Ethiopian Journal of Development Research, Vol.14, No.2, October 1992

AN OVERVIEW OF THE DETERMINANTS OF HIGH FERTILITY IN ETHIOPIA

Assefa Hailemariam[*]

ABSTRACT: *Evidence of high and somewhat rising fertility in Ethiopia during the last two decades is presented. The associated accelerated population growth and the high maternal and child morbidity and mortality risks are emphasized. An overview of some of the various factors that might have contributed to the prevailing level of fertility is presented. Various programmes of intervention are suggested in order to limit births and hence population growth. The need for a detailed data-based research is also underlined.*

INTRODUCTION

Fertility is the most dynamic element in determining the size, rate of growth, distribution in space and the age structure of a population. In the absence of substantial migration, at any given level of mortality, change in fertility causes variations in the rates of natural increase and exerts a powerful influence on the age structure (UN, 1954). Bogue (1971) also noted that fertility is a major expansionary force to population dynamics and a key counteracting force to population attrition through mortality. Increasing awareness of this fact has in recent years produced an ever increasing number of demographic and related studies having as their principal aim, some aspects of human fertility, including its levels and determinants for several populations of the world. However, there are still many countries, especially in Sub-Saharan Africa,including Ethiopia, for which very little is known. In Ethiopia, very few studies regarding

* *Assistant Professor, Demographic Training and Research Centre, Institute of Development Research, Addis Ababa University.*

fertility have been conducted; and these have not properly addressed the issue of fertility determinants mainly because of data problems. In order to design and implement intervention programmes that are bound to affect fertility and also to predict the onset of fertility decline, it is necessary to know the determinants of fertility.

In this paper, an attempt is therefore made to explore and suggest the factors that contribute to high fertility in the population. The first part of the paper attempts to establish a direct evidence of high fertility in the population while the second part enumerates its determinants. The paper concludes by summarizing the main points raised in the discussion and recommending various programmes of intervention to be followed in order to reduce the level of fertility and curb the population increase.

Since scanty data are available with which to confront the question of fertility determinants in Ethiopia, the effort here should only be regarded as indicative and serve as a framework for further research and it is by no means an absolute study.

LEVEL OF FERTILITY

The level of fertility in the population has been high and recently, it has been rising significantly. Table 1 below presents the age specific fertility rates for various years since 1970. The rates are obtained after adjusting for reference period errors using the Trussell version of the P/F ratio technique (UN. 1983)[1]. The age specific rates describe a broadly peaked age pattern of fertility (Figure 1) indicating a high level of reproductive activity especially among women aged 20 and 40 years in which a woman had on average more than one child every four years. This clearly indicates the persistence of high fertility in the population. The table also shows that fertility has been increasing. Total fertility rate, which was 5.2 children per woman in 1970, increased to 6.8 children per woman in 1981. It further increased to 7.5 in 1984 and in 1990, it reached

7.7 children per woman. Assuming a sex ratio at birth of 105 males per 100 females, the corresponding estimates of the gross reproduction rate (GRR[12]) are respectively 2.5, 3.3, 3.7 and 3.8 for 1970, 1981, 1984 and 1990 which are also high. These values show the potential for future high fertility.

Under-reporting and omission of children ever born have partly contributed to the low estimates of fertility in the past. Although there have been improvements in the quality of data due to refinements in data collection methods and better reporting of children ever born due to improved literacy over the years, it is unlikely that the increase in fertility can be attributed to improvement in data collection methods and better reporting only. There has been genuine increase in fertility since the early sixties. For instance Assefa (1991), using a birth history data for two regions of Central Ethiopia shows that substantial increase in fertility occurred in these regions starting at about the late 1960s. The CSA (1988) also mention of the increase in fertility during the last twenty years. This is in agreement with the recent suggestion in the modern demographic transition theory that fertility initially rises before it starts to decline (Dyson and Murphy, 1986; Caldwell, 1982; Romaniuk, 1980; Beaver, 1975).

High and sometimes rising fertility coupled with moderately declining mortality[3] led to dramatic increase in the population in recent years. For instance, the estimated population of Ethiopia which was 11.75 million at the turn of the century increased to 23.5 million in 1960 and in 1987, it reached 47.2 million (CSA, 1988, 1991b). The CSA's low variant estimate for 1992 was 54.93 million. If these figures are correct, it took 60 years for the population to double and reach 23.5 million from its 1900 size of 11.75 million but only 23 years to reach 47 million in 1987

Figure 1. Age specific Fertility Rates: 1970-1990

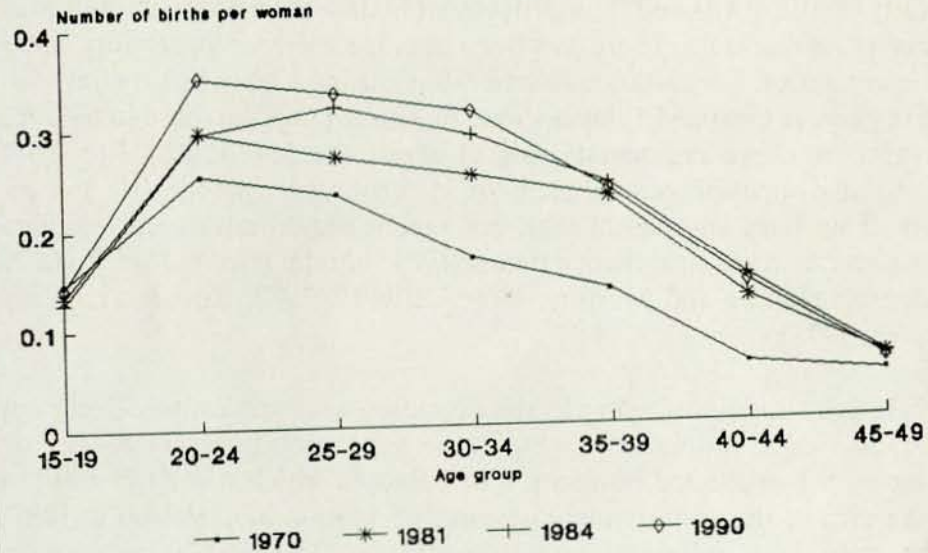


Table 1
Adjusted Age Specific Fertility and Total Fertility Rates (1970-1990).

