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**ADDIS ABABA UNIVERSITY
INSTITUTE OF DEVELOPMENT RESEARCH
POPULATION STUDIES AND RESEARCH CENTER
SCHOOL OF GRADUATE STUDIES**

**Factors Affecting Fertility of Currently Married
Women in Addis Ababa and Dire Dawa, With Special
Emphasis on Migration Status**

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July 2007

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Nebiyou Bekele

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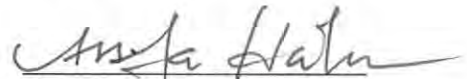
***Factors Affecting Fertility of Currently Married Women in Addis
Ababa and Dire Dawa, with Special Emphasis on Migration Status***

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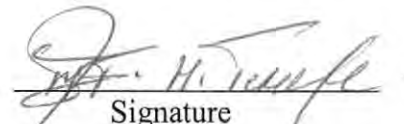
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ACRONYMS

CEB:	Children Ever Born
CSA:	Central Statistics Authority
DTRC:	Demographic Training and Research Center
EDHS:	Ethiopia Demographic and Health Survey
UN:	United Nations
TFR:	Total Fertility Rate
PSTC:	Population Studies and Training Center
MCA:	Multiple Classifications Analysis
ANOVA:	Analysis of Variance

Abstract

The fertility levels of the two cities (Addis Ababa and Dire Dawa) are among the lowest in the country. However the low fertility rates are not the result of a decline in the number of births rather it is due to the presence of large number of women out of marital union. As a result the marital fertility rates are much higher than the fertility levels of the total women. This paper, therefore, uses the data from the 2005 Demographic and Health Survey of Ethiopia to identify the factors that affect the marital fertility of women in the two major cities of the country. Since the two cities have large number of migrants, the study gives special emphasis to the effect of migration status on fertility. The women whose previous place of residence is out of the two cities are classified as migrants whereas those who never changed their residence since birth are treated as non-migrants. Women who are married and are in marital union at the time of the survey are the unit of analysis. A total of 757 women of which 515 are migrants and the remaining 242 are natives are included in the analysis. The study applies descriptive, bivariate and multivariate statistical methods. In the bivariate analysis one-way ANOVA is applied to test the presence of significant differences in mean CEB among the sub-groups of independent variables. The ANOVA tests indicate that the difference in fertility among the sub-groups of religion, ethnicity, education, number of times married, age at first marriage and variables related to migration status are significant. On the other hand the contraceptive use, work status and place of residence are not found to be responsible for the fertility variation of the target population. The multivariate finding of the study illustrates that age at first marriage is the strongest factor in causing fertility variation among the sampled women. Education, contraceptive use, religion and ethnicity are other important factors that affect fertility of the respondents. The multivariate result also shows that fertility of the target population does not differ by region and migration related variables.

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

The movement of people from one area to another has been observed from time in memorial. Even though migration research in Ethiopia has a problem of getting data, there are historical evidences that suggest the country experienced a number of internal movements of people from areas of densely populated and low economic opportunity to areas of less dense and better economic opportunity (Markos and Gebre-Egziabher, 2001). Based on area of origin and destination internal migration can be grouped in to four, which are rural-rural, rural-urban, urban-urban and urban-rural (CSA, 1991). The stream of migration changes from rural-rural to urban-urban as the level of development in an area is escalating. In line with this, Caldwell (1969) suggested that migration evolves from being primarily rural- rural to being more rural-urban and then being mostly urban to urban.

The survey made by DTRC and PSTC stated that, migration could cause a lot of changes in the infrastructure, environment, labor force, economic development, status of women, family structure and reproductive behavior. It can also affect the provision of basic needs like food, housing, education, health care, and access to family planning (DTRC and PSTC, 1998).

The 1984 and 1994 population and housing censuses showed that majority of migrants in Ethiopia move from rural to rural areas (CSA, 1991; CSA, 1999). The second major type of internal migration in Ethiopia, according to the same source, is rural to urban followed by urban to urban and urban to rural. The migrants to the urban areas have different characters compared to the non-migrants. Their different character is originated due to a lot of factors that have been associated with place of origin and destination (Rundquist and Brown, 1989).

Hadgu (1988) affirmed that rapid increase of urban population, particularly as a result of massive in migration could result in high urban growth rate and this can lead to the

development of slums, housing shortage, inadequate water supply, etc. He also found out that towns in Ethiopia, by and large, lack almost completely the infrastructures of water sewerage and roads. And many of these towns have already reached or are bound to reach a critical size where the crowding together of large number of people without the benefits of any urban facilities will give rise to serious health and social problems. The increasing rate in population size will also create much burden in the educational, health, and other services of the nation and the burden would reduce the quality of services if sufficient resource could not be allocated to keep the balance.

Decline in agricultural out put, frequent drought and low living standard in rural areas of Ethiopia and high expected urban income appear to motivate rural people to move to urban areas (Markos and Gebre-Egziabher, 2001). This in turn can cause a lot of problems in the urban areas. "One of the immediate effect of migration in modernizing societies is to rise rather than lowering urban fertility in modernizing societies, since a great number of these migrants come from rural and small city environment and, on the average, have more children than do native urbanities" (Iutaka, Bock and Varnes, 1977).

The two cities of Ethiopia: Addis Ababa and Dire Dawa homes large proportion of the countries urban population (CSA, 1999). The fertility rates of the two cities, according to the 2005 EDHS result, are among the lowest rates of the country. The respective mean number of children ever born to women of Addis Ababa and Dire Dawa is 4.4 and 5.6 children while the total fertility rate (TFR) is 1.4 and 3.6 children in Addis Ababa and Dire Dawa, respectively (CSA and ORC macro, 2006). According to these figures Addis Ababa has the lowest fertility in Ethiopia whereas Dire Dawa has the fourth lowest fertility following Harari and Gambela. Abdulahi (1989) indicated that the low fertility that is observed in Addis Ababa is due to a change in marriage pattern. He further stated, "Marriage instability restricts the reproductive capacity and leads to low fertility of women in Addis Ababa". Likewise, Sibanda et.al. (2003) pointed out that the major causes for low fertility of women in Addis Ababa and other urban areas of Ethiopia are a decline in the proportion of married women due to later age at first marriage and the greater proportion of women in their twenties and early thirties who remain single.

Sibanda et.al. (2003) went further to state that, "...another striking feature of the change in marital patterns in Addis Ababa is that the rise in non-marriage was not accompanied by a rise in non-marital births. Child bearing remains almost entirely within marital unions in Ethiopia."

Based on this fact the presenter of this paper, from the 2005 EDHS data, calculated the fertility of currently married women and found out that the mean CEB of currently married women during the interview is 4.8 in Addis Ababa while it is 5.2 for Dire Dawa. Similarly, the marital total fertility rate is 5.4 and 4.7 in Addis Ababa and Dire Dawa respectively. The reported figures in the EDHS are very low due to the fact that, in calculating the fertility level indicators, they include the effect of women that are not in marital union. For that reason this paper, using recently collected data, tries to examine the factors that affect fertility of women that are in marital union. In addition the paper gives much emphasis to migration status so long as the 1994 Population and Housing Census indicated a reasonably high proportion of migrants in the two urban areas: 33.5% in Dire Dawa and 46.4% in Addis Ababa (CSA, 1999).

Out of the total migrants of Addis Ababa 41.7% were single and 42.7% were in marital union. The corresponding figures for non-migrants of Addis Ababa were 81.9% and 13.3%. On the other hand among the total migrants of Dire Dawa 37.5% were single and 45.8% were in marital union. The corresponding values for the non-migrants of Dire Dawa were 60.7% and 30.8% (Ibid).

There are a lot of works in a number of less developed countries about the factors that affect fertility behavior of women (migrant and non migrant) that live in urban areas (Ekanem and Adepoju, 1976; Farber and Lee, 1984). Similar type of studies are, however, very scanty in Ethiopia. The survey made by DTRC and PSTC in 1998 demonstrate that there is very large difference in fertility between permanent migrants and non-migrants of Amhara urban area. It was indicated that the mean number of CEB for non-migrants was 0.78 while it was 3.74 for permanent migrants (DTRC and PSTC, 1998). However the survey did not indicate the causes for the difference. It did not also

show the fertility differential between non-migrants and migrants in urban areas of other regions. This study, therefore, attempts to fill in the information gap by showing the effect of migration, in addition to other factors, on the fertility behavior of women who are in the childbearing ages.

1.2 Justification of the study

The contribution of this study can be realized at the individual, family and national level. It was identified by Betemariam (1991) that currently married women have higher fertility than women in other types of marital unions. Consequently the health of a child and mother can be affected by giving large number of births (CSA and ORC macro, 2006). Besides, couples will be forced to spend a lot of their income on child rearing. Identifying the factors of high fertility among the currently married women, therefore, helps to improve the health of the child and mother. Moreover, it will contribute for the betterment of living conditions at the family level.

The fertility decline in urban areas of Ethiopia, as indicated by Sibanda et.al. (2003), is not associated with the decline in the number of births born to women who are in marital union. By looking at the drop in the over all fertility levels in the two cities, government and other concerned bodies may suspend their efforts towards reducing fertility. The lack of attention by the concerned bodies, as a result, may leave the currently married women to problems associated with high fertility. For that reason this paper will indicate some way outs for curbing the fertility of currently married women. In addition, the study will initiate further works in this area.

1.3 Objective of the study

The general objective of this study is to identify factors that affect fertility of currently married women in two major cities of Ethiopia.

The specific objectives are:

1. To identify marital fertility levels of migrants and non-migrants in the two cities,
2. To investigate the effect of socio-economic factors on marital fertility, and

3. To explain the causes behind the fertility differentials among migrants from rural and urban origin.

1.4 Literature Review

Researchers working in the areas of fertility and migration (Goldstein and Goldestein, 1981; Lee and Farber, 1984; Hervitz, 1985 and Mckinney, 1998) stated that there are three major theories that guide researches on migration fertility interrelationship. These are, selection, disruption and adaptation theories. The effect of migration on fertility according to these theories is usually expressed in terms of time difference during the migration process (McKinney; 1998). Following are the discussion of each of these theories.

The selection theory

This theory is based on the assumption that rural fertility levels exceed urban fertility levels, and fertility levels of rural-urban migrants are lower than rural residents (Mckinney, 1998). According to this theory rural out migrants are selective groups who have different character from non-migrants who decide to stay at places of origin (Hervitz, 1985). In most of the cases the migrants have better education, marry at later ages, have lower pre-migration fertility and are employed for wage. Therefore, they have low fertility than the rural population as a whole. They have different selection for family size and their family size preferences are often determined by the situation at the area of destination (Lee and Farber, 1984). That means those who prefer small family size move to areas that have low fertility, and vice versa. The reasons that motivate them to migrate are usually associated with lower pre and post migration fertility. (McKinney, 1998)

Disruption theory

This theory indicates that fertility declines during the early periods of change of residence (Hervitz, 1985). The reduction could be due to 1) the stress in the early periods of migration, 2) the separation of spouses, and 3) the decision of couples to post pone giving birth until they adjust themselves to the urban way of life (Massey and Mullan, 1984; Goldstein and Goldestein, 1981)

The adaptation theory

This theory suggests that as migrants adapt the social and cultural behavior of urban areas, their fertility level will converge towards the urban non-migrants (Goldstein and Goldstein, 1981; Gurak, 1980). Contacts with new value systems at place of destination lead to assimilation and adaptation of the fertility norms of the urban areas (Rundquist and Brown, 1989). One important issue that shall be given due attention is the fact that adaptation depends to a large extent on the exposure to the urban culture (Findly, 1982), which, in turn, is affected by education, labor force participation, income, etc.

Since the focus of this paper is to identify factors that affect fertility of currently married migrant and non-migrant women in the two major cities of Ethiopia, the study uses the disruption and adaptation theory as a base.

