rural areas as compared to older and urban women in Oromia State.
5. Lack of knowledge of contraception and its sources is one of the factors behind unmet need for family planning in Oromia state.
6. The fertility intentions influence the demand for family planning among women in Oromia State.

3. Data and Methods

3.1 Study Design and Data

The Study is a cross-sectional study conducted among women of ages 15-49 in Oromia state. The data for this study comes from the 2005 Ethiopian Demographic and Health Survey conducted by the Central Statistical Authority of Ethiopia and ORC Macro in 2005. It is the most current, nationally representative demographic survey conducted in Ethiopia. The survey covered a sample of 14,645 households and 14,070 women age of 15-49. In Oromia State, 2230 women of age 15-49 were included. But, this sample size from Oromia State rises to 5010 after weighting, as the Regional State consists of more than a third of the population of Ethiopia. Of these 5010 women, 3300 were married at the time of the survey, and most of our analysis focuses on this group of married women. The survey collected detailed information on background characteristics, fertility, fertility preferences, fertility related behaviors like age at marriage, number and timing of births, use of contraception, and breast feeding practices from women. The survey collected both retrospective and prospective information with regards to fertility preferences and contraceptive behavior of women.

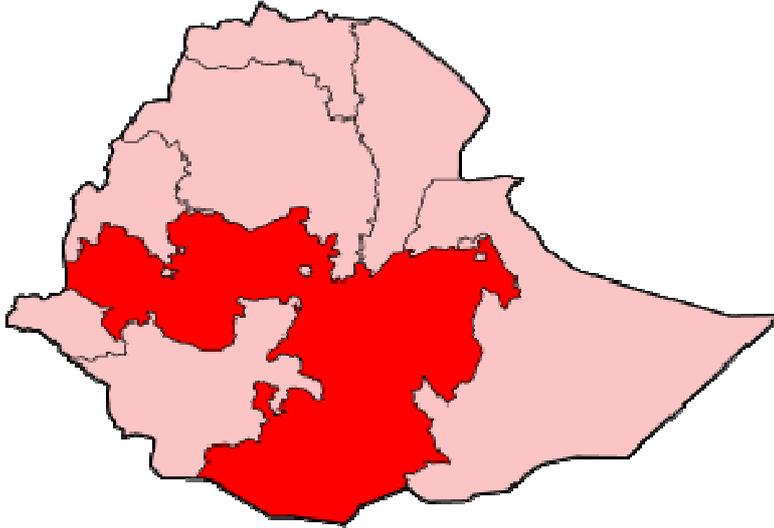
The DHS used a stratified clustered probability sample, and households were identified using a two stage cluster sampling procedure. In the selected households, all women age 15-49 that were either permanent residents of the households or visitors present in the household on the night before the survey were interviewed (CSA & ORC Macro, 2006). The sample was designed to provide indicators at national level (Ethiopia as a whole), urban and rural areas as well as for the 11 regional states (one of which is Oromia State) in Ethiopia. The sample was weighted to make the survey base represent the population from which the sample was drawn. For this study, we use data from individual women questionnaire, recoded by Measure DHS and obtained from their website with permission from the Measure DHS.

DHS data is generally of better quality data for developing countries like Ethiopia. They use large Sample size that is nationally representative. Standard Questionnaires (internationally used) were used to collect data, which was pre-tested in all the major local languages to make sure that the questions were clear and could be understood by the respondents. Interviewers, field editors and supervisors were trained for a month's time. They also made a field practice before the actual data collection begun. They were closely supervised during the field work. Moreover, MEASURE DHS Staff have made technical assistance during the survey implementation in order to ensure that survey procedures are consistent with the technical standards set by DHS (CSA and ORC MACRO, 2006). So, with such proper guidance and implementation the data quality is better. Overall, it was observed that the response rate of the survey was high (above 90%).

Our study area, Oromia State, is one of the nine regional states under the Federal Democratic Republic of Ethiopia. It is in fact the largest of all the states in terms of area and population size, covering more than one third of the country. By 2005, it had an estimated population of 26.6 million (CSA, 2006) and a population density of about 75 persons per square kilometer. About 89% of the population lives in rural areas. The state is inhabited by the Oromo ethnic groups which also make up about 40% of the population of Ethiopia. Christianity, Islam, and traditional

religions are the main religions practiced by people in the State. The State is known for its production of coffee, tea, hides and skins and other export items from Ethiopia. Figure 3.3 below shows the location of Oromia in Ethiopia.

Figure 3.3 Location of Oromia State in Ethiopia



Source: Ethiopian Mapping Agency

3.2 Variables and their Operationalization

The dependent variables for this study are Indicators of fertility preferences and demand for family planning. Indicators of fertility preferences used in this research are Ideal family size and desire for more children. The Demand for contraception is a dummy variable created after combining the current contraceptive use and the unmet need for contraception. Independent Variables included in the analysis include demographic factors like age, parity, number and sex composition of living children and age at marriage. Socio-economic variables include education, occupation and wealth. Moreover knowledge, attitudes towards contraception, practice of contraception, discussion about family planning, child mortality and exposure to media were among the explanatory variables included in this study.

The following concepts related to fertility preferences and the demands for family planning were defined. Most definitions given here are standard ones used by the MEASURE DHS.

Fertility Preferences – is a term used to express the demand or choices of parents with regards to the number, timing, spacing and gender of children (Freedman et al,1983).In this study, we focus on the number and spacing of children.

‘Ideal’ or desired number of children – is the number of children that women/ couples would choose to have if they could have exactly the number desired (Bertrand et al, 1994).

Desire for additional children – the proportion of women (couples) of reproductive age who want to have a (another) child or, desire not to have additional children (Bertrand et al, 1994).

Demand for family planning – is the desire or motivation of women (couples) to control future fertility (Bertrand et al, 1994). This consists of demand for spacing and demand for limiting. This is calculated from estimates of met and unmet demand for family planning.

Demand for Limiting – The number or proportion of women currently married or in union who are fecund and who desire not to have additional children (Bertrand et al, 1994).

Demand for Spacing -the number or proportion of women currently married or in union who are fecund and who desire to delay the birth of their next child for a specified length of time (Bertrand et al, 1994).

Unmet need for Family planning – the proportion of women currently in union who are fecund and who desire to either terminate or postpone Childbearing, but who are not currently using a contraceptive method (West off and Bankole, 1995).

Operationalization of these variables and the explanatory variables are presented in table 3.1.

Table 3.1: Operationalization of variables used in the analysis

Variables	Categories
<i>Dependant variables</i>	
Ideal number of children	0,1, 2, 3, 4, 5,6 ⁺ , non numeric responses
Desire for more children	Want in two years, Want after two years, want no more, undecided, infecund---
Demand for contraception(dummy)	demand for contraception or other wise
<i>Independent variables</i>	
Demographic variables	
Age of women	15-19, 20-24, 25-29,30-34,35-39,40-44,45-49
Age at marriage	< 15, 15-19, 20+
No. of living children	0, 1,2, 3,4, 5,6 ⁺
No. of sons alive	0, 1,2, 3,4 ⁺
No. of daughters alive	0, 1,2, 3,4 ⁺
Socio-economic variables	
Current residence	Urban, Rural
Education	No education, primary, secondary & above
Employment status	Currently working, not working
wealth	Poorest, poorer, middle, richer, richest
Intermediate variables	
Family planning knowledge	No knowledge, has knowledge
Discussion of FP with partner	Never, once or twice, more often
Women's approval of family planning	Disapproves, approves
Husband's approval of Family Planning	Disapproves, approves
Decision making on family planning use	respondent, husband(partner), joint decision
Current use of family planning	currently using, not using
Exposure to media	radio/TV/newspaper/none of them
Exposure to family planning Information	radio/TV/newspaper/none of them
Child mortality	previous child death, no prior child death

3.3 Validity and Reliability of the Indicators

The main dependent variables of this study are fertility preferences to be measured by indicators like ideal family size, desire for more births and demand for contraception measured by spacing and limiting preferences. The validity and reliability of survey questions on indicators of fertility preferences particularly, ideal number of children, were questioned since its beginning with the world fertility survey. Ideal family size, a commonly used indicator, is observed to suffer from some biases (Westoff, 1991; Bongaarts, 1990). One is the tendency for respondents to give “normative” responses. The other is the tendency of high-parity women to rationalize unwanted pregnancies by reporting desired family sizes that are equal to or exceed their current parity. As a result of these biases, research evidence suggests that other indicators like desire for additional children may provide more valid measure of the level of demand for children than ideal number of children.

But, in response to most of these criticisms, studies of methodological aspects of the measurement of fertility preferences undertaken in the 1970’s and 1980’s suggested that most preference information is useful (Bongaarts, 1992). The conclusion was that although desired family size is subject to some bias, it largely serves its intended purpose and survey measures of women’s desire to continue childbearing are considered generally reliable. Desire for additional children, which is used in surveys to identify Women (or couples) with a demand for additional children on the one hand and those who do desire to stop child bearing on the other is viewed as being relatively unbiased as there are no obvious reasons for respondents to over- or under-report preferences to continue childbearing (Bertrand et al, 1994). We also focus on the desire for additional children as our main indicator of fertility preferences in this study.

3.4 Data Analysis

The DHS data is made available in the SPSS format from the MEASURE DHS. The data will be analyzed using the SPSS program. To determine the levels of fertility preferences and the demand for family planning we used descriptive statistics like frequency distributions, cross-tabulations, and graphs. To identify factors that influence our outcome variables, we made a logistic regression analysis.

We use the logistic regression analysis because the dependant variables of the study are dichotomous, for instance the desire to limit child bearing or not. The logistic regression equation (given below) estimates the effect of one unit change in the independent variable (discrete variable) on the log odds that the dependent variable takes, controlled for the effects of other independent variables (Menard, 1995).

The basic form of the logistic function is given by

$$P = \frac{1}{1 + e^{-Z}}$$

Where p is the probability of occurrence of an event, Z is the predictor variable and e is the base of to natural logarithm. But, for our analysis we use the Logit transformation, given by the following formula.

$$\text{Logit } P = \text{Log} \frac{P}{1 - P}$$

The part, $\log (P/1-P)$ is called the log odds or the Logit of P. But, for multivariate analysis, Z is assumed to be a linear function of a set of explanatory factors. Then the formula takes the form of,

$$\text{Logit } Y = \text{Log} \frac{P}{1 - P} = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + \dots + b_kx_k,$$

Where b_0 is the constant, b_i are the coefficients and the x_s are attributes of explanatory variables (Menard, 1995). The results from the statistical analysis will be used to identify important determinants of fertility preferences and the demand for family planning. The stepwise Forward LR method, a selection method with entry testing based on the significance of the score statistic (less than 5%), and removal testing based on the probability of a likelihood-ratio statistic based on the maximum partial likelihood estimates, is used. This method is selected because it retains only those independent variables with the highest R^2 or those with the significance level of $P < 0.05$ or below.