Age Group	Year of Survey			
	1970	1981	1984	1990
15-19	0.145	0.133	0.127	0.143
20-24	0.255	0.298	0.296	0.352
25-29	0.234	0.272	0.322	0.335
30-34	0.167	0.251	0.292	0.315
35-39	0.133	0.227	0.251	0.235
40-44	0.057	0.123	0.145	0.108
45-49	0.045	0.061	0.062	0.059
TFR	5.180	6.830	7.480	7.740

Source: For 1970, Computed from CSO, 1970; for 1981, computed from CSO, 1981 Rural Demographic Data Tape; for 1984, computed from CSA, 1991b, Table 4.3 p. 200 and Table 4.4, p. 205; for 1990, computed from CSA, 1991a, Tables 5.1, p.61 and Table 5.2, p. 65.

from the 1960 value of 23.5 million. If present level of fertility is maintained, the population may double in less than 20 years.

Apart from resulting in rapid population growth, high and rising fertility may also affect the health and general well-being of the population. In societies with poor sanitation and ante-natal care, and low level of nutrition, high fertility often leads to high maternal and child death rates because frequent pregnancies and child birth debilitate the mother's health and short birth intervals reduce the probability of child survival (Ascadi and Ascadi, 1986).

DETERMINANTS OF FERTILITY

In any population, in addition to the biological aspects of human reproduction, social norms, economic considerations, and cultural factors affect the level of fertility. The linkage between the biological and socio-economic dimensions of human fertility was first identified by the American Sociologists Kingsley Davis and Judith Blake (Davis and Blake, 1956). They developed a macro-level theoretical framework relating the socio-economic variables and fertility by identifying a series of eleven intermediate variables which are commonly known as the "proximate determinants" of fertility. They divided these eleven variables into three broad groups. In group I, they included six intercourse variables, namely, age of entry into union, proportion of women never entering union, length of reproductive period spent in union, voluntary abstinence, involuntary abstinence (due to illness or separation of spouse) and coital frequency and in group II, three conception variables, fecundity and infecundity as affected by involuntary causes, use or non-use of contraception and fecundity or infecundity as affected by voluntary causes, while in group III, they included voluntary foetal mortality and involuntary foetal mortality. The phrase *proximate determinants of fertility* refers to theses biological and behavioural factors which directly influence fertility and through which the social, economic and other factors come to influence childbearing (Wilson, 1985).

Although Davis and Blake provided a useful analytical framework for the comparative study of the inter-relationship between culture and human fertility and noted that these variables enhance or depress fertility in various societies, they did not attempt to quantify the link between the proximate variables and fertility, perhaps because of the large number of variables involved and the difficulty in obtaining numerical values for some of them. It is not easy, for instance, to identify a fecund or infecund woman by interview method only. It is equally difficult for a woman to report on her coital frequency or the length of reproductive period spent in union, etc. The problem becomes more serious in populations where

literacy is extremely low. As a result, the Davis-Blake set has not been widely accepted among students of quantitative fertility. Efforts made to investigate the link between these variables and fertility have thusfar produced too complex reproductive models.

Bongaarts (1978) developed a simple but comprehensive mathematical model that included only a small number of conceptually distinct and quantitatively important variables for analyzing the relationship between the intermediate fertility variables and fertility. After analyzing several populations, he found that 96 per cent of the variation in fertility could be explained by the four variables (1) proportion married among females, (2) lactational infecundity, (3) incidence of induced abortion and (4) prevalence of contraception. Variation in one or more of these four proximate variables directly affects the levels and trends of fertility in a population (Bongaarts and Potter, 1983).

Although Bongaarts' model involves only four variables and is simple to apply, it has not been used extensively in many developing countries partly because the collection of data on these variables requires detailed questionnaire and intensive interview procedure which is expensive. Moreover, it is not easy to obtain accurate information for some of the variables. For example, induced abortion is generally considered culturally abominable, sinful in many religions and is also often illegal, and information on lactational infecundity can be distorted due to heaping. As Ethiopia is no exception, accurate information on these variables is still scarce and as stated earlier, one cannot investigate the impact of these variables on fertility. Consequently, in the sections that follow, effort is made to list and discuss some of the many socio-economic and demographic factors that might have contributed to the prevailing levels of fertility in the Ethiopian population.

Marriage Pattern

Marriage is the legal union of persons of opposite sexes where socially sanctioned childbearing takes place. In populations where birth control methods are absent and in cultures where childbearing outside wedlock is uncommon, the age at which first marriage takes place and the ultimate proportion of women that marry are important determinants of fertility. In such populations, fertility tends to be higher where marriage is early and universal, and lower where it is late and a high proportion of women remain single at the end of their reproductive period. For instance, fertility in Western Europe remained at relatively low levels due to the tradition of late marriage and non-marriage by a significant proportion of the women in their reproductive years (Hajnal, 1965) and that late marriage is one of the mechanisms through which Japan fought against sustained natural increase resulting from drastic mortality decline during the period 1900 to 1959 (Chaudhury, 1982).