Apart from the movement of individuals from place to place, other socio-economic factors have also significant effect on their fertility level. Following are the discussion of the factors that have impact on the fertility of women

1.4.1 Education and Fertility

The inverse relationship between educational level and fertility is confirmed by different researches (Paydarfar and Sarraam, 1970; Caldwell, 1980; Kederalah, 1991). Though the decline in fertility with an increase in educational level is widely accepted, it is frequently argued that, the education of wives has significant effect on fertility than the husbands' education (Rele and Kanitkar, 1974; Jain, 1981; Tawiah, 1984).

The negative impact of education on fertility is observed after some years of attending schools which means the effect of education on fertility will not be observed starting from the first day of schooling. In connection to this Hollander (1995) in Zimbabwe found out that a significant negative relation between fertility and education was emerged after six years of schooling and generally became stronger with increasing education. Similarly White, Muhidin and Stiff (2004) indicated that Education particularly college

and high school education is more influential factor in affecting fertility of women. This is due to the reason that education is the channel by which couples get information about the advantages of small family size and techniques of limiting their number of children.

In some developing countries few years of education was found to raise fertility. In line with this Jain and Nag (1985) pointed out that "Women who are literate but had not completed primary school education had higher marital fertility than either those who were illiterate or those who had completed primary school education". This increase in fertility as a result of a few years of schooling is associated with a decline in breast-feeding duration.

The effect of education on fertility is expressed through different channels. Some of the channels are discussed below:

1. As women spend most of their child and younger ages in school, they will marry at later ages and this make them have shorter reproductive time compared to those who marry at earlier ages (Jain, 1981; Warren, 1987;Mahler, 1996). In connection to this, Cleland and Jejeebhoy (1996) showed that in most of South Asian countries educated women get married roughly two to five years later than uneducated women. Similarly, a study in 26 developing countries sponsored by the United Nations found out that age at marriage invariably increases with the level of education in all of the countries examined, despite the fact that the age at marriage varies widely across countries (UN, 1995).
2. Educated woman has high aspiration of moving to the upper social level. Having large number of children inhibits her from moving to the higher social status by forcing her to spend a lot of her time and money on her children rather than her career development (Jejeebhoy, 1995).
3. Educated woman doesn't often need the support of her children in the household like that of the uneducated woman. An educated and employed woman also does not need her children's support at old age because she will get pension fee or she can save for her old

age that makes her self-reliant during that time (Jain and Nag, 1985; Cleland and Jejeebhoy, 1996).

4. Education of women reduces infant and child mortality, which simultaneously reduces the fertility of women for replacing the dead ones (Jain and Nag, 1985).

The inverse relation between educational level of women and fertility was also supported by different studies conducted in Ethiopia (CSA and ORC macro, 2006; Tilaye, 1994; Assefa, 1990; Abdulahi, 1988). Tilaye further stated that an illiterate woman would have two more children than a woman with formal education. Similarly according to Abdulahi the negative impact of education on fertility of women was observed after they attend 1-4 grades.

1.4.2 Contraceptive Use and Fertility

A number of studies (Warren, 1987; Mahler, 1996; Bongaarts, 1987; Njogu, 1991; Assefa, 1992) stated that contraceptive use is the major factor in reducing fertility in different parts of the world. Different surveys (Oberle et al., 1986; Njogu, 1991) showed that contraceptive knowledge and use increases with age and consequently older women are in a better position of using contraceptives. Various factors are believed to affect the use of contraceptive and the consequent fall in fertility. For example Hollander (1995) stated that in Zimbabwe the use of contraceptive is affected by the availability and quality of health and family planning services. Furthermore Njogu (1991) and Mahler (1996) identified that women who are better educated as well as who live in urban areas are better users of contraception.

The negative impact of contraceptive on fertility is not supported by some studies for example in Kenya, Anker and Knowles (1982) found out that contraceptive use has no relation with the fertility level of the population. They further confirmed that fertility is affected mainly by women's education. In some other studies, (Hollander, 1995; Njogu, 1991; Assefa, 1990) the fertility of women that are using contraceptives is found to be

high. This situation happens when women start using contraceptive after having the desired number of children.

Oberle et.al. (1986) in their study in Costa Rica identified that the majority of women who were not practicing contraceptives were either pregnant or breast-feeding an infant. They further stated that contraceptive practice was higher in Costa Rica than any of the countries in South America. However, due to the utilization of less effective methods and unprotected sexual intercourse among unmarried young adults, Costa Ricans experienced a rise in fertility.

The 2005 Demographic and Health Survey of Ethiopia indicate that 24% of currently married women in the country have used a family planning method at least once in their lifetime while only 15% of them are using contraceptive at the time of the interview (CSA and ORC macro, 2006).

1.4.3 Work Status and Fertility

It is widely accepted that working women have lower number of children than the non working ones (Hiday, 1978). This is for the reason that when a working woman gives birth to a child, she will be away from her work for some time and this will reduce her income thus she decides not to have large number of children (Jejeebhoy, 1995).

In a study about the reasons of fertility reduction by migrants in Philipppians it was found out that only small number of migrants are employed. And the fertility of unemployed migrants shows little change. The decline in fertility of migrants to urban areas was associated to the fact that every arriving woman reduces her fertility according to the fertility norm of the urban area or due to the large fertility reduction of small number of employed migrants (Jensen and Ahlburg, 2004).

There is also a difference in the fertility level within the working population. In connection to this Paydarfar and Sarram (1970) affirmed that there is inverse relation between occupational status and fertility behavior.

According to studies carried out in Ethiopia on the relation between work status and fertility, Betemariam (1991) identified high fertility of the non working women in both urban and rural Showa. In contrary to the aforementioned fact in Addis Ababa and Metu higher fertility was identified among working women than the not working ones (Abdulahi, 1988).

1.4.4 Religion and Fertility

Both Bible and Quran are pro natalist Scriptures. A study made in Bangladesh indicated that Muslims have higher fertility because they marry at early ages and practice polygamy (Amin and Farguee, 1980). Likewise, Chamie (1982) in a study that tried to identify the Arab Christian-Muslim differentials stated that Muslims of different dominations have higher fertility than Catholics and non-Catholic Christians. In addition to this, the UN (1973) study carried out in different countries concluded that the difference in fertility between Muslims and non-Muslims is confounded only in urban areas while the difference is not strong in rural areas.

Similarly Abdulahi (1988) found out Muslims fertility being higher than Christians in Addis Ababa and Metu. He indicated the reason as ever-married women between age 15-49 in Addis Ababa and Metu are predominantly Christians and the incidence of infertility is high among Christians. Assefa (1990) also found out higher Muslim fertility and he associated the reason with the lower status of Muslim than Christian women as well as to the higher infant/child mortality among Muslims than Christians.

1.4.5 Ethnicity and Fertility

Following the difference in their culture different ethnic groups experience varying levels of fertility (Caldwell, 1980; UNECA, 1983). For example Yoruba Women in Nigeria abstain for longer time from sex after giving birth to a child. Even in some other West African societies they abstain permanently after they become grand mothers because the culture don't allow them to compete with their daughters and daughters-in-law (Caldwell, 1981;Gaise, 1981).

According to studies conducted on the relationship between ethnicity and fertility in Ethiopia, Abdulahi (1988) indicated in Addis Ababa that Guraghes had the highest fertility followed by the Tigres, Oromos and Amharas and the Amharas low fertility was associated with the prevalence of high infertility among them. In central Ethiopia, as identified by Assefa (1990), there was no significant difference in fertility between the Oromos and Amharas. However after putting Oromos and Amharas in one group and Guraghes, Kembatas and Hadiys in another he found out higher fertility among the second group and the difference was due to higher infant/child mortality among the Guraghes, Kembatas and Hadiys. Though he did not indicate the reason, Tilaye (1994) pointed out statistically insignificant effect of ethnicity and religion on the fertility of rural women in north Showa.

1.4.6 Breast-feeding and Fertility

World Health Organization (1983) showed that breast-feeding is an important child spacing mechanism in many developing countries. Breastfeeding by itself is 98-99.5% effective in preventing pregnancy as long as

- a) The baby is less than six months old,
- b) The menstrual periods have not yet returned, and
- C) Baby is breastfeeding on cue (both day & night), and gets nothing but breast milk (<http://www.kellymom.com>).

Lee (1992) indicated that the duration of breast-feeding and post partum abstinence is long (more than one year) and widely practiced in Africa. This as a result reduces fertility. He also identified, shorter duration of both post partum abstinence and breast-feeding in urban than rural areas. It was also argued that the duration of breast-feeding and post partum abstinence declines with an increase in the level of education of woman (Jejeebhoy, 1995; UN, 1995).

Abdulahi (1988) found out inverse relationship between fertility and breast-feeding in Addis Ababa, Metu and Alemaya. Besides, Tilaye (1994) stated that duration of breast-feeding is inversely related to other socio-economic indicators of women.

1.4.7 Age at First Marriage and Fertility

The decline in fertility as a result of rise in age at first marriage is accepted universally in most of fertility studies (Hiday; 1978; Zeng et.al., 1985; Coale, 1992; CSA and ORC macro,2006). In a society where contraceptive use is limited, the number of children born to a woman who marries late is low because she will have shorter reproductive time compared to the one that marries at early ages. In line with this Yadav and Badari (1997) in India stated “Women who had married early (< 15 years) had 5.95 live births whereas those who had married late (20-28 years) had 4.77 live births by the time they had nearly completed their reproductive span (40-49 years)”.

On the other hand the World Fertility Survey (1981) made in Asia and Latin American countries indicated that the relation between fertility and age at first marriage is weak. The survey also stated, in order to lower fertility in developing countries, the increase in age at first marriage should be accompanied by an increase in contraceptive use.

Studies conducted in Ethiopia, Abdulahi (1988) and Tilaye (1994) demonstrated that the number of children born to women is negatively related to age at first marriage. Similarly Assefa (1990) indicated that, in addition to marital disruption, age at marriage is the strongest determinant of fertility in central Ethiopia.

1.4.8 Age at Migration and Fertility

A lot of studies (Iutaka, Bock and Varnes 1977; Rundquist and Brown, 1989) indicated that the fertility of migrants that come to urban areas at early ages and stay there for a long time is very low. Since Migrants who come to urban areas, as childhood migrants get accustomed to the urban socio-economic condition before entering to reproductive age, have low fertility than those who migrate at later ages (Martine, 1975). Similarly Ritchey and stokes (1972) identified that rural migrants with higher rural experience have higher fertility than those with lower rural experience.

1.4.9 Duration of Residence and Fertility

Hendershot (1971 as cited by Lee and Farber, 1984) after examining the rural-urban migrants to Manila showed that migrants who stayed in urban areas for a long time have lower fertility than the urban natives of the same age. Conversely migrants that stay in urban areas for a short period of time have higher fertility than urban non-migrants of the same age. White, Muhidin and Stiff (2004); Findly (1982) also share the idea that migrants who stay in urban areas for a long time have lower fertility than the urban natives.

In contrary to the above findings, Brockerhoff and Yang (1994) after studying the impact of migration on selected sub Saharan African countries pointed out that in Togo and Uganda fertility of migrants after two years of stay in urban areas was lower than the urban non-migrants. On the other hand in Ghana, Kenya, Mali, and Senegal migrants and urban natives showed similar levels of fertility (Ibid). Hiday (1978) also pointed out that "recent migration is innovative, engaged in by more modernized persons who are motivated by aspiration to new goals, thus migration has a negative effect on fertility."

Betemariam (1991) indicated that in Showa recent migrants (who lived in an area for less than five years) have the lowest fertility compared to those who stay 6-9 years and more than ten years as well as non-migrants. Besides he found out that the difference in fertility between non-migrants and long term migrants is lower in urban than rural Showa. He further stated that in both urban and rural areas of Showa non-migrants have lower number of CEB than the long-term migrants.