Our choice of the explanatory variables was guided by the comprehensive review of researches and theories made in chapter two of this thesis. They were tested for statistical significance using bivariate test, a chi square test, and only those variables which were significant in the bivariate test were included in the multivariate logistic regression. Moreover, interaction effects of most of these variables were tested before including in to the model.

4. Fertility preferences

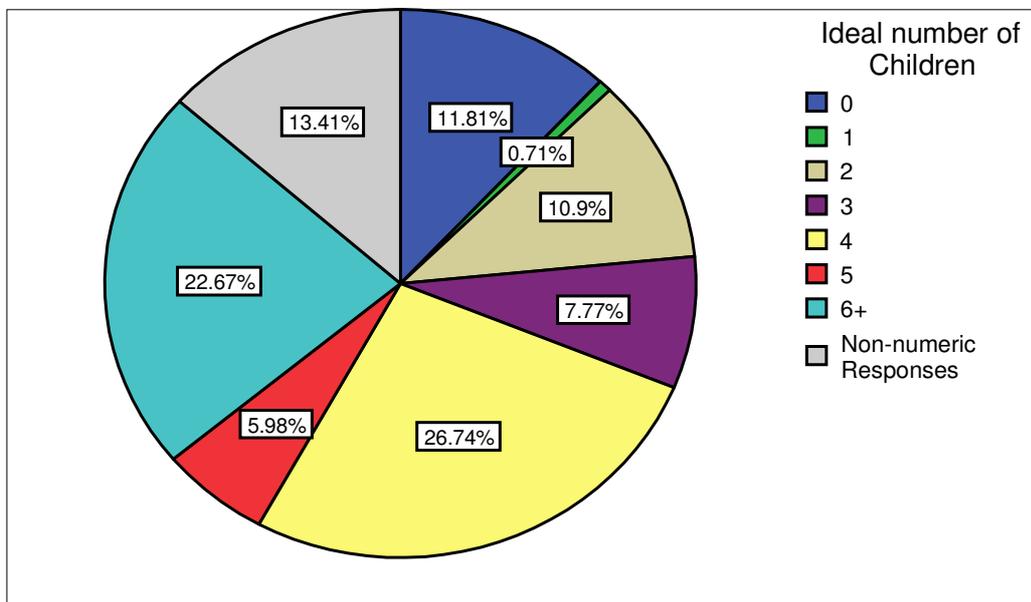
The objective of this chapter is to describe the levels and determinants of fertility preferences using data from women's questionnaire. There are a total of 5010 women (weighted) of ages 15-49 available in the DHS sample from Oromia State for this analysis. 85% of the samples are rural, while 15% are Urban. This proportion is representative of the rural-urban population distribution of the state and the country, where 85% of the population reside in the rural areas. But for most of our analysis, we will focus on currently married women (N=3300).

We use two measures to describe women's fertility preferences in this chapter. One is a question on Ideal number of children and the other is a question on desire for additional child. The reliability and validity of these indicators were discussed in the last chapter, where we found that the desire for additional child is a more valid indicator of fertility preferences than ideal number of children. Hence, we focus on this indicator for further analysis.

4.1 Desired (Ideal) Number of children

This is the most common measure of fertility preferences. A question was asked in the DHS of both childless women and women with children the number of children they choose to have in their whole life, but framed differently for both. Figure 4.4 shows women's responses to the question on Ideal number of children. The figure shows that nearly 87% of the respondents have provided numeric responses to this question, a greater improvement over previous DHS and Fertility surveys conducted in Ethiopia showing that people are more able to tell numerically the number of children they desire. Only 13.4% gave non-numeric responses. About 26 % of the respondents wanted an ideal number of 4 children, and 23% of the respondents wanted an ideal number of 6 and above, indicating that the demand for children is still very high among a significant proportion of the population. To study differences in ideal number of children (also differences in sex preference) with the socio-economic and demographic characteristics of respondents, we use mean ideal number of children.

Fig 4.4: Ideal number of children preferred by women, Oromia State, 2005



The average number of children desired by those women who gave numeric responses is 4.2 children. This figure is nearly equal to the wanted fertility level estimated per woman, a wanted TFR of 4.3 children per woman. Comparison of the actual TFR level (of 6.2 children per woman) with both the mean ideal number of children preferred and the wanted TFR reveal that about 32% of births are unwanted. The mean ideal number of boys desired was 2.14 and that of girls was 1.93. This shows that there is a relatively more preference for boys than girls. Ideal number of children desired and ideal number of boys and girls desired varied with the age of the women, educational status, type of place of residence, marital status, number of living children and exposure to media and other factors as shown in table 3 below.

Table 4.2 shows that the mean number of children desired (also of boys and girls) increased as age increased from 3.15 among young women of age 15-19 to 5.43 among the older age groups. Rural women desired more children (4.43) than urban women (3.10) and more number of boys (2.26) than girls (1.52). Ideal number of children desired also varied with the education of women. Women with no formal education wanted higher number of children (4.78) than women with a primary (3.38) and women with a secondary or higher education (3.20). The association between education and desired number of children is observed to be strong in many studies (Bankole & Westoff, 1995). The reasons suggested include; exposure to modern secular values which competes with traditional attitudes towards child bearing, the greater autonomy that more educated women have in marital relationships and the greater likelihood of more educated women being in the labor force (Bankole & Westoff, 1995).

Considering marital status, it is found that the never married ones wanted less number of children as compared to the currently married and formerly married women. This may be because they are young and also may show the declining trends in fertility preferences. The mean ideal number of children desired increased as the number of living children increased, from an average of 3.2 among those with no child to 5.1 among women with 6 or more children.

Exposure to media is also another important factor related to fertility desires of women. This index of media exposure was constructed from questions about whether the woman listens to radio, watches television or reads newspapers and magazines with some frequency (see Bankole and Westoff, 1995 for similar explanation). The index ranges from zero, indicating no exposure to any of these media, to three if a woman reports exposure to all the three media. The result shows that women who have no exposure to media desired more number of children than those with exposure to some or all forms of media (radio, newspaper and TV).

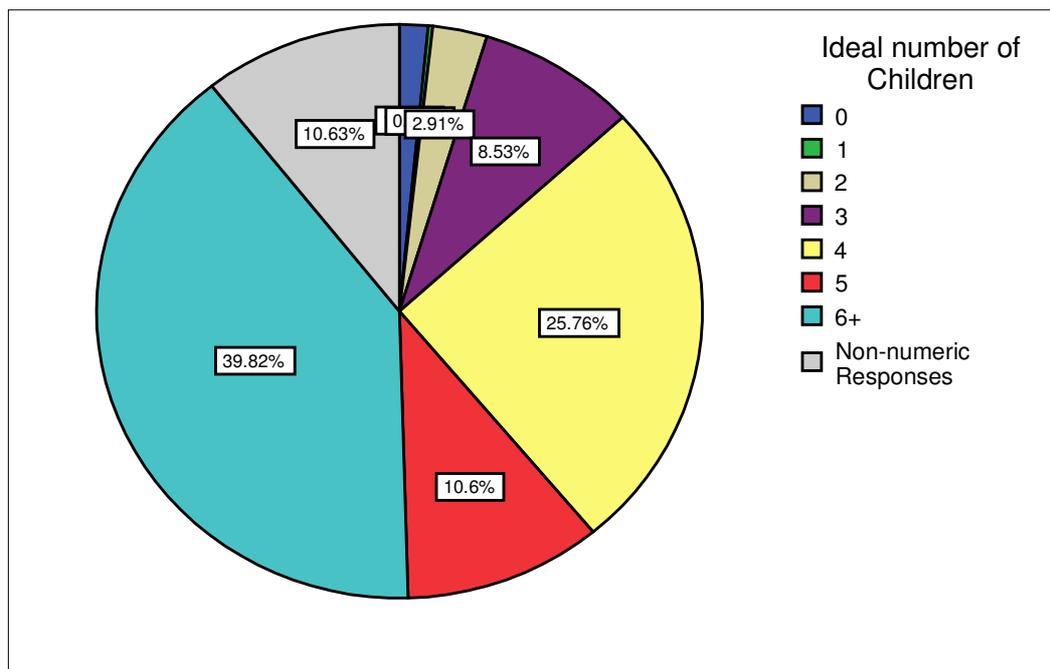
Table 4.2: Mean Ideal Number of children by women according to selected background Characteristics, Oromia State, 2005.

characteristics	Mean Ideal number of children	N		Mean Ideal number of boys	Mean Ideal number of girls	N
Age						
15-19	3.15	1097		1.59	1.44	1097
20-24	4.11	825		2.10	1.86	823
25-29	4.40	792		2.28	1.99	790
30-34	5.15	561		2.56	2.36	561
35-39	4.41	431		2.25	2.06	431
40-44	4.57	329		2.38	2.16	329
45-49	5.43	302		2.69	2.55	302
Type of place of Residence						
Rural	4.43	3627		2.26	2.02	3622
Urban	3.10	711		1.52	1.51	711
Education						
No education	4.78	2644		2.45	2.20	2642
Primary	3.38	1205		1.69	1.53	1203
Secondary & above	3.20	488		1.59	1.46	488
Marital status						
Never married	2.98	1213		1.49	1.37	1213
Currently married	4.77	2788		2.44	2.20	2783
Formerly married	4.03	337		2.05	1.78	337
Number of Living children						
0	3.19	1484		1.59	1.45	1484
1	3.66	452		1.87	1.63	452
2	4.32	460		2.16	2.03	460
3	4.88	481		2.45	2.25	478
4	5.25	463		2.69	2.39	463
5	5.01	350		2.59	2.32	350
6+	5.14	648		2.72	2.41	645
Media exposure						
None	4.60	1958		2.34	2.14	1958
Any one	4.36	1304		2.25	1.94	1299
Any two	3.46	667		1.72	1.58	667
Any three	3.11	409		1.52	1.47	409
Total	4.20	4338		2.14	1.93	4333

On the other hand, men's desire for children is found to be higher than that of women both from women's responses about their partner's desires and men's own responses. Women were asked whether their partner wants the same number, more or fewer children than they desire. About 50% of them responded they don't know their partner's desire, 31% answered they want the same number, 15% answered husband wants more and 3.5% answered husband wants

fewer(result not shown). Figure 4.5 below shows men’s ideal number of children. The figure shows that 40% of men respondents desired an ideal number of children of 6 and above, and some 26% wanted 4 children. The mean ideal number of children required by men as reported by men themselves was 5.94. This is much higher than the mean number required by women (4.2). Rural men desired 6 children, while their urban counter parts desired 4.1 children. Men also desired more number of boys than girls, with mean ideal number of boys and girls of 3.34 and 2.49 respectively (result not shown).