Fertility also tends to be high in populations where marriage is stable and lower where a high proportion of the population are affected by frequent marriage breakdowns. For instance, a study in North Western Ethiopia shows that the mean parity of women in stable union was about one child higher than that for women in non-stable union (Asmerom, 1988:64). Assefa (1990) also found that the average number of children ever born was significantly larger for women without the experience of marriage breakdown even after controlling for the effect of age and other variables. This is because in natural fertility populations, women who marry early and remain in union are exposed to the risk of childbearing for a longer period of their reproductive life than those who marry late or for whom marital breakdown is frequent.

In Ethiopia, marriage has been an early and universal social institution. Over 50 per cent of the women marry before they reach age 20 and by age 30, over 95 per cent of all women are married (Table 2). As a result, female singulate mean age at first marriage (SMAM) is also low and

varies regionally. It ranges from 15.1 in Gojjam to 18.3 in Wellega (Figure 2) and that for the country,it was 17.6 years in 1984 (CSA, 1991b). This shows that the population has not yet participated in the recent general rise in age at first marriage that characterize many populations of Sub-Saharan Africa. Consequently, child bearing starts early and continues until the woman reaches menopause or the union is broken by widowhood or divorce and is not compensated by remarriage. Assefa (1990:211) shows that among a cohort of ever married women aged under 25 years and who had at least one live birth, 25 per cent had their first birth before they reached age 17 and about 75 per cent had it before they reached age 22. This indicates that a large proportion of women remain exposed to the risk of childbearing for more than 20 years after the birth of their first child.

Although marriage breakdown by divorce or widowhood appears to be common in the population (Table 3), many remarry soon after the breakdown and only a small portion of the reproductive period is spent out of union. Data are not available to show the speed of remarriages among women who have experienced marriage breakdown. However,the difference between the mean age of currently divorced or widowed women and the mean age of currently married women can be used as an aproximation to measure the number of years spent between marriage breakdown and remarriage. These mean ages were calculated and the differences were obtained for 1970, 1981, 1984 and 1990. The calculation was based on the proportion of divorced or widowed women and the proportion of currently married women classified by age for women aged under 35 years. This is because the effect of marriage breakdown on fertility is significant if the breakdown occurs at the peak of the childbearing ages. The differences were respectively 0.6, 0.9,0.5 and 0.4 years for 1970, 1981, 1984 and 1990 indicating that the average difference between marriage breakdown and remarriage is about seven months. As women depend on men for economic support, this dependency forces most of them to remarry immediately after the dissolution of their previous unions. After divorce, once it is ascertained that the woman is

not carrying a pregnancy from the previous spouse, remarriage may take place within three months while in the case of widowhood, however, the waiting time may range from 6 months to about one year. Consequently most women remain in union for almost all of the reproductive life span.

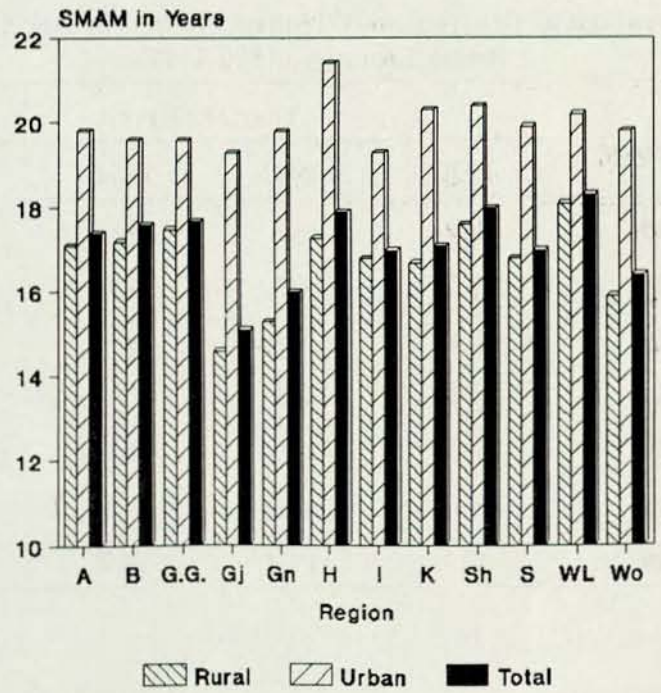
Table 2.
Percentage Distribution of ever married women by age at survey: Rural Areas (1970-1990).

Age Group	Year of Survey			
	1970	1981	1984	1990
15-19	66.0	54.1	57.8	40.3
20-24	96.2	92.5	93.0	87.9
25-29	99.0	98.5	97.8	96.9
30-34	99.2	99.0	98.8	99.8
35-39	99.3	99.1	99.1	99.8
40-44	99.5	99.6	99.0	99.5
45-49	99.3	99.6	99.1	99.7

Source: C.S.O.1974; C.S.O. 1985; 1991a; 1991b.

Since the total number of children ever born is directly proportional to the duration of reproductive life spent in union in non-contracepting populations, this means, assuming an average birth interval of three years, a women may give birth to up to 10 children if she remains fecund during the time she has been exposed to the risk of childbearing. Bongaarts (1978) estimated that natural fertility can reach around 15 children per woman if the fertility inhibiting effects of delayed marriage,

Figure 2. Female Singulate Mean Age at First Marriage (SMAM) by Region: (1984).



A= Arsi,B=Bale,G.G.=Gamo Goffa,Gj=Gojjam
Gn=Gondar,H=Hararge,I=Illubabor,K=Keffa,
Sh=Shewa,S=Sidamo,WL=wellega, Wo=Wollo.

marital disruption and breastfeeding are removed. It may be observed that fertility in Ethiopia is lower than that estimated by Bongaarts for natural fertility populations. This may partly be attributed to spontaneous abortion, temporary separation of spouses and prolonged breastfeeding among others.

Table 3

Percentage of Divorced or Widowed Women by Age Group: Rural Ethiopia (1970-1990).