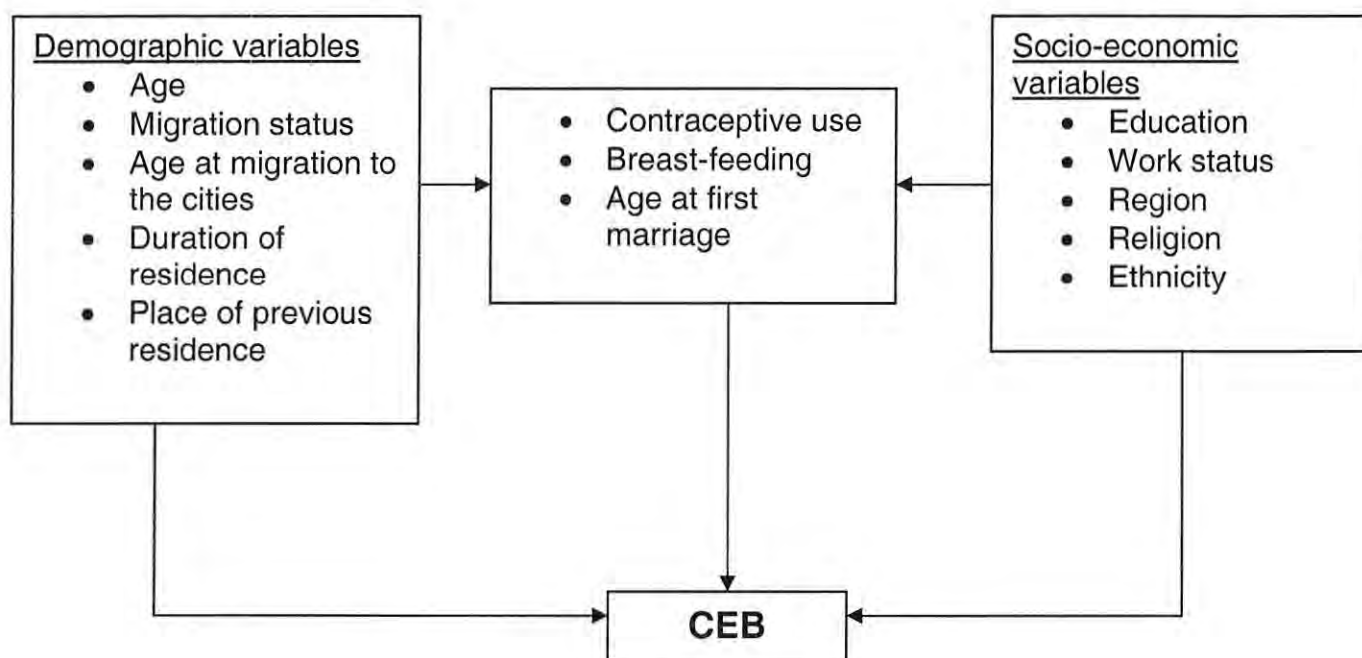
1.4.10 Residence Background and Fertility

Rundquist and Brown (1989) in their study on the migrant fertility differentials in Ecuador demonstrated that non-migrants have higher number of children ever born than migrants. Comparing the rural and urban origin migrants Ritchey and Stokes (1972); Hiday (1978) illustrated that rural-urban migrants have higher fertility than urban-urban migrants. In addition the fertility of urban origin migrants was found to be lower than urban natives fertility. In contrast to this, Martine (1975) found out that Migrants to Latin

American metropolitan areas have higher fertility than natives in all cities. Another research on the interrelationship between migration and fertility in developing countries showed that migrant fertility is lower than rural non-migrants, though higher than that of urban natives (Lindstrom, 2003).

A study conducted by Iutaka, Bock and Varnes (1975) concluded that origin of migrants has no effect on their fertility. They stated that “The communities where migrants were born do not have significant influence on the number of children they have rather their social class back ground and the social class levels they achieve in the city are strong on influencing their fertility”.

1.5 Conceptual framework



Source: developed by the Author

1.6 Hypothesis

On the basis of reviewed literature and empirical evidences observed elsewhere, the following hypotheses are set for testing in this research:

1. Non-migrants have higher fertility than migrants.
2. Migrants of rural origin have higher fertility than those moved from other urban centers.
3. Migrants that stay in urban areas for a long time have higher fertility than those who stay for a shorter period.
4. Migrants that move to urban areas in early ages have similar fertility as those of non-Migrants.

1.7 Limitations

In the literature breast-feeding was considered as one of the factors that affect fertility. However it is not included in this study. This is due to the absence of relevant data from the 2005 EDHS. The collected data in relation to breast-feeding is only about the duration of breast-feeding of the last birth. This information is not useful in this study because the dependent variable is the number of children ever born (CEB).

Child hood residence is found to be a good indicator about place of origin of a migrant nonetheless the 2005 EDHS do not collect information on this topic therefore information on previous residence is used in this study.

Though the EDHS is collected using standard approaches, well supervised and trained personnel, the data collected is not helpful to conduct qualitative research. This research, as a result, focuses mainly on identifying the factors that affect fertility and cannot answer some of the reasons behind that.

migrants ethnic distribution indicates that Amharas (46.8%) constitute the largest ethnic group while the remaining migrants are Oromos (20.6%), Guraghes (18.6%), Tigres (6.0%) and other ethnic groups (8.0%). Among the non-migrants 56.2% are Amharas followed by Oromos (22.7%), Guraghes (9.1%), Tigres (5.4%) and other ethnic groups (6.6%).

3.3.4 Education and Work Status

As indicated in the 1994 Population and Housing census the availability of schools in urban areas of Ethiopia is better than rural areas (CSA, 1999). In view of the fact that they are the most populous urban centers of the country one as a result can expect better educational services in Addis Ababa and Dire Dawa. Consequently, 85(11.2%) of the target population have higher education, 323 (42.7%) and 169 (22.3%) have secondary and primary education respectively. The rest 180 (23.8%) have no education.

As can be observed from table 3.1 the educational level of non-migrants is better than the migrants. Out of the total migrants 53 (10.3%) have higher education, 184(35.7%) have secondary education at the same time the remaining 128 (24.9%) and 150 (29.1%) migrant women have primary and no education respectively. The corresponding educational levels of non-migrants are 32 (13.2%), 139(57.4%), 41 (16.9%) and 30 (12.4%), respectively.

Table 3.1 also portrays that out of the total women included in the study, 321(42.4%) are working while the remaining 436 (57.6%) are not working at the time of the interview. Among the non-migrants 112 (46.3%) are working while 130 (53.7%) are not working. The work status among the migrants shows that 209 (40.6%) are working and 306 (59.4%) are not working.

3.3.5 Contraceptive Use and Number of Times Married

Table 3.1 indicates that majority of the women 403 (53.2%) that live in the two cities use one of the different types of contraceptive methods at the time of the interview. Over half of migrants (52.8%) and non-migrants (54.1%) are using contraceptives while 47.2% of migrants and 45.9% of non-migrants are not using contraceptive during the time of the survey.

A large number of the respondents (642(84.8%)) are in their first marriage. Both migrants and non-migrants show similar trend on this character. Out of the total migrants 432 (83.9%) are in their first marriage. The corresponding figure for non-migrants who are still in their first marriage is 210 (86.8%).

3.3.6 Age at Migration and Length of Duration of Continuous Residence

It is observed in table 3.1 that out of the 515 migrants 145 (28.2%) have arrived at the cities before they enter into the reproductive age (i.e. before celebrating their 15th birth day) while largest part of them (71.8%) have arrived at the cities after the commencement of their reproductive years.

Greater part of the migrants 329 (63.9%) have lived in the cities for more than 10 years while those who have lived in the cities for 6-9 years are 83 (16.1%). Only a fifth 103 (20%) of them are recent migrants (they have lived in the cities for less than 5 years).

3.3.7 Type of Place of Previous Residence

As indicated in table 3.1, out of the total migrants 207 (40.2%) used to live in rural areas while the remaining 308 (59.8%) were residents of other urban areas before they came to the cities.

CHAPTER FOUR

Fertility Differentials in Addis Ababa and Dire Dawa

4.1 Introduction

The objective of this chapter is to examine the expected relationship between the dependent and independent variables. In order to assess this relationship, mean number of children ever born is calculated across the different explanatory variables. One-way ANOVA is applied to test the presence of significant differences in mean CEB among the sub-groups of independent variables. Meanwhile direct standardization is employed to control the difference in the age composition of the women. As the main objective of this study is to examine the fertility differentials among currently married women with due attention to their migration status, the analysis has focused on the whole sample population as well as the migrants and non-migrants separately.

4.2 Fertility Differentials

4.2.1 Migration Status

According to the data presented in Table 4.1, the standardized mean number of children ever born to migrants is greater than that of the non-migrants. This condition holds true for women who are in their peak reproductive ages (25-34). Nevertheless the mean number of CEB to migrant women whose age is between 15-24 and 35-49 is lower than the non-migrants.

Table 4.1 mean CEB by migration status and age

Migration status	Standardized 15-49*	15-24	25-34	35-49
Non-migrant	2.73(242)	0.89(44)	1.64(110)	4.49(88)
Migrant	2.91(515)	0.82(96)	2.23(180)	4.40(239)
ANOVA result F= 5.559 P value= .019				

The numbers in parenthesis are number of women

*Standardized by taking all women in the study as a standard population

The relatively large difference in mean CEB between the migrants and non-migrants in the age category 25-34 outweighs the other age group differences and makes the average CEB of total migrants to exceed that of non-migrants.

The one-way ANOVA to test differences in mean CEB of the two migration status groups gives an F value 5.559 which is significant at $p < 0.05$ level.

4.2.2. Region(city)

According to the data on Table 4.2, among the whole sampled population, the standardized mean CEB of women that live in Dire Dawa (2.94) is higher than the CEB of women who permanently reside in Addis Ababa (2.77). The same pattern appears when the population is categorized into different age groups. Likewise, the standardized mean CEB of non-migrants that live in Dire Dawa exceeds the non-migrants of Addis Ababa by about 0.5 children. On the other hand the standardized mean CEB of migrants indicates that the migrants of both Addis Ababa and Dire Dawa have equal number of children.

Table 4.2. Mean numbers of children ever born by age, region and migration status

Region	Standardized 15-49*	15-24	25-34	35-49
All women				
Dire Dawa	2.94(266)	0.89(55)	2.19(110)	4.48(101)
Addis Ababa	2.77(491)	0.81(85)	1.89(180)	4.40(226)
ANOVA result F=. 148 P value= .701				
Non -migrant	Standardized 15-49*	15-24	25-34	35-49
Dire Dawa	3.02(85)	1.00(15)	1.86(36)	4.91(34)
Addis Ababa	2.56(157)	0.83(29)	1.53(74)	4.22(54)
ANOVA result F=3.858 P value= .051				
Migrant	Standardized 15-49*	15-24	25-34	35-49
Dire Dawa	2.89(181)	0.85(40)	2.35(74)	4.25(67)
Addis Ababa	2.89(334)	0.80(56)	2.14(106)	4.46(172)
ANOVA result F=3.018 P value=. 083				

The numbers in parenthesis are number of women

*Standardized by taking all women in the study as a standard population.

The F values in the one-way ANOVA test demonstrate that there is no significant difference between the mean CEB of the two regions. Therefore fertility of the target population does not differ by region.

4.2.3 Work Status

As can be observed from Table 4.3, among the total women the standardized mean CEB of non working (3.04) is greater than the working ones (2.59). Similar pattern is observed for the different age categories. In addition to the similarity, the difference in the number

of children ever born between the working and not working women increases as age advances.

Mean CEB of the migrants' category in relation to their work status repeats the pattern observed in the total population. Furthermore, the difference in the mean CEB of different age categories is greater than the difference observed in the three age categories of the whole population. Non-migrants, also exhibit similar pattern except in the youngest age category. The standardized mean numbers of children ever born by the non-migrants show that the working non-migrants have 0.25 less mean CEB than the non-working ones.

