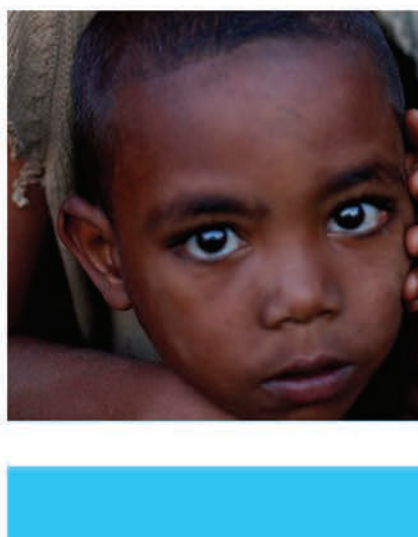
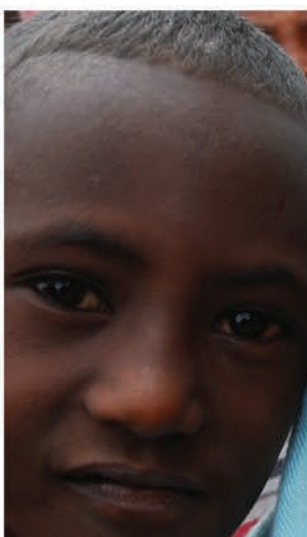
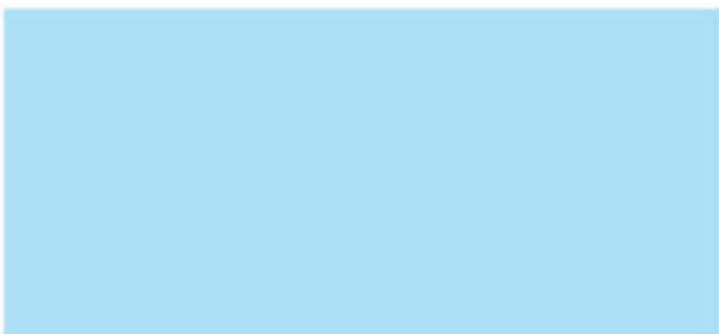


Components of Fertility Change in Ethiopia



Components of Fertility Change in Ethiopia

Further Analysis of the 2000, 2005, and 2011 Demographic and Health Surveys

Hailemariam Teklu¹
Alula Sebhatu²
Tesfayi Gebreselassie³

MoFED and UNICEF
Addis Ababa, Ethiopia

ICF International
Calverton, Maryland USA

August 2013

¹ Central Statistical Agency, Ethiopia

² Ministry of Finance and Economic Development, Ethiopia

³ ICF International, USA



This report presents levels of and trends in fertility in Ethiopia based on data from the 2000, 2005, and 2011 Ethiopia Demographic and Health Surveys (EDHS). USAID and UNICEF coordinated the further analysis, and ICF International provided technical assistance. Irish Aid, USAID, and MoFED provided the funding, the latter through the evaluation and research capacity building programme supported by UNICEF. The opinions and arguments herein are those of the authors and do not necessarily reflect the views of the Government of Ethiopia, USAID, UNICEF, or Irish Aid. The Ethiopia Demographic and Health Surveys are part of a worldwide programme that collects data on maternal and child health, nutrition, HIV/AIDS, fertility, family planning, and women's empowerment.

Additional information about the MEASURE DHS project can be obtained from:

ICF International, 11785 Beltsville Drive, Suite 300, Calverton, MD 20705, USA
Telephone: 301-572-0200, Fax: 301-572-0999
E-mail: reports@measuredhs.com, Internet: <http://www.measuredhs.com>

Additional information about the 2000, 2005, and 2011 EDHS can be obtained from:

Central Statistical Agency, P.O. Box 1143, Addis Ababa, Ethiopia
Telephone: (251) 111 55 30 11/111 15 78 41, Fax: (251) 111 55 03 34
E-mail: csa@ethionet.et

Recommended Citation:

Teklu, Hailemariam, Alula Sebhatu, and Tesfayi Gebreselassie. 2013. *Components of Fertility Change in Ethiopia. Further Analysis of the 2000, 2005, and 2011 Demographic and Health Surveys*. DHS Further Analysis Reports No. 80. Calverton, Maryland, USA: ICF International.

Table of Contents

LIST OF TABLES	iv
LIST OF FIGURES	iv
ACKNOWLEDGEMENTS	v
ABSTRACT.....	vi
1. INTRODUCTION	1
1.1 Background.....	1
1.2 Literature Review.....	2
1.2.1 Marriage and Fertility	3
1.2.2 Contraception and Fertility	4
1.2.3 Postpartum Insusceptibility and Fertility	4
1.3 Objectives of the Study.....	4
2. DATA SOURCE AND METHOD OF ANALYSIS	6
2.1 Data Source.....	6
2.2 Method of Analysis.....	6
2.3 The Index of Marriage	7
2.4 The Index of Postpartum Insusceptibility	8
2.5 The Index of Contraception	8
2.6 Total Fecundity	8
3. RESULTS	9
3.1 Trends in Fertility	9
3.2 Changes in the Proximate Determinants of Fertility.....	12
3.2.1 Urban and Rural Residence.....	12
3.2.2 Region of Residence	13
3.2.3 Women’s Education.....	15
3.2.4 Wealth Status Women.....	16
4. SUMMARY AND POLICY IMPLICATIONS.....	16
4.1 Summary and Conclusion	16
4.2 Policy Implications	18
REFERENCES	19

LIST OF TABLES

Table 1 Changes in the Proximate Determinants of Fertility by Urban and Rural Residence.....	12
Table 2 Trends in the Proximate Determinants of Fertility by Region of Residence	14
Table 3 Changes in the Proximate Determinants of Fertility by Women's Education.....	15
Table 4 Changes in the Proximate Determinants of Fertility by Women's Wealth Status.....	16

LIST OF FIGURES

Figure 1 Trends in Total Fertility by Urban and Rural Residence.....	9
Figure 2 Trends in Total Fertility by Administrative Region	10
Figure 3 Trends in Total Fertility by Education	11
Figure 4 Trends in Total Fertility by Wealth Status	11

ACKNOWLEDGEMENTS

The authors would like to thank MoFED (through the evaluation and research capacity building programme supported by UNICEF), USAID and Irish Aid for providing financial support, and ICF international, UNICEF and USAID for providing technical assistance and coordinating the DHS further analysis activities.

The authors would also like to thank CSA and the Population Affairs Directorate of MoFED for their continuous support to complete the study. Our heartfelt gratitude also goes to Dr. Pav Govindasamy (ICF International), Roger Pearson (UNICEF), Dr. Sara Head (ICF International) and Martha Kibur (UNICEF) for facilitating the project and Helen Cousins for editing the paper.

ABSTRACT

The objectives of this paper are to assess the levels and trends of fertility in Ethiopia and to identify the main contributors to this change using the Bongaarts' Proximate Determinants of Fertility Framework. The data is taken from the three Demographic and Health Surveys undertaken in 2000, 2005 and 2011. The results show that fertility has been declining in the last few years. But this decline is not uniform. Among the regions, Tigray, Amhara, Oromiya and SNNP show a decline in fertility, whereas, Somali and Afar have an increasing trend. In the remaining regions, fertility is stalled or changing very slowly. Fertility is inversely related to the educational level and the wealth status of women. By application of the Bongaarts' Proximate Determinants model we identify marriage as the most important factor affecting fertility in urban areas as a whole and specifically in Addis Ababa, Dire Dawa and Harari. Postpartum insusceptibility is identified as the main inhibitor in rural areas and in the Tigray, Amhara and Oromiya regions. The effect of contraception is showing an increasing trend in all the regions, with the exception of Somali and Afar. It has the strongest impact in the highly urbanized areas such as Addis Ababa and Dire Dawa cities and the Harari region. Contraception is the most important inhibitor of fertility in women with secondary and higher educational backgrounds and in women in the "rich" wealth status group. Commitment of additional resources and consistent effort is needed to sustain the current momentum of fertility decline, with focus on regions that are showing a fertility increase.