Age Group	Year of Survey			
	1970	1981	1984	1990
15-19	6.8	6.3	5.8	3.4
20-24	6.3	6.3	6.9	7.8
25-29	5.6	5.5	6.7	5.9
30-34	8.2	5.8	7.8	4.7
35-39	9.9	7.2	9.3	5.9
40-44	19.7	13.3	14.6	9.2
45-49	27.1	19.4	18.7	7.2

Source: CSO, 1970; 1985; CSA 1991a; 1991b

Level of infertility

Infertility (infecundity) is defined as the physiological incapacity to produce a live birth (Bongaarts and Potter, 1983). A distinction is made between primary sterility which refers to the inability to produce any live birth after being exposed to the risk of childbearing through out the reproductive life span and secondary sterility which refers to the inability

to produce additional live birth after having at least one. Secondary sterility can occur at any time during the reproductive period. Primary sterility is measured by the proportion of women with no live birth and secondary sterility by the proportion who fail to produce a second or third birth after bearing at least one among women exposed to the risk of childbearing through out their reproductive years. Secondary sterility usually occurs at older ages. Among other factors, gonorrhoea and genital tuberculosis have been identified as the major causes of infertility. In natural fertility populations where these diseases are absent, sterility is low and varies little (Bongaarts and Potter, 1983).

High levels of infertility have been reported for Sub-Saharan African countries mainly due to widespread prevalence of gonorrhoea (Romanuik, 1980; Frank, 1983; Bongaarts et al 1984). Frank (1983) shows that the level of childlessness averaged 12 per cent and small areas in Central Africa displayed amazingly high levels of 30-40 per cent. She reported that infertility accounts for 60 per cent of the variation in the total fertility and that it is associated with a loss of at least one child per woman on the average for 18 countries of Sub-Saharan Africa. She identified gonorrhoea as the single most important contributor to infertility in these countries.

A number of researchers, however, have reported that in Ethiopia, the level of infertility has been lower than the average estimated for Sub-Saharan Africa and that it has recently been moderately declining. For instance, Abate and Morgan (1986) using a nationally representative sample of rural women from 12 regions of the country, show that childlessness was about 12 per cent for women born before 1917 and a little over 5 per cent for those born since the 1930s. They also show that about 16 per cent of those born before 1917 and about 6 per cent of those born in the 1930s had first births but not second births (see also Habtemariam, 1991:463).

The results of a recent survey in Central Ethiopia also show a declining trend in childlessness. The proportion childless among rural women born between 1937-1941 was 2.0 per cent while for those born between 1942-1946, it was 1.8 per cent (Assefa, 1990:221). The relatively higher levels of infertility among older women reported by the various researchers may be attributed to child marriage and prevalence of sexually transmitted diseases, especially gonorrhoea while the declining trend may be due improvement in health and nutrition among others. Since fertility is closely related to the level of infertility in a population where there is little or no deliberate birth control method, the low level of infertility in the population may partly account for the observed high fertility.

Infant and Child Mortality

The effect of infant/child mortality on fertility is well documented. It influences reproductive behaviour in three ways, namely, through the replacement or behavioral effect, the insurance or hoarding effect, and the biological or physiological effect. The replacement effect involves a deliberate decision of couples to make up for the dead children and is based on the fate of their previous childbearing and it makes sense only in contexts where couples practice some method of family limitation after they reach a certain number of children they do not wish to exceed. Since complete replacement implies 100 per cent effective family planning programmes, fixed reproductive goals, no subfecundity and no other intervening factors with reproductive process, complete replacement of dead children is not possible because in most cases these conditions are not satisfied (Preston, 1978).

The insurance or hoarding effect works by forcing parents to give birth to as many children as possible in order to secure the survival of a sufficient number to match or exceed the desired number of children. The biological or physiological effect on the other hand works through the effect of lactation on post-partum amenorrhea and its effect is strong

in populations where breast-feeding is widespread. In many populations where parity specific birth control is absent, the birth interval tends to be shorter following the death of a child than when the child survives (Knodel, 1968; Preston, 1978). The death of a breast-fed child cuts short lactation and may thus reduce the length of post-partum anovulatory period thereby exposing the woman to the risk of conception earlier than if the child had survived. When infant and child survivorship is improved, average length of the birth interval increases.

As will be shown shortly, since parity specific birth control is negligible in Ethiopia, it appears that it is the biological or physiological and the insurance or hoarding effects than the replacement effect that contribute significantly to high fertility in the population.

Infant and child mortality have been and still remain high in the country. Estimates from the 1981 Rural Demographic Survey show that the probability of dying before the first birthday ($_1q_0$) was 141 per 1000 live births and that of dying between 1-4 years of age ($_4q_1$) was 92 per 1000 live births (Abate, 1988). This indicates that a little less than a quarter of the children in Ethiopia died before their fifth birthday during the late 1970s and early 1980s. There has not been any significant reduction in these measures since then. Although data from the 1984 Population and Housing Census resulted in lower estimates (110 for $_1q_0$ and 50 for $_4q_1$ per 1000 live births) (CSA, 1991b), estimates from the 1990 Family and Fertility Survey data were much higher. For instance, $_1q_0$ was estimated at 142 per 1000 live births indicating that the lower values in 1984 are mainly due to errors of reporting than to genuine decline in infant and child mortality.

Breastfeeding is nearly universal and extends well over 18 months in Ethiopia (Abdulahi, 1988). As pointed out earlier, the death of a nursing infant would normally terminate breastfeeding, hasten the return of ovulation and speed the arrival of the next child. Consequently, birth intervals will be shorter and average parities higher for women who have

experienced child deaths. For instance, a study using data from the 1981 Rural Demographic Survey found a significant positive relationship between child loss experience and average parity (Teshome and Chaudhury 1991). Women with different child loss experiences may differ significantly in the number of children they have ever born and that past experience of child survival may also condition the chances of a subsequent birth. Abdulahi (1988) found that mothers who experienced two or more child deaths had about three and a half more children than those who had no child death experience.