Table 4.3 Mean number of children ever born by age, migration status and work status

Work status	Standardized 15-49*	15-24	25-34	35-49
All women				
Not working	3.04(436)	0.86(100)	2.15(168)	4.77(168)
Working	2.59(321)	0.80(40)	1.80(122)	4.06(159)
ANOVA result F= .787 P value=. 375				
Non-migrant	Standardized 15-49*	15-24	25-34	35-49
Not working	2.86(130)	0.87(30)	1.75(61)	4.69(39)
Working	2.61(112)	0.93(14)	1.49(49)	4.33(49)
ANOVA result F= .572 P value=. 450				
Migrant	Standardized 15-49*	15-24	25-34	35-49
Not working	3.14(306)	0.86(70)	2.37(107)	4.80(129)
Working	2.61(209)	0.73(26)	2.01(73)	3.94(110)
ANOVA result F= 1.989 P value=. 159				

The numbers in parenthesis are number of women

* Standardized by taking all women in the study as a standard

The results of the one-way ANOVA indicate that work status has no significant effect on the fertility of the study population. Which means, working and not working women have no significant difference on the number of children that they have. This could be due to most of working women are engaged in low income jobs therefore there status is not that much different from the not-working ones.

4.2.4 Contraceptive Use

As can be seen from table 4.4, the standardized mean CEB of women that were using contraceptive exceeds those who were not using by about 0.22, 0.03 and 0.26 children in the total, non-migrants and migrant groups respectively. The highest difference is among the migrants whereas the lowest one occurs among non-migrants.

Table .4.4. Mean number of children ever born by age, contraceptive use and migration Status

Current Contraceptive use	Standardized 15-49*	15-24	25-34	35-49
All women				
Non-users	2.72(354)	0.63(60)	1.90(104)	4.34(190)
Users	2.94(403)	1.00(80)	2.06(186)	4.54(137)
ANOVA result F= 3.079 P value=. 080				
Non migrant	Standardized 15-49*	15-24	25-34	35-49
Non-users	2.71(111)	0.62(21)	1.58(45)	4.60(45)
Users	2.74(131)	1.13(23)	1.68(65)	4.37(43)
ANOVA result F=. 276 P value=. 600				
Migrant	Standardized 15-49*	15-24	25-34	35-49
Non-users	2.78(243)	0.64(39)	2.15(59)	4.26(145)
Users	3.04(272)	0.95(57)	2.26(121)	4.62(94)
ANOVA result F= 2.971 P value=. 085				

The numbers in parenthesis are number of women

* Standardized by taking all women in the study as a standard population

As shown in table 4.4 fertility is higher among contraceptive users than not users. The high fertility of users indicates they started using contraceptives after having the desired number of births. In line with this Table 4.5 shows that out of the 403 women that are using contraceptive only 34 has no child.

Table 4.5 CEB by current contraceptive use duration

CEB	Current contraceptive method use duration				Total
	0 year	1-2 years	3-4 years	5+ years	
No child	7	18	5	4	34
1-2 Children	72	82	21	28	203
3+children	34	52	29	51	166
Total	113	152	55	83	403

About half (203) of the users started using contraceptive after giving 1-2 births While 166 of the users started using contraceptive after having three or more children.

The results of one-way ANOVA indicate that the difference in mean CEB between contraceptive users and non-users is not significant.

4.2.5. Number of Times Married

Table 4.6 demonstrates the difference in mean number of children ever born between women that marry only once and two or more times.

Table 4.6. Mean number of children ever born by age, migration status and number of times married

Marital union	Standardized 15-49*	15-24	25-34	35-49
All women				
Once	2.77(642)	0.84(134)	1.94(257)	4.32(251)
More than once	3.16(115)	0.83(6)	2.48(33)	4.76(76)
ANOVA result	F= 28.163 P value=, 000			
Non-migrants	Standardized 15-49*	15-24	25-34	35-49
Once	2.58(210)	0.88(42)	1.59(99)	4.19(69)
More than once	3.40(32)	1.00(2)	2.09(11)	5.58(19)
ANOVA result	F= 18.098 P value=, 000			
Migrant	Standardized 15-49*	15-24	25-34	35-49
Once	2.87(432)	0.83(95)	2.16(158)	4.37(182)
More than once	3.11(83)	0.75(4)	2.68(22)	4.49(57)
ANOVA result	F=12.693 P value=, 000			

The numbers in parenthesis are number of women

* Standardized by taking all women in the study as a standard

According to table 4.6, out of the total women those who are in their second or more marriages have higher standardized mean number of children than those women who are in their first marriage.

The mean number of children ever born to non-migrants and migrants also increases with number of unions. The non-migrants who are in their second or more marriages have 0.82 more children compared to those who are in their first marriage. In the same way the migrants who are in their second or more marriages have 0.24 additional numbers of children than the migrants who are in their first marriage.

When we see the difference in the mean CEB between the non-migrants and migrants, the non-migrants who are in their first marriage have fewer children than the migrants of

similar marital union. Whereas the non-migrants who are in their second or more marriages have higher number of mean CEB than the migrants who are in their second or more marriages.

The F values of the ANOVA test for all women, non-migrant and migrant are 28.163, 18.097 and 12.693 respectively. All of these values indicate significant difference in the mean CEB of different number of marriage categories at $p < .000$ level.

4.2.6 Religion

Fertility difference among the different religious groups is observed in the study population. As Table 4.7 portrays the Muslims have higher number of children ever born than the Orthodoxies and other religious groups.

Table 4.7 Mean numbers of children ever born by age, migration status and religion

Religion	Standardized 15-49*	15-24	25-34	35-49
All women				
Orthodox	2.63(538)	0.80(96)	1.82(201)	4.12(241)
Muslim	3.74(162)	0.94(35)	2.78(59)	5.79(68)
Others	2.28(57)	0.89(9)	1.70(30)	3.39(18)
ANOVA result F= 13.83 P value=. 000				
Non migrants	Standardized 15-49*	15-24	25-34	35-49
Orthodox	2.58(183)	0.88(33)	1.52(82)	4.24(68)
Muslim	3.74(41)	1.00(10)	2.79(14)	5.76(17)
Others	1.73(18)	0.00(1)	1.14(14)	3.00(3)
ANOVA result F=7.104 P value=. 001				
Migrant	Standardized 15-49*	15-24	25-34	35-49
Orthodox	2.68(355)	0.76(63)	2.03(119)	4.07(173)
Muslim	3.74(121)	0.92(25)	2.78(45)	5.80(51)
Others	2.52(39)	1.00(8)	2.19(16)	3.47(15)
ANOVA result F=7.079 P value=. 001				

The numbers in parenthesis are number of women

* Standardized by taking all women in the study as a standard

In the first age category of the total population the difference in mean CEB of Muslims and Orthodoxies is only 0.14. This difference advances with age and reach 0.96 and 1.67 in the age categories 25-34 and 35-49 respectively. The standardized mean CEB of total Muslim women also exceeds the orthodox women by more than one child.

Similarly, the non-migrant Muslims fertility is the highest and the difference with Orthodox women also increases with age. The standardized mean CEB of Muslim non-migrants is 3.74 while it is 2.58 and 1.73 for women of Orthodox and other religions respectively.

The fertility difference of migrant women by religion is also analogous with the non-migrants except in the first two age categories where women of other religions have more number of children than the Orthodox women.

Table 4.7 also indicates that migrant and non-migrant Muslims have equal number of mean CEB whereas among the Orthodoxies non-migrants have slightly lower CEB than the migrants.

As the ANOVA test indicate the difference in mean CEB among the different religions of the whole population is significant at $p < .000$ level while the significance level among migrants and non-migrants is $p < .01$.

4.2.7 Ethnicity

As presented in Table 4.8, among the entire women included in the analyses the standardized mean CEB of other ethnic groups (3.43) is the highest followed by Oromos (3.27), Guraghes (3.16), Tigres (2.97), and the lowest is the Amhara women (2.42). This trend is different among the women classified into different age categories. For example, out of the total women of the early reproductive ages (15-24) Oromos (1.07) have record the highest mean number of CEB followed by Tigere (0.92), Guraghes (0.84), Amharas(0.76) and other ethnic groups exhibits the lowest (0.63) mean CEB. Among women in their peak fertility (25-34) Oromos (2.63) have the highest CEB followed by other ethnic groups (2.40), Guraghes (2.24), Tigeres (1.93) and Amharas (1.58). Where as in the last age group women of Other ethnic groups (5.55) have the highest mean CEB, next to other ethnic groups Guraghes, Oromos, Tigres and Amharas have 4.96, 4.78, 4.76 and 3.88 mean number of CEB respectively.

Among the non-migrants Oromo women have the highest standardized mean CEB (3.22) followed by other ethnic groups (3.09), Guraghe (2.87), Amhara (2.48) and Tigre (2.15). On the other hand migrants of other ethnic groups have the highest fertility (3.58) next to the other ethnic groups Oromos, Tigres, Guraghes, and Amhara women have 3.29, 3.27, 3.22 and 2.43 mean number of children respectively.

Table 4.8. Mean number of children ever born by age, migration status and Ethnicity

Ethnicity	Standardized 15-49*	15-24	25-34	35-49
All women				
Amhara	2.42(377)	0.76(71)	1.58(142)	3.88(164)
Oromo	3.27(161)	1.07(30)	2.63(67)	4.78(64)
Guraghe	3.16(118)	0.84(19)	2.24(46)	4.96(53)
Tigre	2.97(44)	0.92(12)	1.93(15)	4.76(17)
Others	3.43(57)	0.63(8)	2.40(20)	5.55(29)
ANOVA result F= 6.818 P value=, 000				
Non migrants				
Amhara	2.48(136)	0.81(26)	1.31(61)	4.24(49)
Oromo	3.22(55)	1.10(10)	2.35(23)	4.91(22)
Guraghe	2.87(22)	1.33(3)	2.00(12)	4.29(7)
Tigre	2.15(13)	0.33(3)	1.50(8)	3.50(2)
Others	3.09(26)	1.00(2)	1.67(6)	5.25(8)
ANOVA result F= 2.639 P value=, 035				
Migrant				
Amhara	2.43(241)	0.73(45)	1.79(81)	3.72(115)
Oromo	3.29(106)	1.05(20)	2.77(44)	4.71(42)
Guraghe	3.22(96)	0.75(16)	2.32(34)	5.07(46)
Tigre	3.27(31)	1.11(9)	2.43(7)	4.93(15)
Others	3.58(41)	0.50(6)	2.71(14)	5.67(21)
ANOVA result F=4.861 P value=, 001				

The numbers in parenthesis are number of women

- Standardized by taking all women in the study as a standard

When we see the difference between migrants and non-migrants, the standardized mean CEB of non-migrant Tigreans is lower by more than one child than the Tigre migrants. In addition, the non-migrant women of other ethnic groups have 0.5 less children than the corresponding migrants. Similarly, the non-migrant Guraghes and Oromos have lower children than the migrant Guraghes and Oromos respectively. On the other hand, the mean CEB of Amhara non-migrants (2.48) is slightly higher than the migrant Amhars (2.43).

CHAPTER TWO

Research Methods and Data Sources

2.1 Data Source

This paper used data from the 2005 Demographic and Health Survey of Ethiopia. The major concern of this research is to assess the effect of migration status on the fertility behavior of currently married women who permanently reside in the urban areas of Addis Ababa and Dire Dawa. Therefore, respondents whose previous residence is different from their present residence are selected and categorized as migrants. The sample includes only those who are in marital union during the time of the interview. Since women who divorced or lost their husband, due to possible interruption of sexual relationship, have different fertility level they are excluded from the study. The total numbers of migrant women who are in marital union are 515 while those who have never moved since birth and are living in marriage at the time of the survey are 242. Among migrants 207 used to live in rural areas while 308 were living in urban areas. Of the non-migrants 157 are found in Addis Ababa while the remaining 85 live in Dire Dawa. Therefore the total numbers of women that are included in this study are 757.