Fig 4.5: Ideal number of children preferred by men, Oromia State, 2005



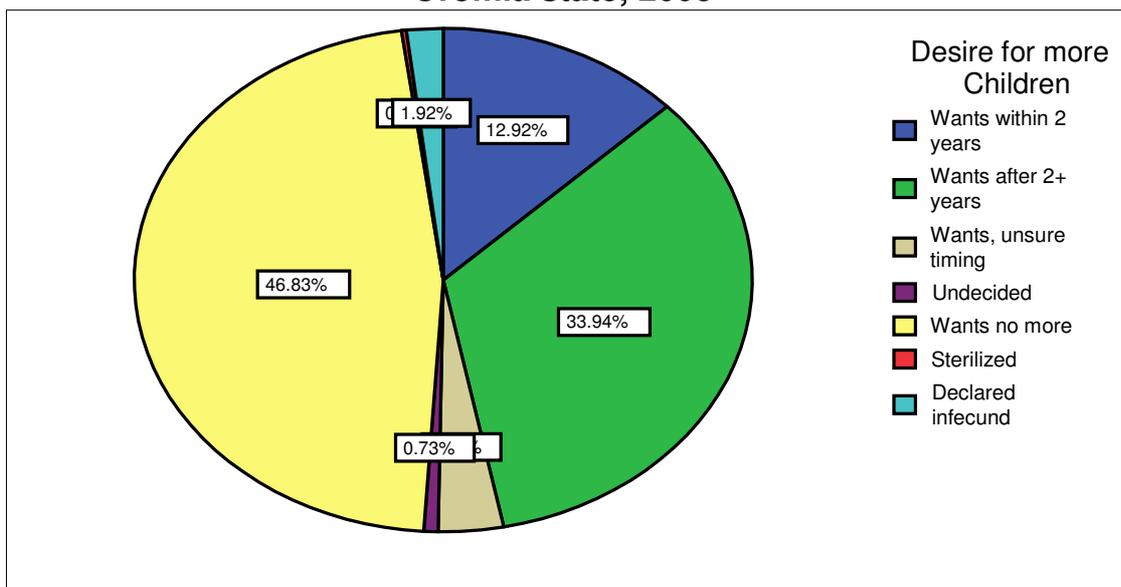
4.2 Fertility Intentions of Women

Reproductive intentions show the individual’s personal attitude towards the more short term future, and have a more predictive validity than desired number of children (Bankole & Westoff, 1995). In DHS questionnaire, this has been named as the desire for more children, and asks whether a woman wants to have another child soon, after two years, or wants no more children. The analysis of fertility intentions in this chapter is limited to currently married women only. The question asked for non pregnant women says”.... Would you like to have (a/another) child or would you prefer not to have any (more) children?” If they respond they want to have another child, they will be asked additional questions on how long they would like to wait before the birth of next child. Figure 4.6 below shows the fertility intentions of currently married women in Oromia region in 2005.

As shown by the figure, only 13% stated explicitly that they wanted a child with in two years, 3.41% wanted a child but are unsure of the timing. These two groups will be combined in the

coming analysis (see also Westoff and Bankole, 1995). About 34% of women wanted a child after two years (these are those wanting to space child birth) and 47% wanted no more child (wanted to stop child bearing). This information is very important for family planning purposes, to determine groups of women who want to space and who wants to limit births.

Fig 4.6: Fertility Intentions of currently married women, Oromia state, 2005



4.3 The Covariates of Fertility Intentions

4.3.1 Socio-economic Factors and Fertility Intentions

Table 4.3 below shows the association of fertility intentions of women with different socio-economic characteristics of women. As shown by the table about 16% of currently married women wanted a child in two years, 34% wanted after two years and 47% did not want any more (child). The latter one is of great importance for our study and also for population policy and program purposes. We focus on this group of women with the desire for no more child, i. e, desire to stop child bearing. Comparison is made sometimes with those who want to space pregnancies. In most of the cases, it is observed that limiting and spacing preferences change inversely as the background characteristics change. As shown by the table, urban women showed a relatively higher desire to stop child bearing (52%) than rural women (47%) but rural women had a higher desire to space (34%) than urban women (29%).

The desire to limit child bearing decreased as education increased from 48% among women with no education to 36% among women with a secondary and higher level of education. This relationship between education and desire for children is unexpected and seems distorted. So, it is necessary to standardize the data. Considering religion, Christian women showed a higher desire to limit child bearing (52%) as compared to Muslim women (42%). The desire to stop child

bearing did not vary with the current working status of women (both 48%). However, there is a great variation in the desire to stop child bearing with wealth groups. The DHS wealth index is a composite index constructed from such components as the type of flooring, water supply, sanitation facilities, electricity, radio, television, telephone, refrigerator, type of vehicle and other items (CSA and ORC Macro, 2006). Considering wealth index, the proportion showing the desire to stop child bearing increased from 40% amongst the poorest to 54% amongst the richest wealth groups.

Table 4.3: Percent distribution of women by their fertility Intentions, according to selected Socio- economic characteristics, Oromia State, 2005

		Fertility desire of women				N
		want a child in 2 years ^a	want a child after 2 years	want no more ^b	others ^c	
Education of respondents	No education	17.3	31.6	48.2	3.0	2528
	primary	11.6	41.8	45.6	1.0	592
	Secondary & above	18.9	41.3	36.2	3.6	181
Type of place of residence	Urban	17.1	29.3	51.9	1.6	302
	Rural	16.2	34.4	46.6	2.8	2998
religion of respondents	Christians	15.1	30.0	52.4	2.5	1539
	Muslim	17.4	37.9	41.8	2.9	1671
	others	16.7	29.4	54.0	.0	89
currently working	not working	16.2	33.9	47.5	2.4	2159
	working	16.8	32.5	47.8	2.9	988
Wealth index	Poorest	19.5	36.7	40.4	3.4	638
	Poorer	19.3	34.1	43.5	3.1	779
	Middle	14.8	35.4	47.9	1.9	692
	Richer	12.6	33.9	51.4	2.1	617
	Richest	14.7	28.9	53.7	2.7	574
total		16.3	33.9	47.1	2.6	3300

a. Includes those who want more but unsure of timing

b. Includes sterilized women

c. Includes those who are undecided and those who declared themselves infecund

4.3.2 Demographic Factors and Fertility Intentions

The demographic variables we included in this analysis are age of women, age at marriage, number of living children, number of sons and daughters living, and any experience of child death. Table 4.4 shows the association of these demographic variables with the desire for children. Considering current age of women, the desire to stop child bearing increases as age increased, from 18% among women of age 15-19 years to 78% among women ages 40-44 years. This is expected as older women reach their desired number of children. As expected, the desire to stop child bearing increases as the number of living children increases. About 32% of women with two living children desire to stop child bearing. This rises to 50% among women with four

living children and further to 78% for women with six or more living children. A similar association was observed with the number of living sons and daughters, i. e, the desire to stop child bearing increased as the number of living sons and daughters increased. The difference observed between the two sexes here is that women with two and more sons expressed a higher desire to stop child bearing as compared with women with a similar number of daughters. For instance 69% of women with three sons expressed a desire to stop child bearing as compared to 58% of women with three daughters. But, at lower parities (of 0 or 1 child), more proportion of women with 0 and 1 daughter expressed a higher desire to stop child bearing. This still shows the society's preference for sons.

Table 4.4: Women's fertility Intentions, according to selected demographic characteristics, Oromia State, 2005

		Fertility Intentions of women(%)		N
		desire more child	desire no more	
Age	15-19	82.3	17.7	272
	20-24	78.3	21.7	596
	25-29	60.0	40.0	746
	30-34	50.4	49.6	557
	35-39	36.5	63.5	473
	40-44	22.5	77.5	322
	45-49	27.2	72.8	334
Age at first marriage	< 15	47.2	52.8	851
	15-19	54.0	46.0	1853
	20+	59.2	40.8	596
Number of living children	0	93.0	7.0	268
	1	85.2	14.8	443
	2	67.6	32.4	457
	3	60.2	39.8	486
	4	49.6	50.4	482
	5	30.2	69.8	384
	6+	21.9	78.1	779
Number of sons	0	86.0	14.0	697
	1	66.3	33.7	834
	2	42.9	57.1	763
	3	31.5	68.5	477
	4+	23.6	76.4	529
Number of daughters	0	78.3	21.7	729
	1	60.2	39.8	860
	2	44.1	55.9	758
	3	42.0	58.0	468
	4+	27.8	72.2	485
Experience of child death	no death	58.1	41.9	2014
	death of child	45.5	54.5	1286
total		53.2	46.8	3300

4.3.3 Knowledge of Family Planning and Fertility Intentions

We are also interested in the way in which information, use and decision making about family planning and access to media influence fertility intentions of women. However, we faced a problem with data being empty for some important variables like approval and discussion about family planning in DHS data set currently available. The association between fertility intentions and women's knowledge, use and decision making about family planning and access to media is given in table 4.5. Women who know some methods of family planning show more desire to stop childbearing (48%) than those who do not have any knowledge of family planning(32%). Similarly, those who are currently using a method have shown more desire to stop child bearing(58%) than those not using any method currently(45%). The desire to stop child bearing is higher among women who make a decision to use family planning (66%) and those who make a joint decision with their partner (57%) than those for whom husband makes decision (44%). Considering exposure to media, women who exposure to one of the three and two of the three media had more desire to limit child bearing as compared to women with no exposure to media. But, the desire to stop child bearing did not show any significant variation with exposure to family planning information in the last month.