Birth Control Methods

Fertility is inversely related to the level of contraceptive prevalence in a population. It tends to be high were use of birth control methods are low and declines to lower level as contraceptive use increases. Many researchers agree that increased use of modern contraception is largely responsible for the observed decline in fertility in many developing countries today (Bongaarts 1986; Lapham and Mauldin 1985).

A number of factors including legal barriers to contraception, abortion, sterilization, civil laws pertaining to the family and family planning, and social welfare legislation have inhibited the diffusion of family planning information and the administration of family planning services in the Ethiopian population. Consequently, the level of contraceptive knowledge and use remained very low.

Information obtained from a representative sample of 3,500 women of childbearing age in Central Ethiopia show that about 36 per cent of the ever married women had heard of at least one method of contraception but ever use was limited to only 6.5 per cent in 1986 (Table 4). The proportion of women with some knowledge of at least one method is higher in the urban areas than in the rural areas.

Table 4
Contraceptive Knowledge and Ever Use by Method and Rural-Urban Residence: Ever Married Women.

Method	Knowledge			Ever Use		
	Rural	Urban	Total	Rural	Urban	Total
At least one Method	32.3	64.2	35.6	4.0	27.6	6.5
Prolonged Abstinence	26.2	35.0	27.2	3.0	9.9	3.7
Safe method	1.9	15.8	3.3	-	0.8	0.1
Withdrawal	0.8	0.2	1.6	0.4	2.3	0.6
Pill	20.3	59.5	24.3	0.7	13.5	2.0
IUD	2.6	34.0	5.8	-	2.6	0.3
Injection	9.6	36.2	12.3	0.4	0.9	0.2
Diaphragm	0.8	-	1.5	-	0.1	0.1
Condom	0.7	10.9	1.7	-	0.3	0.2
Sterilization	4.3	25.6	0.5	-	1.7	0.2
Others	0.8	-	5.1	-	0.3	0.1

Source: Ministry of Health (1986).

However, even in urban areas, ever use of any method is limited to less than 30 per cent. When knowledge and ever use of the modern effective methods pill, IUD, diaphragm, injection and sterilization) is considered, about a quarter of the ever married women reported that they know about the pill, 6 per cent IUD, 12.3 per cent injection and the proportion who reported knowledge of diaphragm and condom were 1.5 and 1.7 per cent respectively and use of any one of these methods was less than half a per cent except for the pill (Table 4). It may be observed that the prevalence and ever use of these methods is not any greater even in urban areas where people are expected to have some knowledge of birth

control methods because of the commercial availability of contraceptives in pharmacies and drug stores.

The results of the 1990 Family and Fertility Survey also show very low prevalence of contraception in the country. Although about 63 per cent of all women currently exposed to the risk of pregnancy had some knowledge about family planning, less than 5 per cent currently used a contraceptive method in 1990 (CSA,1991a). Knowledge and practice of family planning appears to be low even among the elites in the country. For instance, Yacob (1992), in a study of the fertility behaviour of elites and their perception of the population problem in Ethiopia, shows that while 86 per cent of the elites had heard of any family planning method, only 35.5 per cent had heard of modern methods.

Unlike the rest of Africa, even prolonged abstinence is not widely practiced in Ethiopia. Among the christians, the period of abstinence ends when the child is christened which is 40 days for boys and 80 days for girls and among muslims, it ends when the woman stops bleeding after the birth of a new baby (which is not longer than 40 days) (Blacker, 1986). In fact this part of the east African region is known for its short duration of abstinence (Sudan, Ethiopia and Somalia) compared to countries in central and west Africa (Lesthaeghe, 1984).

The Economic Value of Children

The Ethiopian economy is based on subsistence agriculture and that the overwhelming majority of the rural population derive their livelihood from it. The economic explanation of high fertility suggests that high fertility is a consequence of poverty and subsistence agriculture. Nag et al. (1979) state that although the emotional rewards of having children may also be assumed to provide the main motivations to parents in both industrial and peasant societies, the economic value of children may be assumed to provide an important motivation to parents in peasant societies. Boserup (1985) writes that subsistence agriculture where both

women and children perform nearly all the agricultural work is conducive for large families and that the father of a large family is more likely to become a rich man than that of a small family. Henin (n.d) also argues that the relative importance and cost of the factors of production underpin the high fertility cultures.

Subsistence and peasant agriculture require a great deal of labour and the peasant cannot afford to hire outside labour. The cheapest sources of farm labour are his children and as a result his motives to have as many children as possible are great. It is argued that pre-transitional societies are characterized by a net flow of goods and services from children to the older generation and the reversal of the direction of this flow is the driving force behind fertility decline (Collins, 1983; De Tray, 1983; Caldwell, 1982).

Other studies on the other hand, suggest that the economic value of children to parents is less than might have been assumed. Turke (1985) argues that parents are likely to invest in offsprings throughout their life course and a system is unlikely to arise in which children more than return the resources and services their parents gave them when they were young. Cleland and Wilson (1987), after reviewing marital fertility transition in both developed and developing countries conclude that the absence of modern parity specific birth control methods in most traditional societies does not necessarily imply that children possess a high economic value and that fertility variations in pre-transitional societies do not appear to relate to variations in the economic role of children. Nevertheless, in Ethiopia where the pattern of investment on children is little and where parents can demand from their grown up children, high fertility constitutes a rational economic behaviour.