In order to assess differentials in fertility among migrants and non-migrants total number of children ever born to a woman is taken as a dependent variable.

2.2 Evaluation of Data Quality

A publication by the UN indicated that the most common type of error in data collected about children ever born is omission of children especially by older women (UN, 1983). Identifying such a problem, the same publication stated that “The symptoms of such omission are average parities that fail to increase rapidly enough as age increases; and, in some cases, average parities for women aged 40-44 and 45-49 may actually fall below that for women aged 35-39 even when there is no reason to suppose that fertility has been rising”. In line with this the proportion of children ever born by age of women is computed to check the quality of the data.

Table 2.1 Children ever born and sex ratio of the target population

Age of women	Number of women	Total CEB	Parity	Male CEB	Female CEB	Sex ratio
15-19	24	15	0.63	5	10	0.50
20-24	116	103	0.89	56	47	1.19
25-29	173	307	1.77	151	156	0.97
30-34	117	274	2.34	148	126	1.17
35-39	124	457	3.69	234	223	1.05
40-44	102	466	4.57	258	208	1.24
45-49	101	524	5.19	271	253	1.07
Total	757	2146	2.83	1123	1023	1.10

As can be seen from table 2.1 the average parity increases with age of women. It is, therefore, reasonable to think that the survey has good quality and omission of children is not a problem in the data.

Another test that can be performed to check the quality of data is sex ratio at birth. The expected sex ratio at birth is around 105 (UN, 1983). Table 2.1 shows that the over all sex ratio at birth of the population under study is 1.1, which means there are 101 male births to 100 female births. Except to births in the age groups 35-39 and 45-49 the sex ratio shows large deviation from the expected value. However, this problem is most probably due to the small number of women included in the study.

2.3 Methods of Analysis

The unit of analysis in this study is currently married women who live in Addis Ababa and Dire Dawa.

By using frequency table the character of target population is described in chapter three. In addition to describing the character of sampled women bivariate and multivariate analyses are used to identify the impact of the independent variables on the dependent variable. In the bivariate analysis the mean number of children ever born is calculated. More over one-way ANOVA is applied to test the existence of statistically significance difference in the mean number of children ever born among the explanatory variables.

To identify the relative impact of explanatory variables on fertility Multiple Classification Analyses (MCA) is employed as a multivariate analysis model. MCA is a technique for examining the interrelationship between several predictor variables and one dependent variable in the context of an additive model. Multiple classification analysis is used, in this study, because the dependent variable is continuous and also the technique can handle both linear and non-linear relationships (Ogawa, 1980).

The general equation of this model as indicated by Ogawa (1980) is

$$Y_{ij...k} = Y + a_i + b_j + \dots e_{ij...k}$$

Where $Y_{ij...k}$ = The score of a women who falls into the i^{th} category of predictor A.

Y = The grand mean of the dependent variable

a_i = The effect of member ship in the i^{th} category of variable A

b_j = The effect of member ship in the j^{th} category of variable B

$e_{ij...k}$ = Error term

2.4 Classification of Variables

2.4.1 Classification of Explanatory Variables

In this research two broadly classified variables: socio-economic and demographic, are used. These socio-economic and demographic factors include education, work status, region, current contraceptive use, religion, ethnicity, age at first marriage, age of respondent, number of times married, migration status, type of previous residence, age at migration to the cities and length of continuous residence in the cities.

Education: it is categorized into four: no education, primary education, secondary education and higher education.

Age of respondents: it is classified in to three broad age categories: 15-24 (the early reproductive age), 25-34 (peak reproductive age), and 35-49 (the late reproductive age).

Work status: it is categorized into two: not working (those who are not working during the survey) and working (those who are economically active at the time of the survey).

Region (city): classified in to two: Addis Ababa and Dire Dawa.

Age at first marriage: it is categorized in to two. The first group refers to those who marry below age 18 (the minimum age for marriage according to the revised family code) while the second category deals with those who marry at 18 years of age and above.

Number of times married: it is grouped in-to two: those who are in their first marriage and those who are in their second or more than second marriage.

Contraceptive use: it is classified in to two: users (those who are currently using contraceptive method and non-users (those who are not using any contraceptive method).

Religion: it is grouped into three: Orthodox, Muslim and Others including Catholics, Protestants, traditional and other religions

Ethnicity: it is categorized in to five: Amhara, Oromo, Guraghe, Tigre and others.

Migration status: it is classified in to two; migrant (those who used to live in other places before coming to Addis Ababa or Dire Dawa) and non-migrants (who have lived in Addis Ababa or Dire Dawa since birth).

Type of previous residence: it is grouped in-to urban and rural.

Age of migration to the cities: it is divided into two groups: those who came to the cities before age 15 (the age of entering into the reproductive age), and those who came to the cities at and after 15 years of age.

Duration of stay in the cities: it is grouped in to three: 0-5 years (recent migrants), 6-9 years (intermediate migrants) and 10 and more years (long term migrants).

2.4.2 Definition of terms

-Currently married women: it refers to those women who are in legal marital union or living with a man without formally getting married at the time of the interview.

-Marital fertility: It refers to the fertility of currently married women.

-Total fertility rate. It is the mean number of children which a female aged 15 can expect to bear if she lives until at least the end of her reproductive age, provided that she is subject to the given fertility conditions over the whole of her child-bearing period. (Gupta, 1997)

-Mean number of children. It is the average number of children born to a woman in her lifetime.

CHAPTER THREE

Background of the Population and Study Area

3.1 Back Ground of the Study Area

Ethiopia is found in the horn of Africa. Its absolute location is 3°N - 15°N , 33°E - 48°E . The country is administratively divided into nine regional states and two city governments. More than 80% of the total population lives in three regional states, namely, Amhara, Oromiya and SNNPR (southern nations, nationalities and people's region). About half (51%) of the population is follower of Orthodox religion while a third (33%) of the population is Muslim. A tenth of the country's population is protestant. The remaining 6% follow different types of religions. (CSA, 1999)

According to the 1994 Population and Housing Census only less than 14% of Ethiopia is urbanized. Besides large number of the urban population (30.8%) lives in Addis Ababa and Dire Dawa. The absolute location of Addis Ababa is $9^{\circ}45'\text{N}$ and $40^{\circ}30'\text{E}$ and that of Dire Dawa is $9^{\circ}35'\text{N}$ $41^{\circ}52'\text{E}$. Addis Ababa homes about 2.1 million population (1,023,452 males and 1,089,285 females) while residents of Dire Dawa are 251, 864 (127,286 males and 124,578 females). Between 1984 and 1994 Addis Ababa's population has grown by 689,626 with annual growth rate of 3.26%. This change has occurred not only due to natural increase and migration but also due to reclassification of area. The area size of Addis Ababa has increased from 222.04km² in 1984 to 530.21 km² in 1994. The projected population size of Addis Ababa (medium variant) in 2005 is 2,887,615. The difference between the projected 2005 population and the 1994 population is 774,878. On the other hand the Dire Dawa's population was projected to reach 383,529 by 2005. This shows that after the second census the Dire Dawa population was expected to increase by 131,665. The major ethnic groups of Addis Ababa are Amhara (48.3%), Oromos (19.2%), Guragies (13.5%), Tigraway (7.7%), Welayta (2.4%) and others (6.8%) the remaining 2.1% of the population is foreigners. The major ethnic groups of the residents of Dire Dawa administrative council are Oromo (48%), Amhara (27.7%), Somali (13.9%), Gurage (4.5%: 2.3% Sebat Bet, 0.8% Sodo and 1.4% Silte), and 5.9% others. Majority of the Dire Dawa population (63.2%) is follower of Muslim religion.

Next to Muslims 34.5% are Orthodox Christians, 1.5% Protestant, 0.7% Catholics, and 0.1% are followers of other religions. (Ibid)

3.2 level of fertility

Table 3.1 indicates the fertility levels of Addis Ababa and Dire Dawa for the two Demographic and health surveys.

Table 3.1 level of fertility in Addis Ababa and Dire Dawa for 2000 and 2005

	2000 ¹		2005 ²	
	TFR	CEB ^a	TFR	CEB ^a
Addis Ababa	1.9	4.7	1.4	4.4
Dire Dawa	3.6	5.4	3.6	5.6

a-completed fertility (number of children ever born by women between ages 40 –49)

Source-1= CSA and ORC macro (2001)

2= CSA and ORC macro (2006)

As indicated in Table 3.1, The TFR of Addis Ababa decrease from 1.8 during the 2000 EDHS to 1.4. Similarly the completed fertility (CEB) of Addis Ababa during the 2005 EDHS show a decline of 0.3 children from the 2000EDHS. On the other hand the TFR of Dire Dawa did not change between the two surveys while the CEB increased by 0.2 children.

3.3 Characteristics of Respondents

This section deals with the socio- economic characteristics of women who are currently married and live in Addis Ababa and Dire Dawa. The information helps to understand the factors that affect fertility which are going to be examined in the forthcoming chapters.

Table 3.2 Percentage Distributions of Currently Married Women in Addis Ababa and Dire Dawa by Background Characteristics, 2005

Predicator Variable	Migrant		Non-migrant		Total	
	N	%	N	%	N	%
city						
Addis Ababa	334	64.9	157	64.9	491	64.9
Dire Dawa	181	35.1	85	35.1	266	35.1
Total	515	100.0	242	100.0	757	100.0
Age group						
15-24	96	18.6	44	18.2	140	18.5
25-34	180	35.0	110	45.5	290	38.3
35-49	239	46.4	88	36.4	327	43.2
Total	515	100.0	242	100.0	757	100.0

Table 3.2.... cont'd

Age at first marriage						
Less than18	260	50.5	85	35.1	345	45.6
18 and above	255	49.5	157	64.9	412	54.4
Total	515	100.0	242	100.0	757	100.0
Religion						
Orthodox	355	68.9	183	75.6	538	71.1
Moslem	121	23.5	41	16.9	162	21.4
Other	39	7.6	18	7.4	57	7.5
Total	515	100.0	242	100.0	757	100.0
Ethnicity						
Amhara	241	46.8	136	56.2	377	49.8
Oromo	106	20.6	55	22.7	161	21.3
Guraghe	96	18.6	22	9.1	118	15.6
Tigre	31	6.0	13	5.4	44	5.8
Others	41	8.0	16	6.6	57	7.5
Total	515	100.0	242	100.0	757	100.0
Highest educational level						
No education	150	29.1	30	12.4	180	23.8
Primary education	128	24.9	41	16.9	169	22.3
Secondary	184	35.7	139	57.4	323	42.7
Higher	53	10.3	32	13.2	85	11.2
Total	515	100.0	242	100.0	757	100.0
Work status						
Not working	306	59.4	130	53.7	436	57.6
Working	209	40.6	112	46.3	321	42.4
Total	515	100.0	242	100.0	757	100.0
Current Contraceptive use						
Never use	243	47.2	111	45.9	354	46.8
Use	272	52.8	131	54.1	403	53.2
Total	515	100.0	242	100.0	757	100.0
Number of times married						
Only Once	432	83.9	210	86.8	642	84.8
More than once	83	16.1	32	13.2	115	15.2
Total	515	100.0	242	100.0	757	100.0
Age at migration						
Less than15	145	28.2	-----	-----	145	28.2
15 and above	370	71.8	-----	-----	370	71.8
Total	515	100.0	-----	-----	515	100.0
Years lived in the cities						
<5 years	103	20	-----	-----	103	20
6-9 years	83	16.1	-----	-----	83	16.1
10 and more	329	63.9	-----	-----	329	63.9
Total	515	100.0	-----	-----	515	100.0
Place of Previous residence						
Rural	207	40.2	-----	-----	207	40.2
Urban	308	59.8	-----	-----	308	59.8
Total	515	100.0	-----	-----	515	100.0

----- Not applicable

3.3.1 Migration Status and Region

As indicated in the previous chapter the total number of currently married women who live in the urban areas of Addis Ababa and Dire Dawa is 757, of which 242 (32%) are non-migrants while the remaining 515(68%) are migrants.