Table 4.5: Women's Fertility Intentions according to Knowledge of Family planning and Exposure to Media, Oromia State,2005

		fertility intentions(%)		N
		desire more child	desire no more	
Knowledge of family method	no knowledge	67.8	32.2	164
	know some methods	52.4	47.6	3136
Current use of FP	not using	54.7	45.3	2850
	using	43.5	56.5	450
Decision maker for using contraception	Mainly respondent	34.1	65.9	59
	Mainly husband, partner	56.0	44.0	21
	Joint decision	45.0	55.0	346
Exposure to media	none	54.9	45.1	1756
	any one	50.5	49.5	1062
	any two	48.7	51.3	352
	all three	63.6	36.4	130
Exposure to family planning info last month	none	52.7	47.3	2239
	any one	54.1	45.9	834
	any two	53.7	46.3	135
	any three	56.3	43.7	92
Total		53.2	46.8	3300

4.4 Determinants of the Desire to Limit Child Bearing

To identify factors which determine the desire to limit child bearing, we estimate logistic regression model. The out come variable is the desire to stop child bearing, a dummy variable created from desire for children categories. Analysis was limited to women who had at least one child, since it is not meaningful to make analysis of the desire to stop child bearing for those with no parity. Then, guided by the existing literature and theories (see chapter two in this report), we included the following explanatory variables in the model; age of women, age at marriage, education, women's occupation, wealth index, number of living sons, number of living daughters, exposure to mass media, knowledge of family planning, use of family planning, decision making about family planning use and exposure to family planning information through the media. The number of living children was not included in the model since the number of living sons and number of living daughters were included already, to reduce their collinearity effect. Inclusion of the later in the model will also help us to observe the influence of sex composition on the desire to stop child bearing. Knowledge of family planning and exposure to media have shown a significant association on the bivariate test and thus we tested their interaction in our regression analysis. But, the type of place of residence and current employment status of women were not included because they did not show significant relationship in the bivariate analysis.

We used the Forward LR method, and few of the variables listed above turned out to be significant in the final model. Accordingly women's age, wealth index, number of living sons and daughters, knowledge of family panning, and exposure to mass media are the factors associated with the desire to limit child birth. Variables like education of women and previous child mortality did not show a significant association with the desire to stop child bearing in this analysis. Table 4.6 shows odds ratios and their confidence intervals obtained from the logistic regression model.

Table 4.6: Odds Ratio from logistic regression analysis predicting women's desire to limit child bearing, Oromia State, Ethiopia 2005.

Variables	Odds Ratios(CI)
Age(RC:15-24)	
25-34	1.21(0.87-1.67)
35-49	2.15(1.50-3.08)***
Wealth Quintile(RC: poorest)	
poorer	1.46 (1.10-1.94)*
middle	1.71 (1.32-2.21)**
richer	1.79 (1.36-2.35)**
richest	2.56 (1.84 - 3.56)***
Number of living sons(RC: 1 son)	
2	2.34 (1.79-2.92)***
3	3.81 (2.81-5.16)***
4+	4.80 (3.42-6.25)***
Number of daughters(RC:1 daughter)	
2	1.42 (1.11 -1.82)**
3	1.53 (1.15-2.05)**
4+	2.11 (1.54-2.88)***
Knowledge of Family Planning	1.80 (1.29 - 2.52)**
Use of family planning	1.51(1.09 - 2.079)*
Exposure to Media(RC; none)	
Any one	1.41(1.11-1.80)**
Any two	1.48(0.99-2.20)*
All three	1.08(0.50-2.33)

RC = reference category * P < 0.05 ** P < 0.01 *** P < 0.001

Logistic regression revealed that the predictors of the desire to stop child bearing(at P<0.001) are age, wealth index, number of living sons, number of living daughters, knowledge and use of family planning and exposure to media. Considering age, the odds of the desire to stop child bearing among women of age 35-49 were significantly higher than those of younger age groups (OR: 2.15). Younger women (15-24) and those in the mid of reproductive age (age 25-34) did not show significant difference in the odds of stopping child birth.

Wealth is also an important factor in predicting fertility desire. The odds of the desire to stop child bearing increased as wealth increased. Women in the richest wealth quintile are two and half times likely to desire stopping child bearing than women of the poorest wealth category (OR 2.56).

The sex composition of living children (number of living boys and girls) is a variable that is strongly associated with the desire to stop child bearing. Comparing the sex composition of children at the same number of living children, the number of living boys is a stronger predictor of the desire to stop child bearing than the number of living daughters. The odds of the desire to stop child bearing among women who had three boys is almost 4 times higher (OR 3.81) as compared to women with one son, but the odds for women with three daughters is only 53% higher (OR 1.53) than that of women with one daughter. Women with two sons are twice likely to desire to stop child bearing (OR 2.34) as compared to women with one son. But in the case of daughters this level is achieved at four and above number of daughters (OR at 4⁺ daughters is 2.1). At four and above number of living sons, the odds of the desire to stop child bearing is nearly five times higher than women with one living son. The implication here is that women with some number of daughters are less likely to stop child bearing than women with the same number of sons, indicating that they continue looking for more children may be to have their desired number of sons also. Sex preference of children therefore has a stronger effect on fertility desire.

Knowledge and use of family planning methods are also another important variable associated with the desire to limit child bearing. Women who know at least one methods of family planning (be traditional or modern method) are 80% more likely to desire to stop child bearing (OR 1.80) as compared to women who do not know any method of family planning. Similarly, women who are using a family planning method are 51% more likely to desire to limit child bearing as compared women who are not using family planning. This is an important issue from policy and program purposes to increase knowledge about family planning.

The other factor that is associated with the desire to limit child bearing, but with less strength in our model, is exposure to mass media. As shown in table 4.6, those with an exposure to at least one of the three media are 41% more likely to desire to limit child birth as compared to those with no access to any kind of media. But unexpectedly, this does not increase significantly with increase in exposure to two and all three media. This may be because the number of cases (women) in the analysis with exposure to two and three media is fewer.

5. Demand for Family Planning.

The objective of this chapter is to describe the family planning behavior of the population, particularly the current demands for family planning among currently married women. To do so, we will first analyze the components of demand for family planning; the met need (current contraceptive use) and unmet need for contraception. They constitute the overall demand for family planning. Following that, we will identify the determinants of family planning demand using logistic regression models.

5.1 Current Family Planning use (Met Need)

The concept met need for contraception refers to those women who are currently using contraception either for spacing and limiting purposes. Contraceptive use is low in Ethiopia and also in Oromia State. As of 2005, only 13.6% of currently married women in Oromia State used contraceptives. However, knowledge of any method of contraception was almost universal. About 95% of currently married women reported knowledge of modern methods of contraception. Among the users, the most commonly used methods were Injectables (8.6%), pill (3.4%) and traditional method (1%). Table 5.7 shows the distribution of women who are using contraception according to some background characteristics. Considering the age of women, it is observed that contraceptive use is lower at the younger ages of 15-19 (8.2%) and also at higher age of 45-49 (8.3%) than ages between 20 and 40. Women in age groups of 35-39(16.6%) and 25-29(16.1%) used contraception more than other age groups. What is also important to underline here is that most of the young women who used contraceptives used for spacing while at the older ages women used more for limiting, showing the differences in spacing and limiting behavior with age.

Current contraceptive use is higher in Urban than rural areas. 47% of women living in urban areas used contraception as compared to only 10% of rural women. Contraceptive use shows the greatest variation with educational level of women, mostly increasing as educational level increased. About 8% of women with no education, 25% of women with primary education and 54% of women with a secondary and above level of education used contraceptives. Similarly, both the spacing and limiting uses of family planning increased as education level increased.

The other variable with which we expect use of contraceptives shows variation is the number of living children a woman has. But, contraceptive use has not shown any pattern with the number of children a woman has. Contraceptive use is low among women with 0 parity, and high for women with 2 children (19%). Rather differences in spacing and limiting behavior shows remarkable differences with women's parity. At lower parities (less than 2 children) contraceptives are used mainly for spacing, while at higher parities (above 4), contraceptives are used mainly for limiting.

Table 5.7: Percent distribution of currently married women by current use of Contraception, according to selected background characteristics, Oromia State, 2005