1. INTRODUCTION

1.1 Background

Among the African countries, Ethiopia ranks second in population following Nigeria. The 2007 national population census cited the Ethiopian population as being 74 million, with a yearly growth rate of 2.6 percent (CSA, 2008). Ethiopia has a young population, with 45 percent of its population under the age of 15 years and only 4.8 percent age 60 years or older. Women within the reproductive years of 15-49 constitute 23 percent of the total population. These demographic indicators are mainly the results of past high fertility (CSA, 2010).

However in the last few years, Ethiopia has been showing a decline in fertility. According to the 1990 National Family and Fertility Survey, the Total Fertility Rate (TFR) of Ethiopia was 6.6 children per woman. However, this rate declined to 5.5 in 2000, 5.4 in 2005 (Teller et al, 2011) and further to 4.8 in 2011 (CSA and ICF International, 2012). Although showing a declining trend, like many African countries, the fertility rate of Ethiopia is still high.

Fertility varies between countries, mainly due to differences in cultural, economic and health factors which interfere with the process of human reproduction. Factors such as the value the society gives to children, preferences relating to the sex of a child and family size, the social position and role of women in a society, economic needs and old age security schemes, and the prevalence of sexually transmitted diseases affect fertility. Social organizations as well as cultural settings have an influence on the pace of family formation and childbirth. (Falls, 2007).

Based on these facts, analysis of fertility is not only required to understand the demographic nature of a given population, but is needed as it affects public policy and budgeting for education and health systems, and because of the major impact fertility rates have on the well-being of the population. Government officials, policy makers, and academics are concerned about fertility because it can influence the overall development planning process. In addition, fertility is a matter of interest to health professionals as it has serious implications on the health of mothers and children. For instance, childbearing at young age or with too small a gap between births can have risks for the survival of both mothers and their children. In many developing countries, young women are exposed to maternal health problems due to having babies whilst they are physically immature and psychologically not ready to be mothers. Although some countries have been successful in reducing the prevalence of early childbearing, by keeping girls in school and changing community norms and national policies about early marriage, there are still nations suffering from the consequences of early marriage and early childbearing.

Population growth and decline, mainly affected by fertility, is also a concern for planners and programmers, as well as policy makers. In recent decades, the growth of the developing world population has dramatically outpaced that of high income countries. The highest growth rates of population are almost entirely concentrated in poor countries, whereas the smallest rates of population growth are observed in most of the developed countries. Africa has the highest rate of fertility and the largest percentage of population growth. Most of the population in Africa is very young (Population Reference Bureau, 2009).

This study investigates the levels and changes of fertility in Ethiopia using data from the three consecutive Demographic and Health Surveys (DHS) of 2000, 2005, and 2011. In addition, the study examines the relative effects of marriage patterns, contraceptive use, and postpartum insusceptibility to fertility using the Bongaart's Proximate Determinants on Fertility Framework.

1.2 Literature Review

Because of the complex nature of human fertility, it is usually not very easy to establish a coherent relationship between the factors that affect fertility directly and indirectly. Different scholars such as Freedman (1967), Easterlin (1975), the World Fertility Survey (1984), Bongaarts (1978 and 1983) and others, have tried over the years to have a very integrative, comprehensive, logical and consistent theoretical and conceptual frameworks.

Among the different theories of fertility decline, "the Demographic Transition Theory" (Kirk, 1996) and the "Neo-classical Micro Economic Theory" (Becker and Lewis, 1973) are considered to be the most important. They associate high fertility with low level achievement of economic development. They stress the most important contributing factors to the high levels of fertility in sub-Saharan Africa result from the low level of development. The manifestations are high infant and child mortality, low levels of contraceptive use, and the relatively low social, educational and employment standing of women.

On the other hand, Cleland and Wilson (1987) in their theory known as "the Ideational Theory of Fertility Decline" state that fertility decline in developing countries can come without accompanying changes in economic development. They forward "diffusion of ideas about fertility regulation" giving women better opportunities to access family planning information and services. Their effectiveness, however, depends on the extent to which "traditional norms and values" can be broken and penetrated with the new ideas.

Several models have been developed in the past decades to describe a populations' fertility situation. Economists argued that fertility motivation is influenced primarily by changes in the actual or perceived economic costs and benefits of children. This framework approaches fertility behaviour in terms of household resources and cost of desired goods as competing with desired and actual number of children (Becker, 1960; Easterlin, 1969).

Some scholars emphasize the institutional and normative aspects of fertility behaviour. They maintain that fertility reflects a more complex set of individual and social interactions in which decisions concerning reproduction are subject to the social constraints regulating reproduction on top of individual preferences for children (Freedman, 1966). Others focus on the importance of the intergenerational wealth flow proposed by Caldwell (1982) which states that fertility levels are determined mainly by the direction of the flow of economic advantages of having a large number of children for the family and the extended patriarchal family groups (Deolalikar, 1982).

Davis and Blake (1956) outlined two types of factors that determine fertility: The "direct" or "proximate" determinants and "indirect" determinants or background factors. "The background factors operate through the proximate determinants to influence fertility"; they do not influence fertility directly. "The proximate determinants are behavioral mechanisms that act to reduce fertility". The principal characteristics of the proximate determinants are their direct influence on fertility. Socio-economic variables, "can affect fertility only indirectly, by modifying the proximate determinants" (Bongaarts, 1978; Bongaarts and Potter, 1983). The Bongaarts model expresses, "the impact of each of the proximate variables in terms of the extent to which it reduces overall fertility". Most studies focus primarily on three proximate

determinants¹: “Marriage/non-marriage”; “post-partum amenorrhea”, which is a result of long period of breast feeding; and contraceptive use to space or limit child bearing.

The “Proximate Determinants Model” is mostly used to identify the main factors behind fertility changes; the changes associated in fertility through time; to compare changes in fertility among countries, or regions of a country; and to estimate changes in contraceptive use (Stover, 1997).

“The Proximate Determinants Model” is one of the most extensively used models in the world. But this doesn’t mean it always works for all populations. Sometimes, the estimates brought about by this model may be higher or lower than the actual levels of fertility. Due to lack of required data, the model was not properly applied in Ethiopia until recently. It was first used in 1994 (Assefa et al., 1994) using the 1990 national level family and fertility survey. A similar study was done in the city of Addis Ababa in 2003 using the 1990 National Family and Fertility Survey data and the 2000 Demographic and Health Survey data (Sibanda et al., 2003).

1.2.1 Marriage and Fertility

Among the “proximate determinants of fertility” marriage is the prominent one. In their review of the proximate determinants of fertility, Bongaarts and Potter (1983) have defined marriage as the relatively stable union to which socially sanctioned childbearing is limited in most societies. The initiation of marriage is usually associated with the beginning of childbirth. In societies where women marry at an early age, the beginning of childbirth is early and the period during which women bear children is relatively longer, resulting in higher fertility in societies where marriage is at an early age than those societies where the age at marriage is later (Bongaarts and Potter, 1983). Early marriage and early childbearing mostly have implications on the health status of women and their children. The age at which marriage occurs, the proportion of women who are married, accompanied by low level of contraceptive use, determine the level of fertility in a society. (Bongaarts, 1984; Assefa, 1992).

A study conducted on trends in proximate determinants of fertility in Kenya revealed that Kenyan women are delaying marriage much more than they did in the past. The proportion of never married women increased over the study period, especially amongst the youngest women. In this case the delay in marriage was not accompanied by a similar delay in the onset of reproduction, because the exposure to risk of pregnancy was not confined to marriage (Kizito, et al, 1991).