Table 3.1 shows that over three fifth (64.9%) of the migrants live in Addis Ababa while the remaining (35.1%) migrants are residents of Dire Dawa. On the other hand, 157(64.9%) and 85(35.1%) of the non-migrants live in Addis Ababa and Dire Dawa respectively.

3.3.2 Age Distribution and Age at First Marriage

As can be seen from Table 3.1, large number of migrant women (46.4%) belongs to age group 35-49 while the non-migrants that belong to this age group is 36.4%. The majority of non-migrants (45.5%) are concentrated in age group 25-34 whereas the migrant women who are in this age category are 35%. The proportion of both migrants and non-migrants in the youngest age group (15-24) is the lowest which is 18.6% and 18.2%, respectively.

More than half (54.4%) of the total women have got married at age 18 and above. Similarly majority of the non-migrants (64.9%) married at age 18 and above while it is 49.5% of the migrants that marry at and above 18 years of age. The remaining 35.1% non-migrants and 50.5% migrants have entered into marital union before their 18th years anniversary.

3.3.3 Religion and Ethnicity

As shown in Table 3.1 majority (71.1%) of the total population is follower of Orthodox religion followed by Muslims (21.4%) and other religions (7.5%). The composition of religion among the migrants and non-migrants is similar with that of the total population.

About half (49.8%) of the total women are Amharas followed by Oromos (21.3%), Guraghes (15.6%), Tigres (5.8%) and women of other ethnic groups (7.5%). The

The one-way ANOVA result indicates that the difference in mean CEB among the different ethnic groups of the total population and migrants are significant at $p < .000$ and $p < .01$ level respectively. The corresponding significant level among non-migrants is $p < .05$.

4.2.8 Education

The relationship between education and the mean number of children ever born classified by age group presented in Table 4.9 indicate that the standardized mean CEB generally decreases as educational level of women advances. The standardized mean CEB is 3.65, 2.90 and 2.60 and 1.97 for the total women with no education, primary, secondary as well as higher education respectively.

Table 4.9 Mean numbers of children ever born by age, migration status and education

Education	Standardized 15-49*	15-24	25-34	35-49
All women				
No education	3.65(180)	1.04(24)	2.78(51)	5.52(105)
Primary	2.90(169)	0.76(45)	2.33(54)	4.31(70)
Secondary	2.60(323)	0.86(63)	1.70(156)	4.13(104)
Higher	1.97(85)	0.63(8)	1.66(29)	2.81(48)
ANOVA result F= 27.945 P value=. 000				
Non migrant	Standardized 15-49*	15-24	25-34	35-49
No education	3.61(30)	0.50(2)	2.78(9)	5.68(19)
Primary	2.97(41)	1.17(12)	1.86(14)	4.73(15)
Secondary	2.66(139)	0.85(26)	1.47(73)	4.50(40)
Higher	1.81(32)	0.50(4)	1.57(14)	2.57(14)
ANOVA result F= 9.842 P value=. 000				
Migrant	Standardized 15-49*	15-24	25-34	35-49
No education	3.64(150)	1.09(22)	2.79(42)	5.49(86)
Primary	2.89(128)	0.61(33)	2.50(40)	4.20(55)
Secondary	2.58(184)	0.86(37)	1.90(83)	3.91(64)
Higher	2.06(53)	0.75(4)	1.73(15)	2.91(34)
ANOVA result F= 16.915 P value=. 000				

* The numbers in parenthesis are number of women

* Standardized by taking all women in the study as a standard

The standardized mean CEB difference between women without education and with higher education is 1.7, 1.8 and 1.6 for the total women taken together, non-migrants and migrants respectively.

Table 4.9 also indicates that in the early reproductive age non-migrants with no education have equal mean CEB with women of higher education. This is probably due to the small numbers of non-migrant women with no education (2) and higher education (4).

When we see the difference in the standardized mean CEB between migrants and non-migrants, migrant women with primary and secondary education have less number of children than the non-migrants of similar educational categories. On the other hand the migrants with no and higher education have more number of children than the non-migrants of similar educational group.

The ANOVA test for the whole women, non-migrant and migrant indicate that the difference in mean CEB of the different educational levels is highly significant at $p < .000$ level.

4.2.9 Age at First Marriage

The relationship between age at first marriage and fertility is presented in Table 4.10. As the Table indicates the mean number of CEB is higher for those who get married before reaching 18 years. The difference in the standardized mean CEB is 1.1 for the total women while it is 1.2 and 1 children for the non-migrants and migrants respectively. Table 4.9 also shows that the difference in the mean CEB between women who get married below age 18 and afterwards increases with age.

Table 4.10 Mean numbers of children ever born by age, migration status and age at first marriage.

Age at first marriage	Standardized 15-49*	15-24	25-34	35-49
All women				
<18	3.42(345)	1.07(61)	2.72(101)	5.04(183)
>=18	2.32(412)	0.67(79)	1.62(189)	3.64(144)
ANOVA result	F= 84.159 P value=. 000			
Non migrant	Standardized 15-49*	15-24	25-34	35-49
<18	3.51(85)	1.10(21)	2.52(25)	5.41(39)
>=18	2.28(157)	0.70(23)	1.38(85)	3.76(49)
ANOVA result	F=24.947 P value=. 000			
Migrant	Standardized 15-49*	15-24	25-34	35-49
<18	3.40(260)	1.05(40)	2.79(76)	4.94(144)
>=18	2.37(255)	0.66(56)	1.82(104)	3.58(95)
ANOVA result	F= 54.351 P value=. 000			

- The numbers in parenthesis are number of women
- Standardized by taking all women in the study as a standard

When we compare the standardized number of children ever born to migrants and non-migrants, the migrants who get married below 18 have lower number of children than the non-migrants that get married before 18. Whereas among women who marry after their 18th anniversary it is the non-migrants that have lower number of children.

The ANOVA results for the total, migrant and non-migrant women show that the mean CEB differences between the two categories of age at first marriage are significant at $p < .000$ level.

4.2.10 Previous Residence

As can be observed from Table 4.11, migrant women who used to reside in rural areas have 0.5 more standardized mean CEB than those who came from other urban areas. This is true for all of the three age categories. Moreover, the difference in the mean CEB increases with age. On the other hand, the difference in the standardized mean CEB between urban origin migrants and natives is very small, it is only 0.03.

Table 4.11 Mean number of children ever born by previous residence and age

Previous residence	Standardized 15-49*	15-24	25-34	35-49
Other urban	2.70(308)	0.82(65)	2.07(106)	4.07(137)
Rural	3.19(207)	0.84(31)	2.46(74)	4.84(102)
Non migrant	2.73(242)	0.89(44)	1.64(110)	4.49(88)
ANOVA result F= 8.180 P value=. 000				

The numbers in parenthesis are number of women

*Standardized by taking all women in the study as a standard

The ANOVA result for testing the mean CEB difference among the three previous residence categories shows that the difference is significant at $p < .000$ level.

4.2.11 Length of Duration of Continues Residence

The relation between migrants mean CEB with respect to duration of stay and age is presented in Table 4.12. As can be observed from the table migrants who have lived in the urban areas for more than 10 years have the highest number of standardized CEB while the recent migrants have record the least CEB. The standardized mean CEB of non-migrants is lower by 0.25 children than the long-term migrants.

The relationship between CEB and duration of stay for the different age categories except in the lowest age group indicates that the migrants CEB increase with the increase in the length of duration of residence. In the early reproductive age (15-24) mean CEB of recent migrants is 0.94 while the corresponding values for the intermediate and long-term migrants are 0.80 and 0.56 respectively.

Table 4.12 Mean number of children ever born classified by Length of Duration of continues residence in the cities and age

Duration of continues residence	Standardized 15-49*	15-24	25-34	35-49
0-5	2.62(103)	0.94(48)	1.88(42)	4.0(13)
6-9	2.71(83)	0.80(30)	1.92(39)	4.21(14)
>=10 years	2.98(329)	0.56(18)	2.49(99)	4.44(212)
Non migrant	2.73(242)	0.89(44)	1.64(110)	4.49(88)
ANOVA result F= 28.378 P value=. 000				

The numbers in parenthesis are number of women

*Standardized by taking all women in the study as a standard

The ANOVA result shows that the difference in mean CEB among different categories of length of residence in the cities is highly significant at $p < .000$ level.

4.2.12 Age at Migration

Table 4.13 indicates that women who migrate to the cities before reaching to the reproductive age have lower fertility than women who migrate after celebrating their 15th birthday. The standardized mean CEB of women who migrate to the cities before age 15 is lower by 0.16 children than those who migrate after wards.

The difference in mean CEB of the population categorized into different age groups point out that women who are in their peak reproductive ages (25-34) and came to the cities before their age 15 have higher fertility than those who came at and after age 15. In the other age groups women who migrate after their 15th birthday have higher fertility than those who migrate before 15 years of age.

Table 4.13 Mean number of children ever born by migrants' age of migration to the cities and age

Age at migration	Standardized 15-49*	15-24	25-34	35-49
<15	2.79(145)	0.50(32)	2.46(52)	4.07(61)
>=15	2.95(370)	0.98(64)	2.13(128)	4.52(178)
Non migrant	2.73(242)	0.89(44)	1.64(110)	4.49(88)
ANOVA result F= 4.099 P value=. 017				

The numbers in parenthesis are number of women

*Standardized by taking all women in the study as a standard

The one-way ANOVA result indicates that the difference in the mean CEB of the different age at migration categories is significant at $p < .05$ level

CHAPTER FIVE

Factors Affecting Fertility: A Multivariate Analysis

5.1 Introduction

The major objective of this chapter is to assess the combined impact of the explanatory variables on the fertility of currently married women that live in Addis Ababa and Dire Dawa. As mentioned in the Second Chapter the Multivariate technique employed to examine the variables effect on fertility is Multiple Classification Analysis (MCA). This method presents the unadjusted and adjusted mean deviations from the grand mean. The unadjusted mean deviation indicates the impact of a variable on fertility without considering the influence of other variables whereas the adjusted mean deviation shows the impact of a variable on variation of fertility by giving allowance for the impact of other variables (Ogawa, 1980).

Testing the hypothesis stated in Chapter One requires the comparison of non-migrants mean CEB with four measures of movement: migration status, length of continuous residence in the cities, place of previous residence and age at migration to the cities. The socio-economic and demographic as well as the migration character indicating variables are presented in four different models. The difference among the models relies on the included type of migration characteristic variables. Despite including all socio-economic and demographic variables, model 1 includes migration status, model 2 considers places of previous residences, model 3 deals with length of continuous residence while age at migration is incorporated in model 4.

Before using the MCA, the presence of interaction among the explanatory variables was assessed. Two variables: Number of times married and work are found to create a problem of interaction. Number of times married is interacting with education thus it is not included in the analysis for two reasons. Firstly, many studies indicate strong association between fertility and education and removing education from the analysis will put the validity of the analysis under question. Secondly, women in their second and above marriage are quite small (15%) compared to women in their first marriage (85%). It is thus assumed that the impact of number of times married will be minimum. After excluding number of times married education and age at first marriage are found to have

interaction. As indicated in the literature these two variables are very strong determinants of fertility. Besides, they are important for testing the stated hypothesis. When work is excluded the interaction between them disappears. Results of the one-way ANOVA in the bivariate analysis displays that there is no significant difference in the mean number of children ever born between the working and non-working women of the target population. As a result rather than removing one of the two variables (education and age at first marriage) work status is not included in the multivariate analysis.