In Ethiopia, as any where in the developing countries, especially those of Sub-Saharan Africa, most mothers are confined to work in the household and the opportunity cost incurred by them due to childbearing and rearing is negligible. Educational facilities are limited and less than

40 per cent of the school age children attend school and even for these, the cost of education is minimal as public education is free. Furthermore, the extended kinship network provides the opportunity to disperse the cost from parents to close relatives which implies that the cost of childbearing and rearing is small.

In addition, from scattered information (ILO, 1986; Sjöström, 1973), it may be stated that children have an important role in the household economy. Children start working in the household as early as 5 years of age. Female children look after their younger siblings and male children help in other type of work. Starting at about age 8, the girl starts preparing food, while the boy assists his father in the field or keeps cattle.

Apart from their contribution to the household economy in terms of labour inputs, absence of social security at old age or at times of insecurity is another factor that increases the motives of parents for more children. Children provide various types of support to parents even after leaving the parental home and establishing their own homes. Male married children usually live close to their parent's residential unit and assist them by cultivating land and also by providing financial assistance for clothing and other expenses (e.g., medical care at times of sickness). Married female children usually live at a distance but they make frequent visits to their parents and assist their mothers in the house work. If there are no mature living sons, the son in-laws take the responsibility of sons and provide all sources of support to their aging father and mother in-laws. At times of peak agricultural work or during repair or construction of a new house, they provide the necessary material support as well as the required labour inputs. Consequently, there is a strong belief among the population that parents of many children have a better economic position and respect than those parents with smaller number of children. Chang (1973) from the results of a KAP survey carried out in Hararge and Shoa regions, showed that respondents considered economic benefits the primary motives of having a large number of children. In a similar

survey in Tigray and Wello regions, Fasil (1979) also found that economic benefits constituted the fundamental incentive of having a large family.

The Status of Women

The status of women may be defined and measured in terms of their educational attainment, labour force participation, type of occupation, marriage and family type, cultural life and decision making power in the family. Women who are more educated, who participate in the labour force, who work in professional jobs, who are in monogamous unions, who live in nuclear families and who can make decisions regarding their family affairs have relatively higher status while those with no or little education, who do not participate in the labour force, who work in agricultural or manual work, who are in polygynous union, who live in extended families and who have no say in household decision making have lower status.

Fertility tends to be higher in societies where the status of women is low and lower where women's status is high. High status of women is related to their involvement in household decision making and increased access to and knowledge of family planning methods both of which assist the drive towards reduced family size.

Among the factors used in defining and measuring the status of women, education and labour force participation have a significant influence on fertility. The education - fertility and labour force participation - fertility relationship are not only of theoretical significance but also of practical relevance to policy and decision makers.

Widespread findings of a negative association have emerged from extensive studies of the relationship between education and fertility in developed countries (Berent, 1983; Rindfuss and Sweet, 1977). Although, the strength of association varies, a broadly consistent pattern of

declining fertility with increasing female education has also been frequently reported in developing countries (Alam and Casterline, 1984; Cochrane, 1983; Concepcion, 1981; Hermalin and Mason, 1980).

Labour force participation has also a similar effect on fertility. Both the "opportunity cost of children" (McGreevey and Birdsall, 1974) and the "maternal role incompatibility" (Dixon, 1976; Mason and Palan, 1981) hypotheses suggest that there is an inverse relationship between female labor force participation and fertility. A number of studies report that fertility is lower among working women and that the difference becomes significant particularly for women working away from home in the non-tradition sector.

The status of Ethiopian women has until recently been low (noticeable changes have taken place since the late 1970s). Male supremacy and the subordination of women had been the characteristics of the Ethiopian society. Although Ethiopian women have been making a significant contribution to the economy by playing a prominent role in agricultural production by carrying out complementary tasks with their spouses, (hoeing, sowing, weeding, harvesting, processing and marketing) in addition to their house work (preparing food, fetching water, fire wood, caring for children etc.), they did not benefit much from their toiling. They were not entitled to ownership of land which is the basic form of property in an agrarian society as inheritance of land to female children was not allowed in most parts of the country mainly due to traditional and cultural factors. In addition, their spouses were in charge of whatever capital they could accumulate from petty trading or inherited from their parents.

Although there has not been any state policy depriving female school attendance, due to discriminatory cultural and social values, the number of females attending school has been very low compared to males. As a result, a very high proportion of the female population is illiterate, marry while very young and lack legitimate alternatives to childbearing.

This situation has forced Ethiopian women to be totally dependent on their spouses for social and economic security. Failure to produce children threatened the stability of their marriages. In fact, one of the main reasons for a divorce is the failure to produce children. Moreover, in order to avoid destitution when widowed, women want to produce more children. It may be observed that in many parts of Ethiopia, old widowed women who have surviving adult children live with their children and their children's spouses while those who do not have living children look for support from religious institutions such as churches or mosques. As a result, having many children is considered as a life time security. Studies elsewhere have also shown that women faced with restrictions of a patriarchal social structure and limiting religious norms seek protection through high fertility (Cain, 1981).

Summary and Conclusion

After illustrating the high and rising trend of fertility, the paper has attempted to enumerate the various factors that have contributed to high levels of fertility in Ethiopia. In particular, it has considered such factors as pattern of marriage; level of primary and secondary sterility, infant and childhood mortality, contraceptive knowledge and prevalence, the economic value of children and the status of women as some of the determinants of high fertility in the population.

It appears that, a dramatic change in the fertility behaviour of the population may not be expected in the very near future. Fertility decline will only occur when these cultural, social and institutional obligations that foster high fertility are broken down. The breakdown will occur gradually as the rural economy becomes increasingly assimilated into the wider modern national system. Until this inertia is broken by a widespread diffusion of the forces of socio-economic development, fertility is likely to remain high in the population.