Populations with a high age at marriage are also likely to be more urbanized and have a higher likelihood of using contraception. Thus such populations may show low fertility, not only because of their lost reproductive years due to late marriage but also because of deliberate limitation of fertility (United Nations, 1987).

¹Bongaarts et al. (1984) enumerate nine major proximate determinants of fertility:

1. Marriage or union patterns, 2. Contraception, 3. Lactational amenorrhea, 4. Postpartum abstinence, 5. Pathological sterility, 6. Induced abortion, 7. Frequency of sexual intercourse, 8. Spontaneous intrauterine mortality, and 9. Natural sterility.

1.2.2 Contraception and Fertility

It is universally accepted that the use of contraception was the major intermediate variable responsible for the decline of fertility from high to low levels during the late nineteenth and early twentieth century (United Nations, 1973). Increased use of modern contraception is also one of the factors for “fertility transitions” in many developing countries (Bongaarts, 1986; Lapham and Mauldin, 1985).

Sub-Saharan Africa is late in its fertility transition, which only started in the late 1990s. Initially fertility decline was seen in Botswana, Kenya, Ghana, Republic of South Africa, Nigeria, Senegal, Lesotho, Swaziland, Namibia and Zimbabwe. Caldwell (1992) identified the following factors as the most important contributors to fertility decline in sub-Saharan Africa: “The increased use of modern contraception, improvements in female education and economic conditions, reductions in infant mortality rates, changing attitudes about large family sizes, and modernization”.

A study in Ghana shows, “the value of the index of contraception (Cc) has declined from 0.87 to 0.78 over the ten-year period. This decline signals an increasing role for contraception in fertility reduction.” (Blanc and Gray, 2000) Similar studies in Eastern and Southern Africa show that, “contraceptive prevalence rates for modern methods is above or close to 50 percent in only two countries (Zimbabwe and Mauritius) and between 25 and 40 percent in five countries, namely Madagascar, Malawi and Kenya, Rwanda and Zambia (United Nations, 2009). In the remaining countries, use of modern methods averaged between 10 percent and 20 percent.”

However studies in Southern Africa indicated that, “contraceptive prevalence rates for modern methods were relatively high in all countries and averaged between 32 percent and 55 percent. The percentage of women in union who use modern contraception was particularly low (no more than five percent) in Angola, Chad, Central African Republic, Mauritania, Niger and Somalia”. (Guengant and May, 2011).

1.2.3 Postpartum Insusceptibility and Fertility

The other proximate determinant that has an influence in the reduction of fertility is post partum insusceptibility. The number of women at a given period of time who are either “amenorrhoeic” or “abstaining” can result in the reduction of fertility. This can result from “shorter durations of breastfeeding”, “postpartum abstinence”, or from women initiating contraceptive use at a longer duration of postpartum. (Adamchak and Mbvizo, 1990; Sambisa and Curtis, 1997).

1.3 Objectives of the Study

The understanding of the components of fertility decline is important for policy and research purposes. It is particularly essential for policy makers in Ethiopia to know why fertility rates have started declining, after many decades when the country maintained one of the highest fertility rates in sub-Saharan Africa, and why past efforts to reduce fertility rates were not successful.

The need for disaggregated information on levels of fertility in Ethiopia by type of residence, administrative regions, education, wealth status, and knowledge of factors affecting such levels becomes even more crucial because of the diversities in the population of Ethiopia.

From the point of view of policy making, for a country whose policy target is to increase life expectancy through the reduction of infant mortality and the implementation of reproductive health programmes (NOP, 1993), the knowledge of fertility behaviour and its determinants will indeed be valuable.

Therefore, the general objectives of this paper are to examine the levels and trends of fertility and to explore the inhibiting factors of fertility using the “Bongaarts Proximate Determinants of Fertility Model”. These have implications for “programme review” and “the implementation of the population programmes” in Ethiopia. More specifically, the objectives are:

- To assess the levels and trends of fertility in the three consecutive Ethiopian Demographic and Health Survey (DHS) periods, i.e., 2000, 2005 and 2011;
- To identify the “relative contribution” of changes in “each of the three proximate determinants of fertility, i.e., marriage, contraception and postpartum insusceptibility” at the national, urban-rural residence and regional levels, and based on the education and wealth status of women and;
- To make recommendations that may have policy implications.

2. DATA SOURCE AND METHOD OF ANALYSIS

2.1 Data Source

The DHS has produced ample data on fertility, health, contraceptive use, breast-feeding practices, nutrition of women and children, and other “background characteristics of women and their husbands” in developing countries. So far, Ethiopia has had one National Family and Fertility Survey (NFFS) conducted in 1990 and three Demographic and Health Surveys conducted in 2000, 2005, and 2011. All the surveys were administered by the Central Statistical Agency of Ethiopia (CSA).

This study is based on data collected in the 2000, 2005, and 2011 Ethiopia Demographic and Health Surveys. The three surveys are nationally representative and include data for women of reproductive ages 15-49, permitting the estimation of the levels and trends of reproductive behaviour. In the 2000 EDHS, 15,367 women aged 15-49 were interviewed; in 2005, 14,070 women were interviewed and in 2011², 16,515 women were interviewed. The survey results provide critical information that can be used as baseline data to assist policy makers and planners in assessing the current health and population programmes in Ethiopia.

2.2 Method of Analysis

In the first section of the analysis, recent trends in fertility in the three DHS periods are assessed based on the following background characteristics of women age 15-49:

1. Place of residence (urban, rural and the whole country);
2. Region of residence, including all nine regional states: Tigray, Afar, Amhara, Oromiya, Somali, Benishangul-Gumuz, Southern Nations Nationalities and People’s Region (SNNP), Gambela and Harari, and the two city administrations: Addis Ababa and Dire Dawa;
3. Educational level, categorized under no education, primary, and secondary and above, and
4. Wealth index (status) containing three groups: Poor, middle and rich. For comparison across the three surveys, a wealth index based on common items was constructed for the DHS data using a principal component analysis. The indicators used to create the wealth index (proxies of wealth indicators) were household facilities and assets such as whether the household owns a radio, a television, electricity, type of flooring of the household, toilet facility, drinking water facility, number of members per room in the household, and ownership of pack animals, cattle, sheep and goats.

In the second part of the analysis, changes in the proximate determinants of fertility are examined using “the Bongaarts Model” (1983) based on the background variables mentioned above. We also look at how the importance of these proximate determinants changed in the three DHS periods.

² The geographic sample for Affar and Somali was greatly expanded and covered other zones in 2011 compared to 2005 and 2000 thus the data may not give a real picture of the trend in these two regions”.

In the model, “the relative importance of each of the proximate determinants of fertility is expressed with an index value that ranges from 0 to 1. An index nearer to 1 indicates a smaller reduction of fertility by the proximate determinant and value closer to 0 indicates a larger reduction of fertility by the proximate determinant”. The model can be expressed as:

$$TFR = C_m * C_c * C_a * C_i * C_p * TF$$

Where,

TFR is the total fertility rate,

C_m is the index of marriage,

C_c is the index of contraception,

C_a is the index of abortion,

C_i is the index of postpartum insusceptibility,

C_p is the index of sterility and

TF is the total fecundity”

In this analysis the indices of marriage, postpartum insusceptibility and contraception are estimated. No data was collected on abortion in the three DHS surveys. There is data on sterility, which can be usually estimated from women age 45-49, who are childless or with zero parity. But the estimated indices for most of these variables are one or around one, indicating that sterility has little importance in affecting the overall fertility rates of Ethiopia.