5.2 Results of the Multivariate Analysis

The R^2 result of the multivariate analysis, as portrayed in Table 5.1, indicates that 54.5% of variation in fertility of currently married women of the two cities is explained by the stated explanatory variables. The table also depicts that the over all capacity of the models in describing the fertility of currently married women is significant at $p < .000$ level. Results of each of the predictors on the dependent variable (i.e. CEB) are given below

Education and Fertility

According to Table 5.1, both the adjusted and unadjusted values of education conform the widely accepted fact that level of education is inversely related to fertility. The unadjusted deviation from the grand mean shows that uneducated women have 1.9, 1.8 and 1.4 more number of children than the women with higher, secondary and primary education respectively. After adjustment the difference between women of no and higher education is reduced to about 1.3 children. The corresponding difference between women that have no education and secondary education as well as women who have no education and primary education is also found to reduce to 0.6 and 0.5 children, respectively.

Contraceptive use and Fertility

The unadjusted difference in contraceptive use from the grand mean (Table 5.1) indicates that contraceptive users have 0.3 less number of children than the not users while after adjustment it is the not users that have 0.7 less number of children than the users.

Table 5.1. Results of Multiple Classification Analysis on Mean number of CEB and its Predictor Variables

Predictor Variable	N	Model I			Model II		
		Unadjusted Deviations	Adjusted Deviations for independent and covariate	Sig P value	Unadjusted Deviations	Adjusted Deviations for independent and covariate	Sig P value
Highest educational level		Eta .317	Beta .152	.000	Eta .317	Beta .150	.000
No education	180	1.315	.515		1.315	.509	
Primary	169	-.101	.021		-.101	.019	
Secondary	323	-.516	-.099		-.516	-.096	
Higher	85	-.623	-.755		-.623	-.750	
City		Eta .014	Beta .046	.100	Eta .014	Beta .045	.110
Dire Dawa	266	-.045	-.149		-.045	-.147	
Addis Ababa	491	.025	.081		.025	.079	
Religion		Eta 0.188	Beta .138	.000	Eta 0.188	Beta .139	.000
Orthodox	538	-.168	-.161		-.168	-.162	
Muslim	162	.813	.630		.813	.632	
Others	57	-.730	-.269		-.730	-.269	
Ethnicity		Eta .187	Beta .094	.042	Eta .187	Beta .093	.044
Amhara	377	-.408	-.190		-.408	-.189	
Oromo	161	.358	.210		.358	.208	
Guraghe	118	.402	.069		.402	.065	
Tigre	44	-.085	-.020		-.085	-.016	
Others	57	.920	.538		.920	.538	
Current Contraceptive use		Eta .064	Beta .145	.000	Eta .064	Beta .145	.000
Not user	354	.162	-.368		.162	-.368	
User	403	-.143	.324		-.143	.323	
Age at first marriage		Eta .317	Beta .192	.000	Eta .317	Beta .192	.000
<18	345	.826	.501		.826	.501	
>=18	412	-.692	-.420		-.692	-.420	
Migration status		Eta .085	Beta .015	.553	-----	-----	-----
Non migrant	242	-.298	.053				
Migrant	515	.140	-.025				
Previous residence		-----	-----	-----	Eta .146	Beta .016	.825
Rural	207						
Urban	308				.556	-.007	
Non migrant	242				-.140	-.036	
					-.298	.052	
R ² = .545 Grand mean=2.83 Model Sig.= 0.000					R ² = .545 Grand mean=2.83 Model Sig.= 0.000		

Table 5.1...cont'd

Predicator Variable	N	Model III			Model IV		
		Unadjusted Deviations	Adjusted Deviations for independent and covariate	Sig P value	Unadjusted Deviations	Adjusted Deviations for independent and covariate	Sig P value
Highest educational level		Eta .317	Beta .152	.000	Eta .317	Beta .152	.000
No education	180	1.315	.513		1.315	.515	
Primary	169	-.101	.027		-.101	.023	
Secondary	323	-.516	-.101		-.516	-.100	
Higher	85	-.623	-.755		-.623	-.756	
City		Eta .014	Beta .046	.101	Eta .014	Beta .046	.101
Dire dawa	266	-.045	-.150		-.045	-.149	
Addis Ababa	491	.025	.081		.025	.081	
Religion		Eta 0.188	Beta .138	.000	Eta 0.188	Beta .137	.000
Orthodox	538	-.168	-.160		-.168	-.160	
Muslim	162	.813	.629		.813	.626	
Others	57	-.730	-.272		-.730	-.268	
Ethnicity		Eta .187	Beta .094	.043	Eta .187	Beta .093	.045
Amhara	377	-.408	-.191		-.408	-.189	
Oromo	161	.358	.211		.358	.209	
Guraghe	118	.402	.070		.402	.069	
Tigre	44	-.085	-.023		-.085	-.024	
Others	57	.920	.539		.920	.537	
Current Contraceptive use		Eta .064	Beta .145	.000	Eta .064	Beta .144	.000
Use	354	.162	-.369		.162	-.367	
No Use	403	-.143	.324		-.143	.323	
Age at first marriage		Eta .317	Beta .193	.000	Eta .317	Beta .193	.000
<18	345	.826	.504		.826	.503	
>=18	412	-.692	-.422		-.692	-.421	
Length of continuous residence		Eta .319	Beta .020	.914			
0-5 years	103	-1.126	.034		-----	-----	-----
6-9 years	83	-.931	-.005				
10 and above	329	.806	-.050				
Non migrant	242	-.298	.055				
Age at migration					Eta.104	Beta .018	.774
<15 years	145				-.131	-.072	
>=15 years	370				.246	-.007	
Non migrant	242	-----	-----	-----	-.298	.053	
Age (covariate)	757	-----	-----	-----	-----	-----	.000
R ² = .545 Grand mean=2.83 Model Sig.= 0.000					R ² = .545 Grand mean=2.83 Model Sig.= 0.000		

City of Residence and Fertility

According to Table 5.1, the effect of current residence on the fertility of currently married women is found to be insignificant. Though the difference is not statistically significant, city difference between the mean numbers of children ever born, as examined in the MCA analysis, prevails that the CEB of currently married women that live in Dire Dawa is lower than the similar group of women that live in Addis Ababa. The unadjusted deviation from the grand mean indicates that the CEB of women that live in Dire Dawa is lower than those who live in Addis Ababa by about 0.07 children. Similarly, the adjusted difference indicates women that live in Dire Dawa have 0.2 less number of children than the women who reside in Addis Ababa.

Religion and Fertility

The high fertility of Muslims indicated by different researches is also conformed by the multivariate out put of this study. The unadjusted result shows a difference of around one child between Muslims and Orthodox Christians while the corresponding difference between Muslims and other religions is 1.5 children. The adjusted difference between Muslims and Orthodox Christians show a difference of about 0.8 children whereas the difference between Muslims and Other religions is about one child.

Ethnicity and Fertility

The unadjusted fertility difference among different ethnic groups coincides with the result of bivariate analysis where Amhara women have the lowest number of mean CEB. According to Table 5.1, the unadjusted difference between Amharas and other ethnic groups is 1.3 children. In the same way Amhara women have 0.8, 0.8 and 0.3 less number of children than Oromos, Guraghgs and Tigres, respectively. Like wise, after adjustment, the lowest CEB is observed among Amharas followed by Tigres, Guraghgs, Oromos and Other ethnic groups, in such order. The adjusted difference between Amharas and Tigres is reduced to 0.2 children. Similarly, Amhara women have 0.3, 0.4 and 0.7 less number of children than Guraghgs, Oromos, and Other ethnic groups, respectively.

Age at First Marriage and Fertility

Both the adjusted and unadjusted deviations indicate that as age of first marriage increase fertility decreases. The unadjusted difference between those who marry below 18 and at and above 18 is 1.5 children while the adjusted difference is about one child.

Migration and Fertility

In contrary to the one-way ANOVA results, the multivariate output shows that all the variables that indicate migration characteristics are found to have no significant effect on the number of children ever born to the population under study. Even though the differences are insignificant the pattern of fertility variation among the four variables except the length of continuous residence is in line with the suggested hypothesis.

A) Migration Status and Fertility

As indicated in model I of table 5.1, before adjustment the mean CEB of migrant women is higher than the non-migrants by about 0.4 children. After adjustment it is the non-migrant women that have 0.08 more number of children. However, according to Table 5.1, this difference is found to be not significant.

B) Place of Previous Residence and Fertility

In order to examine the effect of place of previous residence on fertility migrants are grouped into rural and urban origin. The unadjusted difference from the grand mean, as shown in model II of Table 5.1, indicates that the rural migrants have 0.7 and 0.9 more number of children than the urban migrants and non-migrants, respectively. After adjustment it is the urban migrants that have the lowest mean number of CEB. Their fertility is lower by 0.03 and 0.09 from rural migrants and non-migrants, respectively. Table 5.1 also indicates that the difference in the mean number of children ever born among the currently married women of the two cities, classified based on place of previous residence, is not significant.

C) Length of Continuous Residence and Fertility

Model III of Table 5.1 shows the fertility difference among the target population by classifying the migrants in to three different lengths of continuous residence groups. This information helps to assess the impact of duration of exposure to the urban life on the mean number of children ever born. The unadjusted results indicate that migrants who have stayed less than five years have the lowest fertility. Their fertility is lower by 0.2, 0.8 and around 2.0 from intermediate migrants (who have stayed in the cities 6-9 years), non-migrants and long-term migrants (who have stayed more than 10 years), respectively. After controlling other factors and covariate, recent migrants have 0.02 less number of children than non-migrants while they have 0.04 and 0.08 more number of children than the intermediate and long-term migrants, in that order. The difference among the length of continuous residence categories, as indicated in Table 5.1, is found to be statistically not significant.

D) Age at migration and fertility

The fourth model in Table 5.1 presents the effect of age at migration, classified into two groups, to the cities on the fertility of currently married women. The unadjusted result indicates that migrants who came to the cities before their 15th birth day have on the average 0.4 less number of children than those who came to the cities after their 15th birth day. On the other hand, the non-migrants have 0.17 less number of children than those who migrate before age 15. After adjustment the mean CEB of migrants who come to the cities before their 15th birthday is lower than those who migrate after their 15th anniversary and non-migrants by about 0.07 and 0.1, respectively.

Table 5.1 presents the eta and beta values. The eta values are summaries of the unadjusted scores while the beta values summarize the adjusted results. The beta coefficients are used here for the reason that they indicate the proportion of a factor on the variation of the dependent variable by controlling other variables. Out of the factors included age at first marriage is found to be the strongest variable in causing fertility variation among the sampled women. Education, contraceptive use, religion and ethnicity are other important factors that affect fertility of the respondents according to such order.

Out of the seven explanatory variables assessed in each model, five (age at first marriage, education, contraceptive use, religion and ethnicity) are found to have significant effect on fertility of the sampled population whereas region (city) and migration related variables are found to have no significant impact on fertility of the target population.

Chapter six

Discussion, conclusion and policy Implication

6.1 Discussion and Conclusion

Studies (Abdulhi, 1989; Assefa, 1990; Kederalah, 1991; Hussien, 1992) conducted so far in Ethiopia contributed a lot to investigate the factors that affect fertility of women in different parts of the country. Though most births in Ethiopia occur within marriage, attention is not given to identify factors that affect the fertility behaviour of married women. In view of this fact this paper, by using the 2005 EDHS data, tries to identify the factors affecting fertility of currently married women.

Due to the presence of large number of migrants in the two cities this paper gives emphasis to the migration status of the sample population. As a result a total of 757 currently married women who live in Addis Ababa and Dire Dawa are extracted from the 2005 EDHS data. Among this, 515 are migrants while the remaining 248 are non-migrants.

Univariate, bivariate and multivariate techniques were employed so as to examine the fertility level as well as fertility differentials among the target population classified in to different explanatory variables. The outputs suggest that most of the explanatory variables included in this study are responsible for the fertility variation among the sampled population. The four variables that are related to migration, however, are found to have no significant effect on the fertility of currently married women who live in Addis Ababa and Dire Dawa.