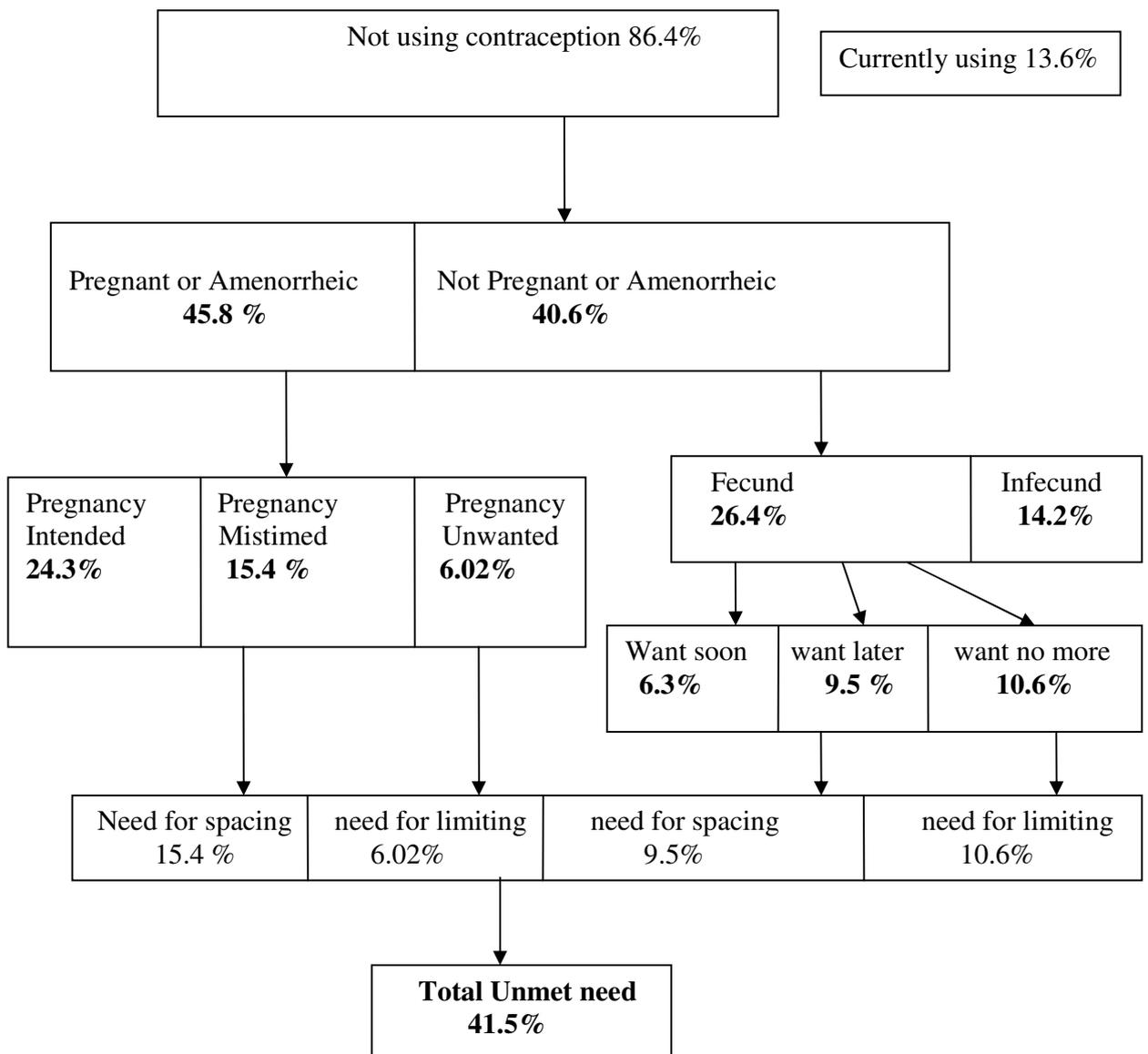
		current use of Family Planning(%)			total using	N
		not using	Using			
			for limiting	for spacing		
Age	15-19	91.8	.8	7.3	8.2	272
	20-24	84.4	4.3	11.3	15.6	596
	25-29	83.9	8.4	7.7	16.1	746
	30-34	87.9	7.2	4.8	12.1	557
	35-39	83.4	13.7	2.9	16.6	473
	40-44	87.9	12.1	.0	12.1	322
	45-49	91.3	8.7	.0	8.7	334
Education of respondents	No education	92.0	5.6	2.4	8.0	2528
	primary	74.8	14.3	11.0	25.2	592
	Secondary & above	46.1	21.2	32.7	53.9	181
Type of place of residence	Urban	53.0	24.2	22.7	47.0	302
	Rural	89.7	6.4	3.9	10.3	2998
Wealth index	Poorest	96.2	1.6	3.4	3.8	638
	Poorer	95.3	1.6	12.3	4.7	779
	Middle	89.2	5.4	13.3	10.8	692
	Richer	85.6	4.2	6.6	14.4	617
	Richest	60.9	11.7	2.4	39.1	574
Number of living children	0	95.0	14.7	2.8	5.0	268
	1	86.0	12.1	.8	14.0	443
	2	81.3	1.4	2.4	18.7	457
	3	89.2	2.5	2.2	10.8	486
	4	85.8	6.7	4.1	14.2	482
	5	82.5	10.6	3.8	17.5	384
	6+	87.1	21.6	17.6	12.9	779
Total		86.4	8.0	5.6	13.6	3300

5.2 Unmet Need for Contraception

This is an important component of the demand for family planning, showing the links between fertility Intentions, specifically the desire to limit or space births on the one hand, and actual contraceptive behavior on the other hand. It refers to groups of women who say they want no more children (unmet need for limiting) or want to wait at least two years before having another child (unmet need for spacing) but are not using contraception. Though the components of unmet need are many and complex we tried to show the components of unmet need using the standard DHS methods of analysis of unmet need (see Westoff and Bankole, 1995). In most cases, unmet need is estimated for women currently in union. Fig 5.7 shows the calculation of unmet need for

married women in Oromia State. As shown by the figure, of those women not using contraception 45.8% were pregnant or Amenorrheic while the remaining 40.6% were fecund and infecund at the time of the survey. From those who were pregnant or Amenorrheic, 24% said their pregnancy was intended, 15% said their pregnancy was mistimed and 6% said it was unwanted. Among non pregnant fecund women 6% wanted a child soon, 9.5% wanted after two years while about 11% wanted no more. This gives an estimated unmet need of 41.5%. DHS data (individual recode) also consists of a ready made recoded variable for unmet need for contraception and that was used in our analysis for this report.

Fig 5.7: Components of Unmet Need for Family Planning, Oromia State, 2005.



The characteristics of women with unmet need vary. Table 5.8 shows unmet need for contraception with some background characteristics of women. As the table shows unmet need is very high in Oromia state, 41.5%, a level higher than the national average for Ethiopia (34%). The difference in unmet need with age is more remarkable when considering the need for spacing and limiting separately. Unmet need for spacing is higher at the younger ages and decreases with increasing age while, the unmet need for limiting increases with age except for the older ages of 45-49. Overall, unmet need is higher among young married women of age 15-19(47%) and middle age women (20-39) than women above age 40. Considering the type of place of residence, unmet need is higher among rural women than women living in urban areas. Unmet need is higher among women with no education (42.5%) and primary level of education (43.6%) than women with secondary and higher level of education (20%). Similarly, unmet need is higher among rural women (44%) than urban women (21%). This may be due to the limited access to family planning services in rural areas. The association with the number of living children takes a similar pattern as age. The unmet need for spacing decreases (except for women with 0 parity) as the number of living children increases while the opposite holds true with the unmet need for limiting. Overall unmet need slightly increased as the number of surviving children increased. Unmet need is higher among women with low wealth (socio-economic) status as compared to women from the richest wealth category.

Table 8: Percent distribution of women by their unmet need for contraception, according to selected background characteristics, Oromia State, 2005

		unmet need for contraception			number of women
		unmet need for		total unmet need	
		spacing	limiting		
Age 5-year groups	15-19	38.6	8.6	47.3	272
	20-24	35.6	5.9	41.5	596
	25-29	30.2	15.4	45.6	746
	30-34	25.5	19.0	44.5	557
	35-39	22.2	24.4	46.6	473
	40-44	9.2	29.9	39.1	322
	45-49	.6	16.7	17.4	334
Education of respondents	No education	24.6	17.9	42.5	2528
	primary	29.5	14.1	43.6	592
	Secondary & above	14.8	5.6	20.3	181
Type of place of residence	Urban	8.0	12.6	20.6	302
	Rural	26.6	17.0	43.6	2998
number of living children	0	22.1	3.0	25.0	268
	1	31.6	6.1	37.7	443
	2	26.9	8.6	35.6	457
	3	32.6	14.7	47.3	486
	4	28.8	14.3	43.1	482
	5	18.8	22.1	40.9	384
	6+	16.7	31.7	48.3	779
Wealth index	Poorest	27.0	18.6	45.7	638
	Poorer	31.6	15.9	47.5	779
	Middle	28.0	17.4	45.4	692
	Richer	22.1	16.1	38.2	617
	Richest	12.8	14.6	27.4	574
total		24.9	16.6	41.5	3300

Apart from unmet need, the intention to use family planning in the future is another important indicator of the potential demand for family planning services. Currently married women who were not using a method were asked about their intention to use a family planning method in the future. About 51% of non users mentioned that they intend to use in the future. About 35% do not intend to use any method and 1% were unsure of their intention. Moreover, the DHS asks women who said they do not want a child soon, but are not using family planning methods the reasons for not using. The main reasons are summarized in table 5.9. Apart from those in postpartum ammenhoric period and breastfeeding, the reasons relate to being fatalistic, infrequent sex, disapproval of contraception by husband or women themselves, religious prohibition, health

concerns of using a method, fear of side effects and lack of knowledge about family planning methods and their sources.

Table 5.9: Main reasons for not using contraception among women who do not want a child soon, Oromia State, 2005.

Reasons	Percent
Fatalistic	11.4
Not having sex/Infrequent sex	9.9
Religious prohibition	7
Husband(partner) opposed	6
Respondent opposed	1.3
Sub fecund/ infecund	2.9
Knows no method	6.3
Knows no source	7.5
Health concerns	10.6
Fear of side effects	5.6
Lack of access(too far)	1.9
breastfeeding	5.7
Postpartum ammenhoric	14.3
Other	16.8
Do not know	3.7
Total(N=1832)	100

5.3 Overall Demand for Family Planning

Total demand for contraception is defined as the sum of current contraceptive use and unmet demand for contraception (Westoff & Ochoa, 1991; Bertrand et al, 1994).So, the sum of current contraceptive prevalence of 13.6% and unmet need of 41.5% will give us an over all demand of 55.1% in Oromia State. In table 5.10, we will find the spacing and limiting components of demand, and the overall demand for contraception with socio-demographic characteristics of women.

Table 5.10: Percent distribution of women by demand for contraception, according to Selected background characteristics, Oromia State, 2005

		Demand for Family Planning (%)			N
		demand for spacing	demand for Limiting	total demand for Contraception	
Age 5-year groups	15-19	46.0	9.5	55.4	272
	20-24	46.9	10.2	57.1	596
	25-29	37.9	23.8	62.1	746
	30-34	30.4	26.2	56.8	557
	35-39	25.1	38.1	63.2	473
	40-44	9.2	42.0	51.2	322
	45-49	.6	25.5	26.1	334
Education of respondents	No education	27.0	23.5	50.6	2528
	primary	40.5	28.4	68.9	592
	Secondary & above	47.5	26.7	74.2	181
Type of place of residence	Urban	30.7	36.9	67.5	302
	Rural	30.5	23.3	53.9	2998
Number of living children	0	25.5	4.6	30.1	268
	1	43.9	7.7	51.7	443
	2	40.2	14.0	54.3	457
	3	39.2	18.8	58.1	486
	4	31.2	26.0	57.2	482
	5	21.6	36.8	59.0	384
	6+	17.5	43.8	61.4	779
Wealth index	Poorest	29.4	20.0	49.7	638
	Poorer	33.8	18.4	52.2	779
	Middle	32.1	24.1	56.2	692
	Richer	25.9	26.7	53.0	617
	Richest	30.3	36.2	66.5	574
Exposure to media	none	29.8	21.6	51.5	1756
	any one	29.2	25.8	55.0	1062
	any two	32.1	34.2	67.0	352
	all three	46.9	28.0	74.9	130
Knowledge of family method	no knowledge	21.3	12.3	33.6	164
	know some methods	31.0	25.2	56.3	3136
	total	30.5	24.6	55.2	3300

As table 5.10 shows, there is a variation in the demand for contraception with age, education, type of place of residence, number of living children, wealth and access to media. Considering age, the demand for contraception is more discernable when the spacing and limiting needs are separated. The demand for spacing is higher at younger ages and declines as age increases, while the opposite holds in the case of limiting demands, increases as age increase. The demand for contraception also increased as education of women increased, from 51% among women with no education to 69% among women with primary and to 74% among women with secondary and

above level of education. This pattern is also true for demands for spacing, but not for limiting demands.