2.3 The Index of Marriage

The index of marriage measures the effect of marriage on fertility. The higher the level of marriage in the population, the less the inhibiting effect on fertility and vice versa. The index of marriage is calculated as the ratio of the total fertility rate (TFR) to the total marital fertility rate (TMFR). That is, $C_m = TFR/TMFR$. In the calculation of the index of marriage, those women living together with men are considered as married.

2.4 The Index of Postpartum Insusceptibility

“The index of postpartum insusceptibility is intended to describe the effects of breast-feeding or abstinence on fertility in the population”. According to Bongaarts and Potter (1983) and Johnson et al (2011), “In the presence of breastfeeding and postpartum abstinence, the average birth interval equals, approximately, 18.5 months (7.5+2+9) plus the duration of postpartum infecundability.” Therefore, the index of postpartum insusceptibility (C_i) is estimated as;

$$C_i = \frac{20}{(18.5 + i)},$$

Where i = average duration of postpartum insusceptibility caused by breastfeeding or postpartumabstinence”

2.5 The Index of Contraception

The “index of contraception” describes the fertility-inhibiting effects of contraceptive use. It is inversely related with the contraceptive prevalence and “use effectiveness” of modern contraception practiced by couples. “The index of contraception (C_c) is calculated as;

$$C_c = 1 - 1.08 * u * e$$

Where, u is contraceptive prevalence among married women (including those living together as married) age 15-49 and e is the average effectiveness of contraception; i.e., is the weighted average of contraceptive use effectiveness using the proportions of current contraceptive users of each method as weights. The indices of use effectiveness proposed for particular contraceptives are: pill = 0.90, IUD = 0.95, sterilization = 1.00 and others 0.70” (Bongaarts and Potter, 1983). “The adjustment factor 1.08 is designed to remove infecund women from the equation so that the contraception index would become zero if effective prevalence reached 92.5 percent, and the remaining women are assumed to be infecund.”

2.6 Total Fecundity

The “total fecundity (TF) is a hypothetical or potential value (the theoretical maximum level of fertility) that the TFR would take if all the indices of the proximate determinants were exactly 1”. That means, if all women age 15-49 were married, there was no contraception use in the population concerned, “no postpartum insusceptibility (beyond a minimum of 1.5 months) and no induced abortion” (Stover, 1997; Bongaarts and Potter, 1983; and Johnson, et al., 2011). According to Bongaarts and Potter (1983), “the TFs of most populations fall within the range of 13 to 17 births per woman, with an average of approximately 15.3. Therefore, multiplying all of the indices with 15.3 as the maximum number of births, produces a predicted model TFR of the population”.

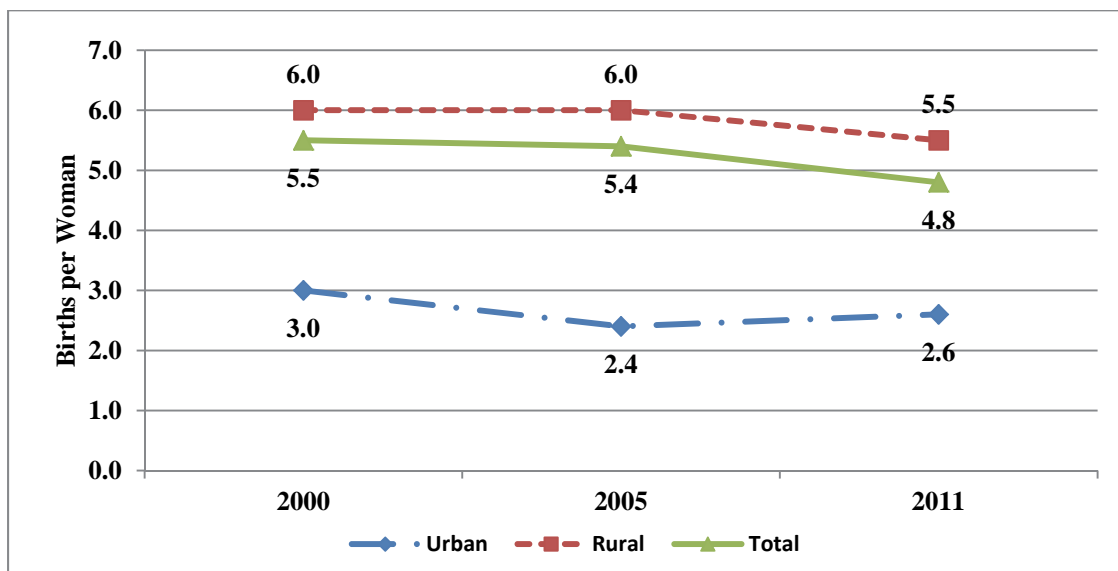
3. RESULTS

3.1 Trends in Fertility

In this section results and discussion of the trends of overall fertility and the proximate determinants in the three DHS periods of 2000, 2005 and 2011 are presented. The results are based on such background variables as urban and rural residence, region of residence, educational level and wealth status of women.

The observed TFRs for all women age 15-49 and births during the three years before each survey are given in Figure 1 below. Accordingly, the TFR of Ethiopia declined from 5.5 children per woman in 2000 to 5.4 in 2005 and further to 4.8 children per woman in 2011. The trend shows an overall decline of about 11 percent or a drop of just less than one child per woman.

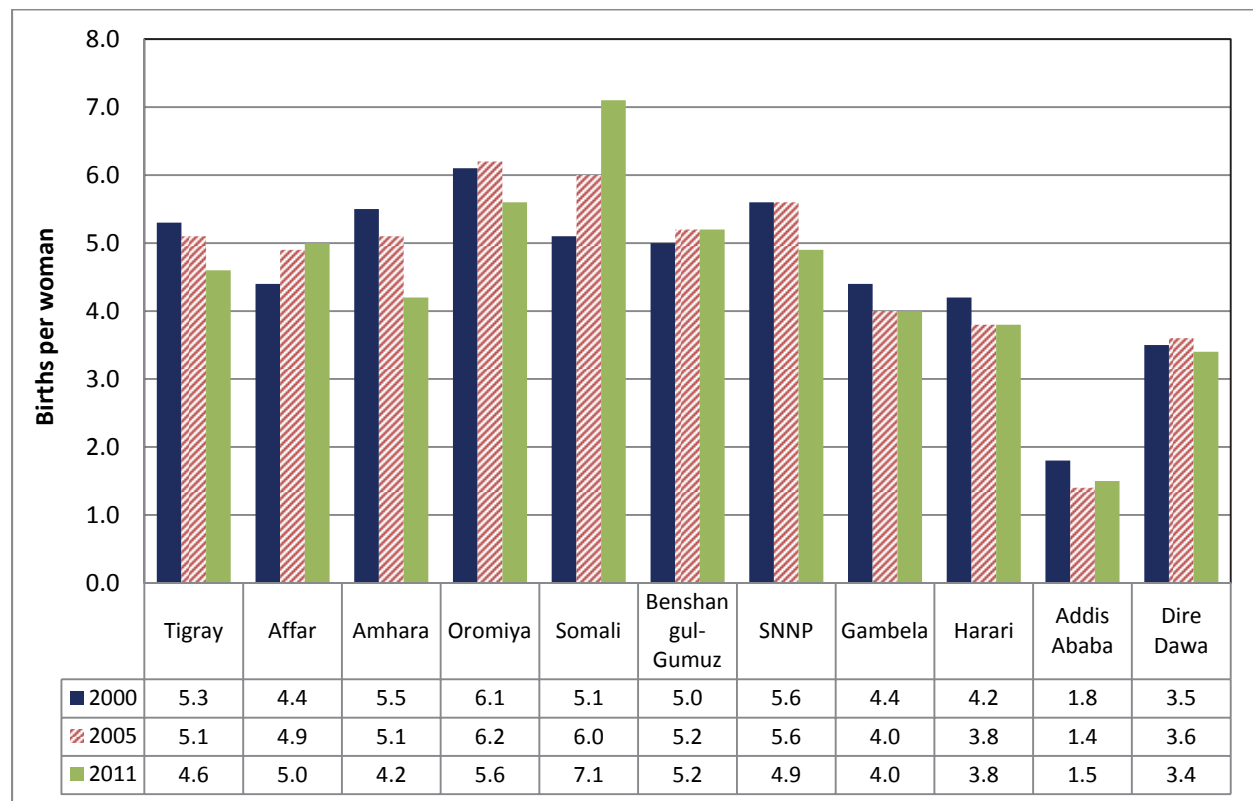
Figure 1 Trends in Total Fertility by Urban and Rural Residence



Although there was a decline in fertility level between 2000 and 2005 in urban areas, a slight regression of the level is observed between 2005 and 2011. There was no change in fertility level between 2000 and 2005 in rural areas. In rural areas fertility starts to decline from 2005 onwards, with an approximate 8 percent decline between 2005 and 2011.