In line with the findings obtained in different parts of the world (Paydarfar and Sarram, 1970; Caldwell, 1980), results of the current study have shown that educational level is inversely related to fertility. Both the bivariate and multivariate results indicate that married women with no education in both of the cities have more number of children ever born than educated women.

The higher fertility of Muslims over the orthodox Christians, as illustrated by Abdulahi (1989) and Assefa (1990), is confirmed in both bivariate and multivariate analyses of this

study. Besides, followers of other religions in the two cities have the lowest fertility. The high fertility of Muslims in the two cities is associated with their lower educational level.

Both the bivariate and multivariate analysis on the relationship between fertility and ethnicity indicate that women that belong to other ethnic groups have the highest mean CEB followed by Oromos while the lowest mean CEB is recorded by Amharas. This finding is similar with Abdulahi (1988) who reported the lowest fertility among Amharas.

The EDHS output for all women of the two cities indicated that the total fertility rate of women residing in Addis Ababa is lower than those living in Dire Dawa (CSA and ORC macro, 2006). Even though it needs further analysis this difference could be due to two reasons. Firstly, 30% of Dire Dawa is a rural district therefore fertility of the rural women may contribute for the high fertility rate of the Dire Dawa City Administration. Secondly, the number of women (both migrant and non migrant) who weren't in marital union at the time of the interview is higher in Addis Ababa than Dire Dawa. When fertility indices are computed, this high number of women out of marital union makes the TFR of Addis Ababa lower than that of Dire Dawa.

The multivariate result of this study indicates that even if the difference is not significant, currently married women of Dire Dawa have lower number of children than those married women living in Addis Ababa. The absence of significant difference between the fertility of currently married women who live in Addis Ababa and Dire Dawa could be due to the fact that the two cities have similar socio-economic characteristics. In other words, before giving birth, mothers of the two cities have similar considerations because the cost of child rearing in the two cities is more or less identical.

The multivariate output on the relation between current contraceptive use and fertility illustrates that women who are using contraceptives have higher fertility than those who are not using. This is due to the fact as stated by Hollander (1995), Njogu (1991) and Assefa (1990) that married women start-using contraceptive after having the desired number of children.

The negative association between age at first marriage and fertility is demonstrated by different studies (Abdulahi, 1988; Tilaye, 1994). This is because when a woman marries at early age, she will spend a lot of her reproductive time in marital union. Following this, she is exposed to the risk of giving births to children over a longer duration of her reproductive time unless she uses contraceptive. Both bivariate and multivariate analyses of this study disclose that the fertility of women who marry below age 18 is higher than those who marry at and after age 18.

The difference in the number of children ever born between migrants who came to the cities before celebrating their 15th anniversaries and who did afterwards is very small. This indicates that the two groups of migrants experience similar effect from the urban areas. More over, some of the migrants came from other urban areas where the socio-economic characteristics are more or less similar with the two cities (Addis Ababa and Dire Dawa). The age at migration, therefore, has little effect on the urban origin migrants' fertility behaviour. This is due to the fact that urban origin migrants, particularly those who came from large cities, have the experience of urban life before they came to the two cities. In other words, since the pre and post migration environments of the urban origin migrants are similar, the age at migration into the two cities has nothing to do with the number of children that they have.

Even though the difference is statistically insignificant the higher fertility of rural migrants over the urban migrants is in accordance with the hypothesis that is stated in the first chapter. The absence of significant difference in fertility between rural and urban origin migrants might have arisen due to the reason that some of the urban migrants were step migrants. Some of the urban migrants, before coming to their previous residence, had been living in rural areas. Consequently their present fertility level exhibits some of the characters of rural areas.

More than being not significant the pattern between length of continuous residence and fertility is against the 'disruptive theory'. As stated in the first chapter, disruptive theory states that recent migrants have lower fertility than permanent migrants. Eshetu (2005) also identified that the 'disruptive theory' does not work on the fertility of migrant

women who live in Addis Ababa. He associated the reason that affect the timing of birth is their income.

In areas where the rural-urban linkage is weak, migrants will face a serious problem of adjustment in their early periods of migration. Accordingly they will have lower fertility. The higher fertility of recent migrants over permanent ones in this study, therefore, could be due to the fact that the two cities have strong rural urban linkage. As a result of such strong rural-urban linkage the level of individualism in the two cities may not be as strong as that of the developed nations individual life. The absence of strong individual life can be observed in different ways. For example, there is a high likelihood that recent migrants get moral and material support from their families that live in their previous residence. It is obvious that after giving birth, mothers of urban areas often face a problem of getting baby-sitters when they are working out side home. This, however, does not appear to be the case among recent migrants. Due to the strong rural-urban linkage recent migrants may bring baby-sitters from their previous residence and solve the problem of getting caregiver for their child. Getting baby-sitter, without difficulty, may contribute for the higher fertility of recent migrants.

As the women live in the cities for a long period of time they adapt into the urban way of life hence their relation with their previous residence may get loosen. Consequently the long-term migrants reduce their fertility because bringing baby-sitters, and other supports, from their previous residence is not as easy as it is for the recent migrants. It can be, therefore, concluded that the permanent migrants weak attachment to their previous residence could contribute for their low fertility.

6.2 Policy Implication

The total marital fertility rate as indicated in the first chapter is higher than the total fertility rate of the two cities. According to the finding of this study, different factors are responsible for this high TMFR. For example it was stated that fertility is affected negatively by higher educational level therefore an attempt to increase the educational level of married women will have a paramount effect on reducing their fertility. In line with this the affirmative action that encourages girls' admission to higher learning

institutions should be encouraged. In the univariate analysis it was indicated that educational level of migrants is lower than non-migrants. In order to increase the educational achievements of the migrant women a through study should be conducted to Asses ways of improving the educational level of migrants. If this is so, fertility decline might be ascertained.

It was also found out that the contraceptive users have higher fertility than the non-users. The high fertility of the contraceptive users is associated with the reason that married women start using contraceptive after giving large number of births. This suggests that the young women should get education and counseling on the different methods of contraceptive so as to increase the contraceptive use and widen the gap between consecutive births.

Different researches (Hiday; 1978; Zeng et.al., 1985; Coale, 1992; Assefa, 1990) identified the negative impact of age at marriage on fertility. The results of this study are similar with the previous works. Based on works done so far the government rose the age of marriage to 18. Rising age by itself is not enough because there are traditional ways by which marriage can be performed. Therefore government and non-government as well as concerned bodies should work more on educating the mass about the negative consequences of early marriage.

The low fertility in the urban areas of Ethiopia as stated by Sibanda and colleagues (2003) is due to large number of unmarried women. Observation of the TFR without considering the fertility of married women may direct to the wrong conclusion that the fertility reducing attempts were successful. As a result the concerned bodies may suspend their activities towards reducing fertility. The withdrawal of attention will live the currently married women with their high fertility. Further studies, therefore, should be conducted before reaching on decisions that may marginalize the currently married women.

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Annex

Questions Used in the Study (Extracted from the 2005 Ethiopian Demographic and Health Survey WOMAN'S QUESTIONNAIRE)

LOCALITY NAME _____ NAME OF HOUSEHOLD HEAD _____ CLUSTER NUMBER HOUSEHOLD NUMBER REGION LARGE CITY/SMALL CITY/TOWN/RURAL (LARGE CITY=1, SMALL CITY=2, TOWN=3, RURAL=4) NAME AND LINE NUMBER OF WOMAN _____	<table border="1" style="margin: auto; border-collapse: collapse;"> <tr><td style="width: 30px; height: 30px;"></td><td style="width: 30px; height: 30px;"></td><td style="width: 30px; height: 30px;"></td></tr> <tr><td style="width: 30px; height: 30px;"></td><td style="width: 30px; height: 30px;"></td><td style="width: 30px; height: 30px;"></td></tr> <tr><td style="width: 30px; height: 30px;"></td><td style="width: 30px; height: 30px;"></td><td style="width: 30px; height: 30px;"></td></tr> <tr><td style="width: 30px; height: 30px;"></td><td style="width: 30px; height: 30px;"></td><td style="width: 30px; height: 30px;"></td></tr> <tr><td style="width: 30px; height: 30px;"></td><td style="width: 30px; height: 30px;"></td><td style="width: 30px; height: 30px;"></td></tr> <tr><td style="width: 30px; height: 30px;"></td><td style="width: 30px; height: 30px;"></td><td style="width: 30px; height: 30px;"></td></tr> </table>																		

102	How long have you been living continuously in (NAME OF CURRENT PLACE OF RESIDENCE)?	YEARS ALWAYS 95 VISITOR 96
103	Just before you moved here, did you live in a city, in a town, or in the countryside?	CITY 1 TOWN 2 COUNTRYSIDE 3
105	How old were you at your last birthday?	AGE IN COMPLETED YEARS
106	Have you ever attended school?	YES 1 NO 2
108	What is the highest grade you completed?	GRADE TECH./VOC. CERTIFICATE 13 UNIVERSITY/COLLEGE DIPLOMA ... 14 UNIVERSITY/COLLEGE DEGREE OR HIGHER 15

116	What is your religion?	ORTHODOX1 CATHOLIC2 PROTESTANT3 MOSLEM4 TRADITIONAL5 OTHER6 (SPECIFY)
117	What is your ethnicity?	RECORD THE MAJOR ETHNIC GROUP. _____
201	Now I would like to ask about all the births you have had during your life. Have you ever given birth?	YES1 NO2
202	Do you have any sons or daughters to whom you have given birth who are now living with you?	YES1 NO2
203	How many sons live with you/ And how many daughters live with you?	SONS AT HOME DAUGHTERS AT HOME
204	Do you have any sons or daughters to whom you have given birth who are alive but do not live with you?	YES1 NO2
205	How many sons are alive but do not live with you? And how many daughters are alive but do not live with you? IF NONE, RECORD '00'.	SONS ELSEWHERE DAUGHTERS ELSEWHERE.
206	Have you ever given birth to a boy or girl who was born alive but later died? IF NO, PROBE: Any baby who cried or showed signs of life but did not survive?	YES1 NO2
207	How many boys have died? And how many girls have died? IF NONE, RECORD '00'.	BOYS DEAD GIRLS DEAD
208	SUM ANSWERS TO 203, 205, AND 207, AND ENTER TOTAL. IF NONE, RECORD '00'.	TOTAL

209	CHECK 208: Just to make sure that I have this right: you have had in TOTAL _____ births during your life. Is that correct? PROBE AND ☐ YES ☐ NO. CORRECT → 201- 208 AS NECESSARY	
310	Are you currently doing something or using any method to delay or avoid getting pregnant?	YES 1 NO 2
319 319A	In what month and year was the sterilization performed? In what month and year did you start using (CURRENTMETHOD) continuously? PROBE: For how long have you been using (CURRENT METHOD) now without stopping?	MONTH YEAR
601	Are you currently married or living together with a man as if married?	YES, CURRENTLY MARRIED 1 YES, LIVING WITH A MAN 2 NO, NOT IN UNION 3
610	Have you been married or lived with a man only once or More than once?	ONLY ONCE 1 MORE THAN ONCE 2

611	CHECK 610: MARRIED/ LIVED WITH A MAN ONLY ONCE In what month and year did you start living with your husband/partner? MARRIED/LIVED WITH A MAN MORE THAN ONCE Now I would like to ask about when you Started living with your first husband/ partner.	MONTH DON'T KNOW MONTH 98 In what month and year was that? YEAR DON'T KNOW YEAR 9998
807	Aside from your own housework, have you done any work in the last seven days?	YES 1 NO 2

DECLARATION

The thesis is my original work, has not been presented for a degree in any other university and that all sources of materials used for the thesis have been duly acknowledged.

Name NEBIYU BELEKE

Signature 

Date 14/08/07

This thesis has been submitted for examination with my approval as university advisor.

<u>Eshetu Gurmu (Ph.D)</u>	<u></u>	<u>14/08/07</u>
Advisor	Signature	Date