Overall demand for family planning is higher in urban (68%) than rural areas (54%). Demand for family planning increased as the number of surviving children increased. This pattern also holds true for limiting demands than spacing demands. A fairly, increasing pattern of demand is also observed with increasing wealth. Similarly, demand increased as access to media increased, those with a better access to radio, TV and newspaper showing higher demand for family planning. Knowledge of family planning is also another important behavior is determining demand for contraception, those with some knowledge have shown more demands than those who do not know any method.

5.4 Level of Demand for Family Planning Satisfied

It is equally important to find out the proportion of demand satisfied by current supplies of family planning. This can be done by dividing the contraceptive prevalence by the overall demand for contraception. Table 5.11 shows the proportion of demand satisfied by women's socio-demographic characteristics. As seen from the table, only 25% of the demand for family planning in the region was met as of 2005. Young women of age 15-19, women with no formal education, women living in rural areas, those in the lowest wealth quintile and those with no exposure to media had the lowest proportion of their demand for family planning satisfied, whereas on the other hand women living in urban areas, women with a secondary and higher level of education and those belonging to the highest wealth quintile had much of their demand for family planning satisfied (table 5.11).

Table 5.11: Demand for family planning satisfied among married women, according to selected background characteristics, Oromia State, 2005

		demand for contraception(%)			proportion of demand satisfied	
		unmet need	current use	total demand	percent with met demand	Number of women
Age s	15-19	47.3	8.2	55.4	14.8	272
	20-24	41.5	15.6	57.1	27.3	596
	25-29	45.6	16.1	62.1	25.9	746
	30-34	44.5	12.1	56.8	21.3	557
	35-39	46.6	16.6	63.2	26.3	473
	40-44	39.1	12.1	51.2	23.3	322
	45-49	17.4	8.7	26.1	33.3	334
Education of respondents	No education	42.5	8.0	50.6	15.8	2528
	primary	43.6	25.2	68.9	36.6	592
	Secondary & above	20.3	53.9	74.2	72.6	181
Type of place of residence	Urban	20.6	47.0	67.5	69.6	302
	Rural	43.6	10.3	53.9	19.1	2998
Wealth index	Poorest	45.7	3.8	49.7	7.6	638
	Poorer	47.5	4.7	52.2	9.0	779
	Middle	45.4	10.8	56.2	19.2	692
	Richer	38.2	14.4	53.0	27.2	617
	Richest	27.4	39.1	66.5	58.8	574
Exposure to media	none	44.6	6.9	51.5	13.4	1756
	any one	40.6	14.5	55.0	26.4	1062
	any two	35.4	30.9	67.0	46.2	352
	all three	23.5	51.5	74.9	68.8	130
total		41.5	13.6	55.2	24.6	3300

5.5 Determinants of Demand for Family Planning

To identify factors which determine the demand for family planning, we estimated a logistic regression model. For this, a dummy outcome variable of demand for family planning is created. The explanatory variables included in the model are; age of women, age at marriage, type of place of residence, education, current employment status, wealth index, number of living sons, exposure to mass media, knowledge of family planning, decision making about family planning use, exposure to family planning information through the media and fertility intentions. Moreover, an interaction variable for Knowledge of family planning and exposure to media was included in our regression analysis because of their significant association on the bivariate test. Occupation of respondents and the number of living daughters were not included because they did not show association in the bivariate chi square test. Variables on attitudes towards family planning and discussion about family planning were not included in the model due to data

problems with these variables(all cases missing).We used the Forward LR method as usual and few variables turned out to be significantly associated.

Table 5.12: Odds Ratio from logistic regression analysis predicting women’s demand for Family planning, Oromia State, Ethiopia 2005.

characteristics	Odds Ratios(CI)
Age(RC:15-24)	
25-34	0.57(0.44- 0.74)***
35-49	0.25(0.18 – 0.35)***
Number of living children (RC: 0)	
1	1.99(1.35-2.94)**
2	2.98(1.99-4.48)***
3	3.92(2.56-6.01)***
4	5.42(3.45-8.50)***
5	5.98(3.69-9.68)***
6+	8.90(5.56-14.26)***
Wealth (RC: poorest)	
poorer	1.24(0.95 -1.61)
middle	1.00(.77 -1.30)
richer	0.81(.63-1.07)
richest	1.37(0.99- 1.91)*
Education(RC: no education)	
Primary	1.88(1.48 -2.39)***
Secondary and above	2.80(1.66 -4.71)***
Knowledge of Family Planning	1.54 (1.01 – 2.34)*
Exposure to family planning Information through media(RC: none)	
Any one	1.25 (1.02 - 1.53)*
Any two	3.22(1.84 -5.64)***
All three	1.21(0.62-2.34)
Fertility intentions(RC: want a child soon)	
want a child after 2 years	5.99(4.47 -8.01)***
want no more child	5.95(4.39 -8.05)***
others	1.27(0.62 - 2.59)

RC = reference category * P < 0.05 ** P < 0.01 *** P < 0.001

Logistic regression showed that the main predictors of the demand for family planning are age, number of living children, education, knowledge of family planning, exposure to family planning information through the media and fertility intentions of women. It was unexpected that the variable, decision making about family planning is not associated with the demand for family planning in this analysis.

Considering age, the odds of the demand for family planning is lower among older women as compared with the younger women. Women in the age group 25-34 have about 57% of the demand among women of age 15-24, while women in the age 35-49 have 25% of the demand of

women in the age 15-24. The odds of the demand for family planning increased as the number of living children increased. For instance, the odd of the demand for family planning among women with four children is more than five times higher as compared to women with no living child. With education, women with higher education are more likely to demand family planning as compared to women with no education. The odds of the demand for family planning are nearly three times higher among women with secondary and higher level of education as compared to women with no education.

The other factors associated with the demand for family planning are exposure to family planning information through the media and women's fertility intentions. As shown in table 5.12, women with an exposure to family planning information through at least one of the three media are 25% more likely to demand family planning as compared to those with no access to family planning information through the media. Those who had exposure to family planning information through two of the media sources are three times likely to demand family planning as compared to those who do not have access to family planning information through the media. But, unexpectedly this did not increase significantly with increase in exposure to all the three media. The reason for this is not very clear and we expected that exposure to family planning information through all the three media would strongly predict the demand for family planning. The fertility intentions of women are also an important predictor of the demand for family planning. Women who want to space their children to at least two years and women who want to limit child bearing are nearly six times likely to demand family planning as compared to women who want a child soon. This shows that fertility intentions of women are one of the main predictors of family planning demand.

5.6 Determinants of Demand for Limiting Births

Analogous to the determinants of the desire to stop child bearing it is important to identify factors that influence women's demands for family planning for limiting births. To make a logistic regression analysis, a dummy out come variable of demand for family planning for limiting purposes is created. The explanatory variables included in the model are; age of women, type of place of residence, education, wealth index, number of living sons, number of living daughters, ideal number of children, ideal number of sons, ideal number of daughters, exposure to mass media, knowledge of family planning, decision making about family planning use and exposure to family planning information through the media. As usual, the forward LR method was used and the variables with significant association with our dependant variable are shown in table 5.13. Table 5.13 shows that education, knowledge of family planning, ideal number of children, ideal number of sons and daughters, number of living sons, wealth index and exposure to media were the main factors that determine the demand for limiting purposes.

Table 5.13: Odds Ratio from logistic regression analysis predicting women's demand for Family planning for limiting births, Oromia State, Ethiopia 2005.

characteristics	Odds Ratios(CI)
Education(RC: No education)	
Primary education	1.76(1.34- 2.30)***
Secondary and above	2.80(1.61- 4.88)***
Knowledge of Family planning	1.78(1.01- 3.13)*
Ideal number children (RC: 0-2)	
3-5	1.45(1.07-1.98)*
6+	1.18(0.63-2.21)
Ideal number of boys(RC: 0-2)	
3-5	0.33(0.21-0.52)***
6+	0.28(0.12 -0.62)***
Ideal number of girls(RC: 0-2)	
3-5	1.56(1.01- 2.41)*
6+	0.44(0.16- 1.25)
Number of living sons(RC:1)	
2 sons	1.88(1.39- 2.54)***
3 sons	3.63(2.60- 5.07)***
4+ sons	6.47(4.67- 8.96)***
Wealth (RC: poorest)	
poorer	0.756(0.53- 1.074)
middle	1.056(0.75- 1.49)
richer	1.246(0.88- 1.76)
richest	2.667(1.86- 3.82)***
Exposure to media(RC: none)	
Any one	1.25 (1.03 - 1.52)*
Any two	1.62(1.19 -2.19)**
All three	1.20(0.69-2.06)

RC = reference category * P < 0.05 ** P < 0.01 *** P < 0.001

6. Conclusion and Discussions

Using data from the 2005 Ethiopian DHS, this study intended to examine the fertility preferences and the demand for family planning among women in Oromia state (Ethiopia). The 2005 Ethiopian DHS provided national (Ethiopia) and State level retrospective and prospective information with regards to fertility preferences and family planning behavior of women. That was very useful for this study. Moreover, information on the background characteristics of women, fertility and fertility related behaviors were useful as explanatory variables to our study. However, there were few missing variables from the DHS data and that has influenced the analysis of our intermediate variables in particular.