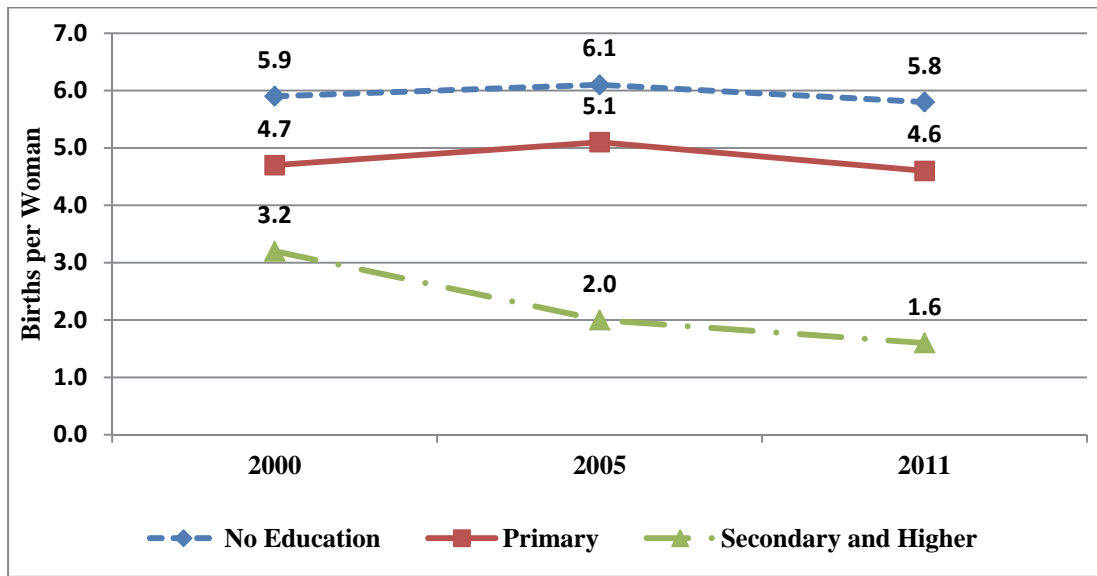
There is wide variation in fertility trends across the regions (Figure 2) of Ethiopia. Based on the levels and trends of TFR, two groups of regions emerge. The first group comprises of regions that show an increasing trend in fertility between 2000 and 2011. These are the Somali, Afar and Benishangul Gumuz regions, showing an increase of about 39 percent, 14 percent and 4 percent, respectively. The second group comprises of regions that are showing a declining trend in fertility. These regions are Tigray, Amhara, Oromiya, SNNP, Gambela, Harari and the Addis Ababa and Dire Dawa city administrations. The highest decline in fertility is seen in Amhara region, showing about 24 percent reductions between 2000 and 2011, followed by Addis Ababa city, 17 percent, SNNP and Tigray 13 percent, Harari 10 percent, Gambella 9 percent, Oromiya 8 percent and Dire Dawa 3 percent. No change in fertility level is observed in Benishangul-Gumuz, Harari and Gambella regions between the periods 2005 and 2011.

Figure 2 Trends in Total Fertility by Administrative Region



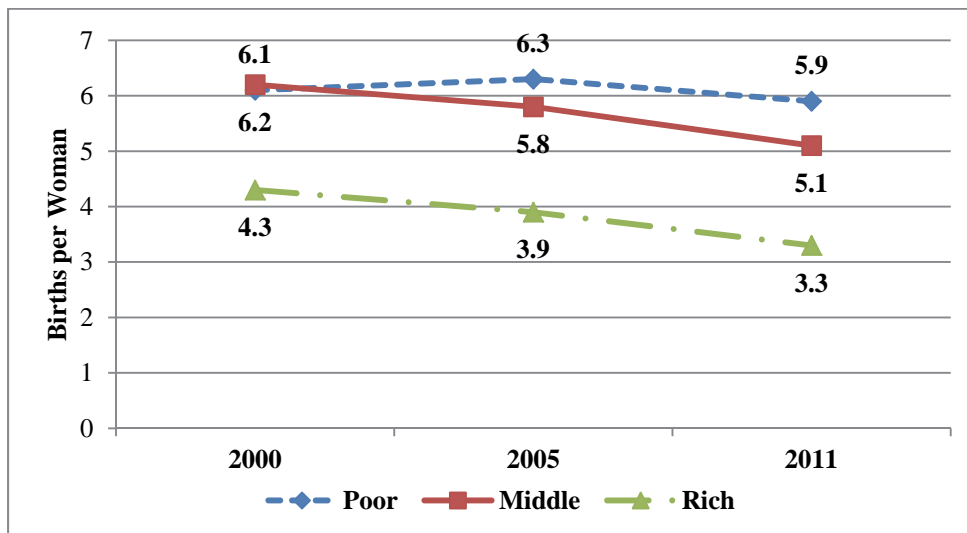
Women in the three surveys are grouped under three categories: No education, primary education and secondary education and above. As indicated in Figure 3, women with secondary and above education had the lowest fertility rates (below replacement level fertility) in 2011 compared with women with primary and no education. The TFR of women with secondary and above education is about four children lower than those with no education and about three children lower than those with primary level education. It is clear from the figure that, the fertility of women with no education and primary level education was on the rise between 2000 and 2005 and only started decline from 2005 onwards.

Figure 3 Trends in Total Fertility by Education



Women are grouped according to their wealth status under the categories “poor”, “middle” and “rich” as shown in Figure 4. The result shows a noticeable gap in fertility rates between women in the rich wealth category and the other two categories. For instance, there is a difference of more than two children per woman between women in the poor and rich wealth groups in 2005 and 2011. Fertility was high and on the rise between 2000 and 2005 among women in the poor wealth group. It only started declining after 2005.

Figure 4 Trends in Total Fertility by Wealth Status



3.2 Changes in the Proximate Determinants of Fertility

3.2.1 Urban and Rural Residence

Women in urban areas have a greater chance to use modern contraception methods and comparatively the age at marriage is higher in urban than in rural areas. Corresponding to the fertility trends shown in Figure 1 for urban Ethiopia, except the index of postpartum insusceptibility, the trends in the other proximate determinants show a relatively higher effect on fertility decline between 2000 and 2005 than 2005 and 2011 (Table 1).