Moreover, a large number of births has a purpose and a dampening effect on the actual number of births would only come under a more certain regime of fertility and mortality. Since the reduction of infant and child mortality by means of improved nutrition, sanitation, maternal and child health care and maternal education is the most important one among the development goals that generally have an effect on the socio-economic context of reproductive decision making, reducing the uncertainty resulting from mortality decline may create a vigorous fertility response.

Effort should therefore be made to introduce efficient programmes that could lead to a considerable reduction of infant and child mortality; introduce a social security scheme for the elderly; improve the living and working conditions of women by creating better educational opportunities and increasing employment prospects outside the home; make the population aware of the social and economic problems associated with a large family and to increase school enrolment. Increased school enrolment may help in reducing the contribution of children to the household economy as they have to stay in school for most of the time. Moreover, increased school enrolment will make childbearing expensive (cost of feeding, clothing, stationeries, etc.). In addition to these, effort should also be made to provide family planning services within the reach of the population. Such programmes are likely to bring significant fertility decline and reduction in the rate of population growth in the country.

Finally, since the present study is only suggestive, it is worth pointing out the importance of a more detailed data based study of the determinants of fertility in the country.

ACKNOWLEDGMENT

I would like to thank Dr. C. S. Baldwin, Population Division, Department of Economic and Social Development, United Nations, New York; Dr. R. H. Chaudhury, UN Chief Technical Advisor, Population Studies and Analyses Centre, Central Statistical Authority of Ethiopia, Professor Asmerom Kidane, Department of Statistics, Faculty of Science, Addis Ababa University and Dr M. R. Shah of the Demographic Training and Research Centre, Institute of Development Research, Addis Ababa University for their valuable comments and suggestions on an earlier draft of this paper.

Notes

1. *Data on births during the last twelve months from which age specific fertility rates are computed usually suffer from reference period error, that is, the tendency to report births that occurred more than twelve months ago as if they occurred in the last twelve months. Estimated age specific fertility will be an overestimate if the reference period is longer than twelve months and an underestimate if it is shorter than twelve months.*

2. *GRR is the average number of daughters that would be born to a woman during her life time if she passed through the childbearing ages experiencing the prevailing average female age specific fertility.*

3. *Life expectancy, that is the average number of years a new born baby would expect to live under a given level of mortality increased from about 40 years in 1970 to 52 years in 1984, an increase of 0.8 years per year on average.*

REFERENCES

Abate Mammo 1988, Mortality in Rural Ethiopia: Levels, Trends and Differentials. Ph.D Thesis, University of Pennsylvania.

_____, and Philip Morgan 1986, Childlessness in Rural Ethiopia. Population and Development Review 12,3:533-46.

Abdulahi Hasen 1988, Fertility Levels and Differentials in Ethiopia with Reference to Metu, Alemaya and Addis Ababa. PhD Thesis. University of Dar es Salaam.

Alam, I. and Cochrane, J. B. 1984, Socio-economic differences in recent fertility, World Fertility Survey Comparative Studies,Cross-National Summaries, No. 33, International Statistical Institute, Voorburg, Netherlands.

Ascadi, G. T. F. and J. Ascadi 1986, Optimum conditions for Childbearing. International Planned Parenthood Federation. London.

Asmerom Kidane 1988, Marital Stability in Northern Ethiopia. Eastern Africa Social Science Research Review, 4,1:57-68.

Assefa Hailemariam 1990, Fertility Trends and Differentials in Central Ethiopia. PhD. Thesis, London School of Economics, University of London.

_____ 1991, Fertility Levels and Trends in Arsi and Shoa Regions of Central Ethiopia. J. of Biosocial Science, 23, 4:387-400.

Beaver, S. E. 1975, Demographic Transition Theory Reinterpreted : An Application to recent natality trends in Latin America. Lexington Books.

Bernet, J. 1983, Family Size Preference in Europe and USA: Ultimate Expected Number of Children. World Fertility Survey Comparative Studies, Cross-National Summaries, No.6. International Statistical Institute. Voorburg, Netherlands.

Blacker, J. G. C. 1986, Report of the Baseline Survey of Shoa and Arsi Regions. Centre for Population Studies, London School of Hygiene and Tropical Medicine. University of London.

Bogue, D. J. 1971, Demographic Techniques of Fertility Analysis. Community and Family Studies Centre. University of Chicago.

Bongaarts, J. 1978, A Framework for analyzing the Proximate Determinants of Fertility. Population and Development Review, 4,1:105-132.

———————, and Robert G. Potter 1983, Fertility, Biology and Behaviour: An analysis of the Proximate Determinants. New York, Academic Press.

Boserup E. 1985, Economic and Demographic Interrelationship in Sub-Saharan Africa. Population and Development Review 11,3:383-397.

Cain, M. T. 1981, Risk and Insurance:Perspectives fertility and agrarian change in India and Bangladesh. Population and Development Review. 4,3:421-438.

Caldwell, J. 1982, Theory of Fertility Decline. New York. Academic Press.

Central Statistical Office. 1988, The Population Situation in Ethiopia: past, present and future. Population Studies series No. 1.

———————, 1985, Report of the 1981 Rural Demographic Survey Results. Central Statistical Office. Addis Ababa.

———————, 1974, The Demography of Ethiopia. Central Statistical Office. Addis Ababa.

Central Statistical Authority 1991a, The 1990 Family and Fertility Survey Preliminary Report. Central Statistical Authority. Addis Ababa.

———————, 1991b, Population and Housing Census of Ethiopia: Analytical Report at National Level. Office of Population and Housing Census Commission. Addis Ababa.

Chang Wen-Pin 1973, Population Studies in Ethiopia:Knowledge, Attitude and Practice Surveys in Population and Health. J. of Ethiopian Studies, 5, 2:307-320.

Chaudhury, R. H. 1982, A Social Aspect of Fertility: With Special Reference to Developing Countries. Vikas Publishing House.