Analysis of fertility preferences of women has shown that the levels of fertility preferences in Oromia state display the fact that women's preferred and wanted fertility level is lower than the actual fertility level. It was found that women preferred an ideal number of children of 4.2, and wanted (wanted TFR) 4.3 children on average in 2005. When compared with the actual fertility level of 6.2 children per woman, this shows that about a third (32%) of births were unwanted. Mean ideal number of children preferred was lower among younger women of age 15-19 (mean of 3.15), and unmarried women (mean of 2.98), as compared to older women of age 30-34 and above (mean of 5.15) and currently married women (mean of 4.77). This may indicate the prospects for decline in desired number of children and consequently decline in fertility in the future. Similarly, a comparison with the 2000 Ethiopian DHS shows that mean ideal number of children has declined from an average of 5.4 children in 2000 to 4.2 by 2005, and wanted TFR has declined from 5.2 in 2000 to 4.3 in 2005, while on the other hand actual TFR changed slightly from 6.4 in 2000 to 6.2 children by 2005. Changes in the actual TFR from 2000 to 2005 is very low (3%) while on the other hand desired number of children and wanted fertility have declined by 22% and 17% respectively between 2000 and 2005.

However, there still remains a sense of son preference among women and men and also men pronatalism. Women's ideal number of sons was greater (2.15 vs 1.95) than their ideal number of daughters. Men preferred a mean ideal number of children of 5.94 and mean number of sons and daughters of 3.34 and 2.49 respectively. Overall, there is an implication that women want less number of children than men. But, we should note that reliability questions are there with regards to ideal number of children and thus the desire for more children is found to be a more reliable indicator of fertility preferences. Known biases in this regard include the tendency of respondents to give "normative" responses and that of high-parity women to rationalize unwanted pregnancies by reporting desired family sizes that are equal to or exceed their current parity (Westoff, 1991; Bongaarts, 1990).

Women's responses to the question on the desire for more children (fertility intentions) shows that 47% of women do not want any more children, 34% want a child after two years and about 13% wanted a child within two years. The proportion of women who do not want any more child (limiting preferences), which is suggested to be one of the predictors of fertility levels and trends (Bongaarts, 1992; Westoff, 1990), is too high when compared to the average level for Ethiopia (42%) and even other countries in Africa. In Sub-Saharan Africa, analysis of DHS data between 1990 and 2001 by Westoff and Bankole (2002) has shown that the proportion of women who want to stop child bearing ranged from 10% in Niger and Chad to 53% in Kenya. When

compared with the previous DHS, the proportion of women who want to limit child bearing has increased from 30% in 2000 to 47% in the 2005. The desire to limit child bearing increased as age of women, number of living children, wealth, and exposure to media increased. It also varies with various other background characteristics of women. So, our hypothesis that the intention to limit child bearing increase as age and parity of women increases is proved.

Logistic regression revealed that the main determinants of the desire to limit child bearing are age, the sex composition of living children, knowledge and use of family planning and exposure to media. But, it was unexpected that education and previous child death showed no significant association with the desire to limit child bearing. Our theories also support some of these findings. Age of women and the sex composition of living children were among the Lifecycle factors of Pullum (1983). Similarly the sex composition of children already born, the knowledge and use of family planning were among factors identified by researchers like Short and Kiros(2002) and Westoff and Bankole(1995). The effects of mass media(particularly those promoting family planning) on fertility desires and intentions have been observed by Westoff and Bankole(1997) and Gupta et al(2003). We were not able to test the effects of factors like approval of family planning, and discussion about family planning on intentions (Mohamod and Ringheim, 1997) due to data being empty for these variables. Thus, two of our hypothesis that Women from the richest wealth group are more likely to desire to limit child bearing as compared to women from the poorest wealth group and the desire to limit child bearing is associated with women's knowledge and practice of family planning is proved.

As a result of the high limiting and spacing preferences of women, the demand for family planning among currently married women is high(55%). The demand for family planning encompasses two components: current use of contraception and the unmet need for contraception. There is a higher demand for spacing (30.5%) than for limiting (24.6%), a condition observed in many countries of Sub-Saharan Africa. In particular, younger women and women with few living children had a higher demand for spacing purposes. But, since the current contraceptive prevalence rate is too low, 13.6%, a considerably very large proportion (75%) of this demand is unmet. About 41.5% of currently married women had such an unmet need for contraception. This component shows the gaps between fertility Intentions, specifically the desire to limit or space births on the one hand, and actual contraceptive behavior on the other hand. Women are said to have an unmet need if they say they want no more children (unmet need for limiting) or want to wait at least two years before having another child (unmet need for spacing) but are not using contraception. Unmet need is higher among younger women of age 15-19 and 20-24 as compared to older women and particularly the unmet need for spacing is much larger at these lower ages.

The reasons for such an unmet need was found to be diverse but the main ones include Fatalism, infrequent sex, objections (disapproval) to use of contraception, health concerns and fear of side effects, lack of knowledge about contraception and its sources and other reasons. Previous studies (Bongaarts & Bruce, 1995; Westoff & Bankole, 1995, 2000) have also reported the effects of these factors on the unmet need for contraception. However, a larger proportion of women who are not using family planning have shown the intention to use and therefore addressing these problems would significantly improve the situation of family planning in the State.

On the logistic regression, the main factors that influence the demand for family planning are age, number of living children, educational status, knowledge of family planning, exposure to family planning information through the media and fertility intentions of women. The number of living children and women's fertility intentions were stronger predictors of the demand for contraception. When the demand for family planning for limiting purposes is considered, education, knowledge of family planning, ideal number of children, number of living sons, wealth index and exposure to media turned to be the important factors in the model. Previous studies have also shown such similar socio-economic, demographic and family planning related factors to influence the demand for family planning (Westoff & Ochoa, 1991; Westoff & Bankole, 1995; Short & Kiros, 2002 and Westoff, 2006).

Overall, it is observed that the demand for children is lower than the actual fertility and women are motivated to control their fertility though not actually able to control it. About 81% of women expressed the desire to limit and space child bearing but only a limited proportion of them are able to implement such preferences. The desire to limit child bearing is influenced by factors like age of women, the sex composition of living children, knowledge and use of family planning and exposure to media. There is a higher demand for family planning, but a considerably higher proportion of this demand is unmet. The demand for family planning is influenced by age, number of living children, educational status, knowledge of family planning, exposure to family planning information through the media and fertility intentions of women. Similarly reasons for non use among women not using family planning include Fatalism, infrequent sex, objections (disapproval) to use of contraception, health concerns and fear of side effects and lack of knowledge about contraception and its sources. Besides the reliability issues related to the question on ideal number of children our finding on fertility intentions and the demand for family planning are consistent with findings of other studies in the field.

6.1 Recommendations

In relation to the above findings, we suggest the following recommendations.

1. The State government's Office of Population in collaboration with other stake holders like NGOs should make a concerted effort to expand family planning information and services in the State. This is because a considerable proportion of the unmet need for family planning resulted from lack of knowledge of contraception and the sources of contraception.
2. Expanding Information, education and communication about small family norms and the benefits of family planning to achieve the goals of wanted fertility is needed. It is known that women's mean desired number of children is still above 4, and men desire even more. Moreover, it was observed that fatalism, religious opposition, husbands opposition or women's opposition to family planning are among the factors for unmet need. It is therefore essential to provide information related to the benefits of small family size and role of family planning in achieving desired number of children.
3. Improving quality of family planning services is very essential. Health concerns and fear of side effects as reasons for non use can be addressed by providing objective information on contraceptives services and a free and informed choice of contraceptive methods.

4. Involve men in Family planning /reproductive health issues. Family planning programs should also involve men because men (husbands) have contributed to women's unmet need by opposing use of family planning. They should also be encouraged to use family planning themselves.
5. Further research on the distinct fertility preferences of men and women and contraceptive behavior is essential. It is important to know how fertility preferences of men influence demand for family planning among women. For this use of couple data may be more appropriate.

References

- Ashford L.(2003) Unmet Need for Family Planning: Recent trends and their Implications for Programs, Policy Brief, MEASURE Communication.
- Bertrand J.T., Magnani R. J., and Rutenberg N.(1994).Handbook of Indicators for Family Planning programme Evaluation, The Evaluation Project, , USAID.
- Bongaarts. J. (1990) The Measurement of Wanted Fertility, population and Development Review, 16: 487- 494.
- Bongaarts J. and Bruce, J. (1995) the Causes of Unmet Need for Contraception and the Social Content of Services, Studies in Family Planning 26(2):67-75.
- Bongaarts, J.(1997)“Trends in unwanted childbearing in the developing world” Studies in Family planning, 28(4): 267- 277.
- Bongaarts J. & Potter R.G., (1983) Fertility, Biology and Behavior: An Analysis of the Proximate Determinants of Fertility, Academic Press, New York.
- Bongaarts J.(1993) The Supply- Demand framework for the determinants of fertility, an Alternative implementation, population studies, 47(3) 437-456.
- Caldwell, J. C. and P. Caldwell (1987) The Cultural context of high fertility in Sub-Saharan Africa. Population and Development Review, 13(3) 409-437.
- Casterline, John B. and Sinding, Steven W. (2000) Unmet Need for family planning in Developing countries and implications for population Policy, Population and Development Review 26(4): 691-723.
- Casterline, John B. 2001. Diffusion processes and Fertility Transition, National Research Council, Committee on Population, National Academy Press.
- Central Statistical Authority (1991) The 1984 population and Hoisting census of Ethiopia Analytical Reports at National level, Addis Ababa, Ethiopia
- Central Statistical Authority (1993) The 1990 Family and Fertility Survey Report, Addis Ababa, Ethiopia.
- Central Statistical Authority (1998) The 1994 Population and Housing census of Ethiopia, Results at country level, Vol. II, central statistical Authority, Addis Ababa.
- Central Statistical Authority and ORC Macro (2001) Ethiopia Demographic and Health Survey 2000 Report, Addis Ababa.
- Central Statistical Authority (2006) National Statistics, available at <http://www.csa.gov.et>.
- Central Statistical Authority, and ORC Macro, (2006) Ethiopia Demographic and Health Survey 2005, Report, Addis Ababa
- Cleland, J. and C. Wilson (1987) Demand Theories of Fertility: an Iconoclastic View, Population Studies 41: 5-30.
- David M. Heer(1983)Infant and Child Mortality and the Demand for children, In Lee R. and R. Bulatao (eds) Determinants of Fertility in Developing countries, PP 369-387 New York, Academic press.
- De Bruijn B. (1999) Foundations of Demographic Theory: Choice, process and Context, Nether publications, The Netherlands.
- Demeny, Paul. (2003) Population policy: A concise summary, Population Council, Policy Research Division, New York.
- Dodoo, F. Nii- Amoo, Fertility Preferences and Contraceptive Use: A profitable Nexus for Understanding the prospects of fertility decline in Africa, paper presented at Workshop on prospects for fertility decline in High Fertility countries, Population