Table 1 Changes in the Proximate Determinants of Fertility by Urban and Rural Residence

Type of Residence and Survey Year	Marriage (C _m)	Insusceptibility (C _i)	Contraception (C _c)	Model TFR	Reported TFR
Urban					
2000	0.62	0.69	0.76	5.0	3.0
2005	0.52	0.70	0.65	3.6	2.4
2011	0.61	0.66	0.60	3.7	2.6
Rural					
2000	0.82	0.52	0.97	6.3	6.0
2005	0.81	0.55	0.92	6.3	6.0
2011	0.82	0.56	0.83	5.8	5.5
Total					
2000	0.78	0.52	0.95	5.9	5.5
2005	0.76	0.57	0.89	5.9	5.4
2011	0.76	0.57	0.79	5.2	4.8

Among the indices, the contribution of contraception is the most important in urban areas, having an index value of 0.60 in 2011 from its value of 0.65 in 2005 and 0.76 in 2000. The overall effect as shown in the model TFR is highly noticeable between 2000 and 2005. However, from 2005 to 2011 the effects of the other indices cancelled out the contribution of the index of contraception to the overall effect.

The effect of postpartum insusceptibility in limiting fertility in rural areas of Ethiopia is very significant. Although the changes are very minimal, it shows a decreasing trend in affecting fertility in the three survey periods. Next to postpartum insusceptibility, marriage is important; however its index value is comparatively large, indicating a less inhibiting effect.

Contraception is becoming a more important proximate determinant in rural areas, having an index value of 0.97, 0.92 and 0.83 in 2000, 2005 and 2011, respectively. It is expected to become the most important determining factor in reducing fertility in the near future.

The trend in the model TFR indicates overall fertility started declining very slowly and only between 2005 and 2011. Even though very slightly, fertility was on the rise between 2005 and 2011 in the urban areas of Ethiopia.

At country level, the most important factor among the proximate determinants is still postpartum insusceptibility, having indices of 0.52 in 2000, 0.57 in 2005 and again 0.52 in 2011. Next to postpartum insusceptibility marriage has the most significant effect on fertility. The indices of marriage show almost constant trends in the three survey periods. But the index of contraception shows a declining trend in the values of its indices in the survey periods, indicating an increasing effect on fertility. The effect is reflected, slightly, in the model TFR values. TFR was 5.9 in 2000 and 2005, but only 5.2 in 2011.

3.2.2 Region of Residence

Regional variations in the trends of the proximate determinants of fertility are shown in Table 2. Each of the three indices of the proximate determinants and estimated values of the model and reported TFR are presented.

Marriage has the most important effect in Addis Ababa compared with the rest of the regions, having an average index value of 0.44 in the three survey periods. Following Addis Ababa, the effect of marriage is significant in the Dire Dawa City Administration and Harari region, each of them having an average index value of 0.63 and to some extent in SNNP (average index value 0.77) and Tigray (average index value 0.76) regions.

Postpartum insusceptibility, largely the result of extended breastfeeding, is the most important inhibitor of fertility in most of the regions of Ethiopia. Its role is the highest, without showing any change in the average index value in the three survey periods, in Tigray (0.51), Amhara (0.51) and Oromiya (0.58) regions. Its importance is less significant in the Addis Ababa and Dire Dawa city administrations and the Harari and Somali regions.

The index of contraception is becoming an increasingly more important determinant in the last three survey periods. It shows a continuous increasing trend as inhibitor of fertility in almost all of the regions, with the exception Somali and Afar regions. Its effect is extremely significant in largely urban areas such as Addis Ababa, Dire Dawa and Harari, while regions such as Gambella, Benishangul-Gumuz and Amhara are also moving in the direction of increased fertility inhibition as a result of contraception use. Addis Ababa, Dire Dawa, Harari, Amhara and Tigray regions have already achieved good results in this respect.

The overall model TFR estimate has a high correspondence to the results of the index of postpartum insusceptibility and to a lesser extent to the index of contraception. Marriage, except in Addis Ababa, Dire Dawa and Harari, has no importance in the overall fertility change. However, care should be taken in interpreting the overall fertility estimate, because there are unmeasured values in our estimates such as the effects of abortion, variations in the true values of the TF in the different regions and other factors.

Table 2 Trends in the Proximate Determinants of Fertility by Region of Residence

Region of Residence and Survey Year		Index of Marriage (C _m)	Index of Postpartum Insusceptibility (C _i)	Index of Contraception (C _c)	Model Estimate of Fertility (TFR)	Reported Fertility Rates (TFR)
Tigray	2000	0.79	0.50	0.92	5.7	5.3
	2005	0.76	0.50	0.87	5.1	5.1
	2011	0.74	0.52	0.83	5.0	4.6
Afar	2000	0.84	0.57	0.93	6.8	4.4
	2005	0.83	0.61	0.95	7.4	4.9
	2011	0.90	0.62	0.93	7.9	5.0
Amhara	2000	0.81	0.49	0.94	5.7	5.5
	2005	0.81	0.50	0.87	5.4	5.1
	2011	0.80	0.53	0.74	4.8	4.2
Oromiya	2000	0.81	0.54	0.96	6.4	6.1
	2005	0.77	0.60	0.89	6.3	6.2
	2011	0.79	0.60	0.81	5.8	5.6
Somali	2000	0.76	0.71	0.98	8.0	5.1
	2005	0.82	0.57	0.98	7.1	6.0
	2011	0.85	0.74	0.97	9.4	7.1
Benishangul-G.	2000	0.82	0.55	0.93	6.4	5.0
	2005	0.87	0.61	0.92	7.4	5.2
	2011	0.83	0.62	0.79	6.3	5.2
SNNP	2000	0.77	0.55	0.96	6.2	5.6
	2005	0.78	0.55	0.91	6.0	5.6
	2011	0.76	0.57	0.81	5.3	4.9
Gambella	2000	0.90	0.47	0.89	5.8	4.4
	2005	0.98	0.48	0.87	6.3	4.0
	2011	0.76	0.48	0.74	4.2	4.0
Harari	2000	0.67	0.61	0.84	5.2	4.2
	2005	0.67	0.70	0.77	5.5	3.8
	2011	0.57	0.73	0.74	4.7	3.8
Addis Ababa	2000	0.45	0.72	0.70	3.5	1.8
	2005	0.38	0.68	0.62	2.5	1.4
	2011	0.49	0.85	0.54	3.4	1.5
Dire Dawa	2000	0.61	0.66	0.80	4.9	3.5
	2005	0.64	0.67	0.75	4.9	3.6
	2011	0.65	0.63	0.75	4.7	3.4
Total	2000	0.78	0.52	0.95	5.9	5.5
	2005	0.76	0.57	0.89	5.9	5.4
	2011	0.76	0.57	0.79	5.2	4.8

3.2.3 Women's Education

Table 3 presents the trends of the proximate determinants of fertility as a result of variations in educational level of women. Among the proximate determinants, postpartum insusceptibility plays the greatest role in reducing fertility among women with no education (with an average value of the index 0.54) and among women with only a primary level of education (with an average value of the index 0.60). The model TFR indicates higher TFR values, with no declining trends across the three survey periods.

Overall, the index of contraception shows a declining trend, indicating an increasingly inhibiting effect on fertility. Among women with no education, it had almost no inhibiting effect on fertility in 2000 (0.97) but declined to an index of 0.92 in 2005 and further declined to 0.83 in 2011, a 14 percent decline between 2000 and 2011, indicating a large increase in effectiveness.

Similarly, the index of contraception shows a declining trend among women with primary level education. The index was 0.89 in 2000 and 0.82 in 2005 but declined to 0.74 in 2011, which is a decline of about 17 percent between 2000 and 2011.

Postpartum insusceptibility became relatively less important among women with primary education in the three survey periods.