Cleland, J. and C. Wilson 1985, Demand Theories of the fertility Transition: An Iconoclastic View. Population studies 41,1:5-30.

Cochrane, S.H. 1983, Effects of education and urbanization on fertility. In R. Bulatao and R. D. Lee with P. E.Hollebatch and J.P. Bongaarts, (eds.), Determinants of Fertility in

Developing Countries, Vol. 2: Fertility Regulation and International Influence, pp. 587-626. Academic Press, New York.

Collins, Jane, L. 1983, Fertility Determinants in High Andes Community. Population and Development Review 9,1:61-75.

Concepcion, M. B. 1981, Family Formation and Contraception in Selected Developing Countries: policy implications of WFS findings. In World Fertility Survey Conference 1980, Record of Proceedings, pp. 191-276. International Statistical Institute, Voorburg, Netherlands.

Davis, Kingsley and Judith Blake 1956, Social Structure and Fertility: An Analytic Framework. Economic Development and Cultural Change, 4, 3:211-235.

De Tray D. 1983, Children's Economic Contribution in Peninsular Malaysia. Rand Note No. N-1859-AID. Rand Corporation Santa Monica, Calif.

Dixon, Ruth B. (1976). The roles of rural women: Female seclusion, economic production, and reproductive choice. In Ronald G. Ridker (ed.), Population and Development: The Search for Interventions (pp. 290-312). Baltimore, Johns Hopkins University Press.

Dyson, T. and Mike J. Murphy 1986, Rising Fertility in Developing Countries. In R Woods and Philip Ree (eds.), Population Structure and Models. London ALLEN & UNWIN.

Frank, Odile. 1983, Infertility in Sub-Saharan Africa: Estimates and Implications. Population and Development Review, 9, 1:137-144.

Fasil Gebre Kiros 1979, A critical Evaluation of the Family Planning Prescriptions for Rural Wello and Tigray. J. of Development Research, 3,1:1-9.

Habtemariam Tesfagiorgis 1991, Infecundity and Subfecundity Among the Rural Population of Ethiopia. J. of Biosocial Science, 23, 4:461-475.

Hajnal, J. 1965, European Marriage Pattern in Perspective. In D.V. Glass and D.E.C. Eversley (eds), Population in History: Essays in Historical Demography. London: E. Arnold.

Henin R.A. n.d, Fertility Differentials by Mode of Life. In Henin, R. A. (ed.). The Demography of Tanzania: An analysis of the 1973 National Demographic Survey of Tanzania Vol. 4. Central Bureau of Statistics. Dar es Salaam.

Hermalin, A. I. and Mason, W. M. 1980, A strategy for the comparative analysis of WFS data, with illustrating examples. In United Nations, The United Nations Programme for the Comparative Analysis of World Fertility Survey Data, pp. 90-168. United Nations. New York.

International Labour Office 1986, From Crisis to Sustained Development: A Program of Action. Report of the ILO Multidisciplinary Programming Mission to Ethiopia.

Knodel, J. 1968, Infant Mortality and Fertility in Three Bavarian villages: An Analysis of family Histories from the 19th Century. Population Studies, 22:297-318.

Laphman, R.J. and P.W. Mauldin 1985, Contraceptive Prevalence: The Influence of Organized Family Planning Programmes. Studies in Family Planning 16,3: 117-37.

Lesthaeghe, R. 1984, Fertility and its Proximate Determinants in Sub-Saharan Africa: the Records of the 1960s and 70s. IDP Working Paper 1984-2. Inter University Programme in Demography. Brussels.

Mason, Karen Oppenhein and Palan, V. T. (1981). Female employment and fertility in Peninsular Malaysia: The maternal role incompatibility hypothesis reconsidered. Demography 18,549-575.

Mcgreevey, William P. and Birdsall, Nancy (1974). The Policy Relevance of Recent Research on Fertility, Occasional Monograph Series No.2. Washington D.C.: Interdisciplinary Communications Program, Smithsonian Institution.

Ministry of Health 1986, Population, Health and Nutrition Baseline Survey of Shoa and Arsi Regions Data Tape.

Nag, M., Robert C. Peet and Benjamin White 1977, Economic Value of Children in Two Peasant Societies. Proceedings of the IUSSP International Population Conference, Mexico Vol. 1:123-140.

Preston S. H. 1978, The Effect of Infant and Child Mortality on Fertility. New York. Academic Press.

Rindifuss, R.R. and Sweet, J. A. 1977, Postwar Fertility Tends and Differentials in the United States, Studies in Population. Academic Press. New York.

Romaniuk, A. 1980, Increases in Natural Fertility During Early Stages of Modernization : Evidence from an African Case Study, Zaire. Population Studies 34,2:293-310.

Sjostrom, Margareta 1981, Women and Development in Rural Ethiopia. The Oslo Seminar Program on Education in Developing Countries, 24-26 September, 1981. University of Oslo. Norway.

Teshome Toga Chanaka and R.H. Chaudhury 1991, Child Survival and Fertility in Rural Ethiopia. Staff Report No.5. Central Statistical Authority. Addis Ababa.

Turke, P. W. 1985, Fertility Determinants on Ifakuk and Yap: Tests of Economic and Darwinian Hypothesis. PhD Thesis. Northwestern University.

United Nations 1983, Manual X. Indirect Techniques for Demographic Estimation.

United Nations 1954, Causes of the Aging of Populations: Declining Mortality or Declining Fertility? Population Bulletin No.1.

Wilson, C. 1985, The Dictionary of Demography. London: Blackwell References.

Yacob Zewoldi 1992, Fertility Behaviour of Elites and Their Perception of the Population Problem in Ethiopia: A synthesis. Published for the Family Guidance Association of Ethiopia by the United Nations Economic Commission for Africa. Addis Ababa.