- Division, Department of Economic and Social Council, New York 9-11 July 2001.
- Easterlin R.A.(1975) An Economic Frame work for Fertility Analysis, *Studies in Family Planning*, 6(3) 54-63.
- Easterlin R.A and E. Crimmins (1986) *The Fertility Revolution: A Demand – Supply Analysis*, Chicago.
- Eugene K. Campbell and Puni G. Campbell (1997), Family Size and Sex Preferences and Eventual Fertility in Botswana, *Journal of Biosocial Science* 29: 191-204
- Gupta N., Katende C., & Bessinger R.(2003) Associations of Mass Media Exposure with Family Planning Attitudes and Practices in Uganda; *Studies in Family Planning*, 34(1) 19-31.
- James McCarthy and Gbolahan A. Oni (1987), Desired family size and its determinants among urban Nigerian women: A Two Stage Analysis, *Demography*,24(2) 279-290.
- Lee R. and R. Bulatao (1983) The demand for children: a Critical Essay, In Lee R. and R. Bulatao (eds) *Determinants of Fertility in Developing countries*, PP 233-287. New York, Academic press.
- Lightbourne, R. E. (1985) Desired Number of Births and Prospects for Fertility Decline in 40 Countries, *International Family Planning Perspectives*,11(2) 34-39 .
- Mason, Karen O. (1997) Explaining Fertility Transitions, *Demography*, 34 (4):443-454.
- Menard, Scott.1995. *Applied Logistic Regression Analysis*. Sage Publications. Series: Quantitative Applications in the Social Sciences, No. 106
- Mohamod N. and Ringheim K; Knowledge, Approval and Communication about family Planning as correlates of desired fertility among spouses in Pakistan; *International Family Planning perspectives*, 1997, 23(3) 122-129.
- National Population Policy of Ethiopia (1993.)Addis Ababa, Ethiopia.
- National Research Council (1993) *Factors Affecting Contraceptive use in Sub-Saharan Africa*, National Academy press, Washington, D.C.
- Population Reference Bureau, *World population Data Sheet*, 2006.
- Pullum W.T., ‘Correlates of Family Size Desires’, in Bulatao and Lee (eds), *Determinants of Fertility in Developing countries*, Supply and Demand for Children, vol.1, pp 344-368, 1983, Academic Press.
- Raaj K. Sah (1991) The Effects of Child Mortality Changes on Fertility Choice and Parental Welfare, *Journal of Political Economy*, 99(3): 582-606.
- Radheshyam Bairagi; Ray L. Langsten (1986) Sex Preference for Children and Its Implications for Fertility in Rural Bangladesh, *Studies in Family Planning* 17(6):302-307.
- Rasul, Aminur (1993) Fertility preference: A study of some basic concepts and Considerations, *The Journal of Family Welfare*, 39(1)24-32
- Rogers, Everett M. 1995. *Diffusion of Innovations*. New York, the Free Press.
- Robey, B., J. Ross, and I. Bhushan. (1996.) Meeting unmet need: New strategies. *Population Reports*, Series J, Number 43. Johns Hopkins School of Public Health, Population Information Program Baltimore, Maryland USA.

- Short E.S., and Kiros G. (2002) Husbands, Wives, Sons and Daughters: Fertility Preferences and the Demand for Contraception in Ethiopia, *Population Research and Policy Review*, 21(377-402).
- UN Population Division, 'Demographic Situation in High Fertility Countries' in *Proceedings of Workshop on prospects for fertility decline in High Fertility countries*, New York, 2001.
- United Nations Department of Economic and Social Affairs (2005) *World Population Prospects; the 2004 Revision*, volume I, New York.
- United Nations (1994): *Program of Action of the International Conference on Population and Development*. ICPD, Cairo, Sept 5-13.
- Westoff, Charles F. 1990. Reproductive Preferences and Fertility rates. *International Family Planning perspectives* 16(3): 84-89.
- Westoff, C.F., and Ochoa H. L. (1991) *Unmet Need and the Demand for Family Planning*, DHS Comparative Studies No. 5, Calverton, Maryland: ORC MACRO.
- Westoff, C.F., and Bankole A. (1995) *Child bearing Attitudes and Intentions*. DHS Comparative studies No.17. Calverton, Maryland: Macro International Inc.
- Westoff, C. F., and Bankole A. (2002) *Reproductive Preferences in Developing countries at the turn of the century*, DHS comparative Reports, No.2, Calverton, Maryland: ORC MACRO.
- Westoff, C.F., and Bankole A. (1997). *Mass Media and Reproductive Behavior in Africa*. DHS Analytical Reports, No. 2, Calverton, Maryland: ORC MACRO.
- Westoff, C.F., and Bankole A. (1998) *The Consistency and Validity of Reproductive Attitudes: Evidence from Morocco*, *Journal of Biosocial Sciences* 30, 439-455.
- Westoff, C.F. (2006) *New Estimates of Unmet Need and the Demand for Family Planning* DHS Comparative Reports No. 14, Macro International Inc. Calverton, Maryland USA
- Williamson, N. E. (1976) *Sons or Daughters: A cross-cultural survey of Parental preferences*. Beverly hills, California: Sage publications.
- Zlidar, V. M., Gardner and R., Rutstein (2003) *New Survey Findings: The Reproductive Revolution Continues* Population Reports, Series M, No.17 Baltimore, John Hopkins.

Annex I

Questions from Woman’s DHS Questionnaire used in this Study

I. Respondent’s Background

<p>1. How long have you been living continuously in (name of current place of residence)?</p>	<p>Years _____ Always 95 Visitor 96</p>
<p>2. How old were you at your last birthday? AGE IN COMPLETED YEARS</p>	<p>_____</p>
<p>3. Have you ever attended school?</p>	<p>Yes. 1 NO. 2</p>
<p>4. What is the highest grade you completed?</p>	<p>GRADE Tech./Voc. Certificate 13 University/College Diploma . . 14 University/College Degree Or Higher 15</p>
<p>5. Do you read a newspaper or magazine almost every day, at least once a week, less than once a week or not at all?</p>	<p>Almost Every Day 1 At Least Once A Wee 2 Less Than Once A Week 3 Not At All 4</p>
<p>6. Do you listen to the radio almost every day, at least once a week, less than once a week or not at all?</p>	<p>Almost Every Day 1 At Least Once A Week 2 Less than Once A Week 3 Not at all 4</p>
<p>7. Do you watch television almost every day, at least once a week, less than once a week or not at all?</p>	<p>Almost every day 1 At least Once A Wee 2 Less than Once A Week 3 Not At All 4</p>
<p>8. What is your religion?</p>	<p>Orthodox 1 Catholic. 2 Protestant 3 Moslem 4 Traditional 5 Other _____ 6 (Specify)</p>

II. Fertility and Contraception

1. Now I would like to ask about all the births you have had during your life. Have you ever given birth? Yes 1
No 2
2. Do you have any sons or daughters to whom you have given birth who are now living with you? Yes 1
No 2
3. How many sons live with you? Sons at home
And how many daughters live with you? Daughters at home
4. Do you have any sons or daughters to whom you have given birth who are alive but do not live with you? Yes 1
No 2
5. How many sons are alive but do not live with you? Sons elsewhere
And how many daughters are alive but do not live with you? Daughters elsewhere.
6. Have you ever given birth to a boy or girl who was born alive but later died? Yes 1
No 2
7. How many boys have died? Boys dead
And how many girls have died? Girls dead
- 8 Just to make sure that I have this right: you have had in total _____ births during your life. Is that correct?
9. Now I would like to talk about family planning - the various ways or methods that a couple can use to delay or avoid a pregnancy. Have you ever heard about? Yes 1
No 2
10. Have you ever used anything or tried in any way to delay or avoid getting pregnant? Yes. 1
No 2
11. Are you currently doing something or using any method to delay or avoid getting pregnant? Yes 1
No 2

III. Fertility Preferences

1. Non Pregnant women .Would you like to have (a/another) child, or would you prefer not to have any (more) children?

- Have (A/another) Child 1
- No More/None 2
- Says She Can't Get Pregnant.3
- Undecided/Don't Know and Pregnant..... 4
- And Not Pregnant or Unsure 5

2. How long would you like to wait from now before the birth of (a/another) child?

- Months 1 _____
- Years 2 _____
- Soon/Now 993
- Says She Can't Get Pregnant994
- After Marriage 995
- Other _____ 996

3. Pregnant women. After the child you are expecting, would you like to have another child, or would you prefer not to have any more children

- Have (A/Another) Child 1
- No More/None 2
- Says She Can't Get Pregnant.3
- Undecided/Don't Know: and Pregnant... . . . 4
- And Not Pregnant Or Unsure 5

4. How long would you like to wait from now before the birth of (a/another) child?

- Months 1 _____
- Years 2 _____
- Soon/Now 993
- Says She Can't Get Pregnant..... 994
- After Marriage 995
- Other _____ 996

5. For women who wants to have a/another Child later and those who do not want any more, why you are not using a method?

6. Do you think you will use a contraceptive method to delay or avoid pregnancy at any time in the future?

- Yes 1
- No 2
- Don't Know 8

7. Women who have living children: 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?

None0
 Number _____
 Other (specify) 96

8. Women with no living children: If you could go could choose exactly the number of children to have in your whole life, how many would that be?

None0
 Number _____
 Other (specify) 96

9. How many of these children would you like to be boys, how many would you like to be girls and for how many would the sex not matter?

	Boys	Girls	Either
Number	_____	_____	_____
Other (specify)	_____		96

10. In the last few months have you heard about family planning:

		YES	NO
On the radio?	Radio	1	2
On the television?	Television	1	2
In a newspaper or magazine?	Newspaper or Magazine.	1	2
In a pamphlet/poster/leaflets/booklets?	Pamphlet, Etc.	1	2
At a community event?	Community Event	1	2

11. Does your husband/partner know that you are using a method of family planning? Yes 1
 No 2
 Don't Know 8

12. Would you say that using contraception is mainly your decision, mainly your husband's/partner's decision, or did you both decide together?

Mainly Respondent 1
 Mainly Husband/Partner 2
 Joint Decision 3
 Other (Specify) 6

13. Do you think your husband/partner wants the same number of children that you want, or does he want more or fewer than you want?

Same Number 1
 More Children 2
 Fewer Children 3
 Don't Know 8