Table 3 Changes in the Proximate Determinants of Fertility by Women's Education

Level of Women's Education and Survey Year	Marriage (C_m)	Insusceptibility (C_i)	Contraception (C_c)	Model TFR	Reported TFR
No Education					
2000	0.82	0.51	0.97	6.2	5.9
2005	0.83	0.55	0.92	6.4	6.1
2011	0.86	0.55	0.83	6.0	5.8
Primary					
2000	0.72	0.58	0.89	5.6	4.7
2005	0.73	0.59	0.82	5.4	5.1
2011	0.76	0.64	0.74	5.5	4.6
Secondary and Above					
2000	0.62	0.65	0.72	4.4	3.2
2005	0.50	0.69	0.62	3.3	2.0
2011	0.51	0.79	0.50	3.1	1.6

Marriage was the most important proximate determinant of fertility among women with secondary education and above. The index of marriage was 0.62 in 2000, 0.50 in 2005 and 0.51 in 2011. The importance of postpartum insusceptibility in limiting fertility declines over this time period, whereas the contribution of contraception becomes more important. The index of contraception was 0.72 in 2000, declined by about 14 percent and became 0.62 in 2005 and further declined by 19 percent and became 0.50 in 2011. The overall effects of contraception and marriage in reducing fertility, in women with secondary education and above, are reflected in the model TFR. The TFR dropped by about one child per woman from 4.4 children per woman in 2000 to 3.3 and 3.1 children per woman in 2005 and 2011, respectively.

3.2.4 Wealth Status Women

According to their wealth status, women of reproductive age were grouped under three wealth categories: “poor”, “middle” and “rich”. Their respective proximate determinants and model TFRs are shown in Table 4.

The result indicates postpartum insusceptibility was the most important inhibitor of fertility for women in the poor and middle wealth groups, followed by marriage. But the effect of postpartum insusceptibility is losing its influence among women in the rich wealth category. On the other hand, the effect of marriage is increasing. The effect of contraception is showing some increasing trends, especially among women in the rich group. The model TFR shows a declining trend in fertility in the three survey periods in all the groups. The model TFR value is the lowest among women in the rich wealth category as compared with women in the other wealth categories.

Table 4 Changes in the Proximate Determinants of Fertility by Women's Wealth Status

Women's Wealth Status and Survey Year	Marriage (C_m)	Insusceptibility (C_i)	Contraception (C_c)	Model TFR	Reported TFR
Poor					
2000	0.83	0.50	0.98	6.2	6.1
2005	0.82	0.50	0.95	5.9	6.3
2011	0.83	0.52	0.86	5.7	5.9
Middle					
2000	0.80	0.50	0.98	6.0	6.2
2005	0.81	0.52	0.90	5.8	5.8
2011	0.81	0.55	0.81	5.5	5.1
Rich					
2000	0.70	0.53	0.92	5.2	4.3
2005	0.65	0.63	0.78	4.9	3.9
2011	0.66	0.64	0.65	4.2	3.3

4. SUMMARY AND POLICY IMPLICATIONS

4.1 Summary and Conclusion

Ethiopia has been experiencing significant declines in fertility rates in the last few years. This decline was more prominent between 2005 and 2011 than between 2000 and 2005. But this change in fertility is not shared equally among the regions of the country and among the different sectors of the society. The variations can most probably be attributed to the differences in cultural values and norms of each region concerned (Ethiopian Society of Population Studies, 2008). Regional distribution of fertility indicates Tigray, Amhara, Oromiya and SNNP regions show a fall in fertility, whereas regions such as Somali and

Afar are moving to the opposite direction, and Gambella, Harari, and Benishangul-Gumuz regions show no change in fertility for the second half of the survey period. In contrast to the falling trend between 2000 and 2005, fertility showed a rising trend between 2005 and 2011 in the urban areas of Ethiopia, with an increase from its 2.4 rate in 2005 to 2.6 children per woman in 2011.

The educational background of women has implications for fertility. There is a close association between the educational attainment of women and changes in TFR. In most cases, fertility is inversely associated with education (Shapiro et al, 2003). Women with secondary education and above have a lower fertility than women with primary and no education. Fertility also varies according to the wealth status of women. Women from the rich wealth index group have a lower fertility than women from the poor wealth index group.

Similar to the variations in the overall fertility level, the effects of the proximate determinants of fertility vary based on rural-urban residence, region of residence, educational levels and the wealth status of women. In urban areas the effect of contraception is very important, followed by marriage and postpartum insusceptibility. In rural areas, although contraception is gaining influence through time, still postpartum insusceptibility is the most important determinant of fertility. The effect of postpartum insusceptibility is stronger in Tigray, Amhara and Oromiya regions, but less important in the Addis Ababa and Dire Dawa city administrations and the Harari and Somali regions. The index of marriage has high impact on fertility in the Addis Ababa and Dire Dawa city administrations and Harari region and some impact in SNNP and Tigray regions. With the exception of Somali and Afar regions, the effect of contraception is increasing, indicating that it is becoming an increasingly important factor in the decline of fertility. The effect of contraception is stronger in the highly urbanized areas of Addis Ababa, Dire Dawa and Harari, while Amhara, Gambela and Benishangul-Gumuz regions are also on the right track. The effect in the overall model TFR tightly corresponds to the index of postpartum insusceptibility followed by contraception and to a lesser extent to marriage. Generally, we can say that the effects of contraception in limiting fertility have not reached to the level that was expected. This is because the contraception prevalence rate in Ethiopia, although showing a very significant increase in the past decade, is still very low (only 28.6 percent in 2011) compared with most African countries. However, contraception is gaining momentum in its affect on the overall level of fertility.

Looking the proximate determinants in terms of their impact on fertility based on the educational status of women, the index postpartum insusceptibility is the most important inhibitor of fertility in women with no education and primary level education. Marriage is significant to women with secondary and above educational background. The trends in the indices of contraception show its growing importance, especially to women with an educational level of secondary and above.

For women from within the rich wealth category, marriage and contraception have the most important implications for fertility. To the other wealth categories, postpartum insusceptibility is the most important indicator. But to the all the wealth categories, contraception is growing in importance.

4.2 Policy Implications

Finally, the following policy implications relating to the achievement of further fertility declines can be drawn from this study:

- Estimates of the total fertility rates have indicated that fertility has declined from 5.5 in 2000 to 4.8 children per woman in 2011. The target of The National Population Policy of Ethiopia is to reach 4.0 children per woman by 2015 (NOP, 1993). However, there are signs of fertility stalling in some regions such as Harari, Benishangul-Gumuz and Gambella. There are also regions such as Somali and Afar, where fertility is increasing. Even in the urban areas of the country, fertility showed a rising trend between 2005 and 2011. In order to curb this increasing trend and to prevent the phenomenon of fertility stalling, as has happened in some African countries, all stakeholders need to be aware of the implications and work together. Campaigns for the further increase of contraceptive use in rural areas and regions like Somali and Afar should be strengthened.
- The findings in this study have confirmed that fertility is lower among secondary and higher educated women, as compared with those with no education or primary level education. From this it is possible to recommend that efforts should be made to increase secondary and higher education for females. Encouraging late marriage, increasing access to information and contraception, strengthening education and communication about the status of women and creating employment opportunities for women are also likely factors that could contribute to a steady decline in fertility.
- The strengthening of the existing national family planning programme is required in order to increase the quality and quantity of contraceptive use and achieve higher use effectiveness that will lead to a greater contribution to fertility decline, especially in areas where fertility is high.
- The commitment of additional resources to maintain current programme momentum should be ensured.

REFERENCES

- Adamchak, D. J. and M. T. Mbvizo (1990). *The relationship between fertility and contraceptive prevalence in Zimbabwe. International Family Planning Perspectives* 16(3): 103-106.
- Assefa Hailemariam (1992). *An Overview of the Determinants of High Fertility in Ethiopia. Ethiopian Journal of Development Research*, 14(2):1-30.
- Becker, G. (1960). *An Economic Analysis of Fertility*. In: Demographic and Economic Change in Developed Countries, NBER Conference Series, No. 11 Princeton: Princeton University Press.
- Becker, G. and H. Lewis (1973). *On the Interaction between the Quantity and Quality of Children. Journal of Political Economy*, 81(2), 279-288.
- Blanc, A. K. and S. Gray. 2000. *Greater Than Expected Fertility Decline in Ghana: An Examination of the Evidence*
- Bongaarts, J. (1986). *The Transition in Reproductive Behaviour in the Third World*. In J. Menken and J. Bongaarts (eds). *The World Population and US policy: choices ahead*. W. W. Norton. New York and London.
- Bongaarts, J. (1984). A simple method for estimating the contraceptive prevalence required to reach a fertility target. *Studies in Family Planning* 15(4):184–190.
- Bongaarts, J. (1978). A framework for analyzing the proximate determinants of fertility. *Population and Development Review*, 4(1):105-32.
- Bongaarts, J. (1983). *The proximate determinants of natural marital fertility*. In “Determinants of Fertility in Developing Countries.” Vol. 1, pp.103–138. Academic Press. New York.
- Bongaarts, J. and R. G. Potter (1983). *Fertility, Biology, and Behavior: An Analysis of the Proximate Determinants*. New York: Academic Press, Inc.
- Cleland, J. and C. Wilson (1987). Demand Theories of the Fertility Transition: An Iconoclastic View. *Population Studies*, 41(1), 5-30.
- Caldwell, J. C., I. O. Orubuloye, and P. Caldwell. (1992). *Fertility Decline in Africa: A New Type of Transition?* *Population and Development Review*, 18: 211-242.
- Caldwell, J.C. (1982). *Theory of Fertility Decline*. Academic Press. London and New York.
- Central Statistical Agency (Ethiopia). (2008). *Summary and Statistical Report of the 2007 Population and Housing Census, Population Size by Age and Sex*. Addis Ababa.
- Central Statistical Agency (Ethiopia). (2010). *The 2007 Population and Housing Census of Ethiopia, Results at Country Level, Statistical Report*. Addis Ababa, Brana Printing Enterprise.
- Central Statistical Authority [Ethiopia] and ORC Macro. (2001). *Ethiopia Demographic and Health Survey 2000*. Addis Ababa, Ethiopia and Calverton, Maryland, USA: Central Statistical Authority and ORC Macro.

Central Statistical Agency [Ethiopia] and ICF International. (2012). *Ethiopia, Demographic and Health Survey 2011*. Addis Ababa, Ethiopia and Calverton, Maryland, USA: Central Statistical Agency and ICF International.

Davis, K. and J. Blake (1956). Social Structure and Fertility: An Analytic Framework. *Economic Development and Cultural Change* 4 (4): 112-135.

Deolalikar, A. (1982). Fertility and Savings in a two-period household model: A theoretical and empirical analysis. Yale University Economic Growth Center, Discussion Paper.

Easterlin, R.A. (1975). An Economic Framework for Fertility Analysis. *Studies in Family Planning* 6:54-62.

Easterlin, Richard A. (1969). *Towards a Socioeconomic Theory of Fertility*. A Survey of Recent Research on Economic Factors in American Fertility, pp.127-156 in S. J. Behrman, L. Corsa and R. Freedman (eds.), *Fertility and Family Planning: A World View*, Ann Arbor: University of Michigan Press.

Ethiopian Society of Population Studies (October, 2008). *Levels, Trends and Determinants of Lifetime and Desired Fertility in Ethiopia: Findings from EDHS 2005*. Addis Ababa.

Falls, J.A. (2007). *Population a Lively Introduction*. Population Reference Bureau. Washington, DC.

Freedman, D. S. (1967). *The relationship between economic status and fertility*. American Economic Review, 53(3): 414-426.

Freedman, D. (1966). *Economic Theory of Fertility Behaviour*.

Assefa Hailemariam, Abdulahi Hassen, and Yacob Zewelde. (1994). Proximate Determinants of fertility in Ethiopia: An application of the Bongaarts model. Addis Ababa University archives.

Guengant, J-P and May, J.F. (2011). Proximate determinants of fertility in sub-Saharan Africa and their possible use in fertility projections. United Nations, Department of Economic and Social Affairs. Expert Paper No. 2011/13

Immerwahr, G. E. (1977). Socio-Economic: How much economic and how much socio? In *The Economic and Social Supports for High Fertility*, ed. L. T. Ruzicka, Canberra: Australian National University, PP. 187 – 202.

Johnson k., Abderrahim N. and Rutstein S. (2011) *Changes in the Direct and Indirect Determinants of Fertility in Sub-Saharan Africa*. DHS Analytical Studies No. 23. ICF Macro, Calverton, Maryland, USA.

Kirk, D. (1996). *The Demographic Transition Theory*, Population Studies, 50(3):361-387.

Lapham, R. J. (1970). 'Family Planning and Fertility in Tunisia'. *Demography*, 7 (2):241-53.

Lapham, R. J. and W. Parker Mauldin, W. P. (1985). Contraceptive Prevalence: The Influence of Organized Family Planning Programs. *Studies in Family Planning*, 16(3): 117 – 137.

National Population Office (NPO), Office of the Prime Minister (1993) *National Population Policy of Ethiopia*. Addis Ababa.

Population Reference Bureau (August 2009). *2009 World Population Data Sheet*. Washington, DC.

Sambisa, W. and S. Curtis. (1997). *Contraceptive Use Dynamics in Zimbabwe: Postpartum contraceptive behaviour*. Zimbabwe Further Analysis. Calverton, Maryland: Macro International Inc.

Sibanda, A., Zewdu Woubalem, Hogan, D.P., and Lindstorm, D. P. (2003). The Proximate Determinants of the Decline to Below Replacement Fertility in Addis Ababa. *Studies in Family Planning*, 34(1): 1-7.

Shapiro, D. and Tesfayi Gebreselassie (2008). *Fertility Transition in Sub-Saharan Africa: Falling and Stalling*. African Population Studies 23(1): 3–23.

Shapiro, D., Tesfayi Gebreselassie, and L. Strunk (2003). Fertility Transition in Sub-Saharan Africa: Evidence from the Demographic and Health Surveys. Paper presented at the Annual Meeting of the Population Association of America, Minneapolis, May 2003.

Stover, J. (1997). *Revising the proximate determinants framework: What have we learned in the past twenty years*. Paper presented at the 1997 annual meeting of the Population Association of America, Washington, DC.

Teller, C. and Assefa Hailemariam (eds.) (2011). *The Demographic Transition and Development in Africa*. Springer, Science+Business Media B.V. DOI 10.1007/978-90-481-8918-2_2

United Nations (2009). *World Population Prospects: The 2008 Revision Population Data Base*. Available at <http://esa.un.org/unpp/index.asp> (accessed 1 October 2012).

United Nations. (1973). *The determinants and consequences of population trends*. Vol. 1. New York.

United Nations. (1987). *Fertility behaviour in the context of development: Evidence from the World Fertility Survey*. Population Studies No. 100. Department of International Economic and Social Affairs. New York: United Nations.

World Fertility Survey (1984). *Summary of findings*. W and S, No.49. ISI, Voorburg.

Kizito, P. M. I., Obungu, W., Kibet, M., and Njogu, W. (1991). Fertility Transition in Kenya. DHS Further Analysis Studies. Macro International, Calverton, MD, USA.

This report presents levels of and trends in fertility in Ethiopia based on data from the 2000, 2005, and 2011 Ethiopia Demographic and Health Surveys (EDHS). USAID, Irish Aid, ICF International, and MoFED provided support for undertaking the study, the latter through the evaluation and research capacity building programme supported by UNICEF. The Ethiopia Demographic and Health Surveys are part of a worldwide programme that collects data on maternal and child health, nutrition, HIV/AIDS, fertility, family planning, and women's empowerment.