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FEMALE LABOR FORCE STATUS AND FERTILITY IN AKAKI, A SUB-URBAN INDUSTRIAL TOWN IN ETHIOPIA

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FEMALE LABOR FORCE STATUS AND FERTILITY IN AKAKI, A SUB-URBAN INDUSTRIAL TOWN IN ETHIOPIA

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Female Labor Force Status and Fertility in Akaki - a Sub-urban Industrial Town in Ethiopia

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Abstract

This thesis focuses on the relationship between fertility and female labor force status in Akaki town. The study was based on a sample survey of 1475 eligible women belonging to the three female labor force status categories, namely, formal, informal and no work categories. Women were classified as eligible if they were aged 15-49, currently married, living with their first husband, fecund and had at least one live birth.

The thesis discusses the sampling procedure employed and the quality of data; and examines the interrelationship between fertility and female labor force status using bi-variate and multi-variate statistical techniques of data analysis. Multiple classification analysis (MCA) and the log linear models were used in the multi-variate analyses. The Bongaarts model was also employed in order to show the interrelationship between female labor force status, fertility and some of the proximate variables.

Fertility measured by children ever born was treated as the dependent variable and female labor force status (classified into formal, informal and no-work) was treated as the independent variable. Other variables such as age at first marriage, contraceptive use, duration of breast-feeding (in months), education, family type, childhood place of residence, husband's income and occupation were used as control.

The findings indicate that fertility is inversely related to work of women in the formal labor force status category where as it is positively associated to work of women in the informal labor force status group. No definite relationship between female labor force status and fertility was observed in the case of women in the no-work category. Longer birth interval, higher contraceptive use, shorter duration of breast-feeding and lower desired family size were observed for women in the formal sector while for women in the informal sector, shorter birth interval, longer lactational period, lower contraceptive use and higher desired family size were observed. Results were not consistent for non-working women.

Finally, the study concludes by suggesting some policy implications for intervention in areas of fertility and labor force participation as well as the need for detailed research in the same area.

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INTRODUCTION

1.1 The Research Problem: An Overview

Ethiopia is one of the developing countries with the highest rate of population growth - about 3.0 per cent per annum. The estimated population in mid-1993 was 53.6 million and the country is the third most populous country in Africa [NOP, 1993]. This rate of growth is expected to increase in the coming few years because of moderately declining mortality and constant and high fertility that is becoming a common feature of the country. For instance, the estimated TFR in 1993 was 7.7 [CSA, 1993:137]. High infant and child mortality, universal and early marriage, low level of contraceptive prevalence, persistence of traditional beliefs and values that promote large family size, etc. are also factors contributing to high birth rate.

To overcome the problem of rapid population growth, it seems necessary that some measures must be taken by the government. Actually, fertility is the only area where such actions could be taken so far as it is the major factor that contributes to population growth or decline within the ethical limits of action.

There is a general agreement among demographers that fertility decline is a function of the general modernization process brought about by industrialization and urbanization. This was, actually, true for the Western World where such drastic change in the way of life and fertility behavior were observed during the late 19th and early 20th centuries.

Among the several mechanisms of reducing the levels of fertility, improving the status of women is highly recommended. For instance, the 1984 Mexico City Declaration on Population and Development has passed a resolution to improve the status of women as one of the means of solving the population problem [UN, 1984:4]. The Second African Population Conference convened in Arusha, United Republic of Tanzania, during the same year, also recommended that the role of women in development should be enhanced, i.e., changing role of women as mothers and workers in all sectors of the economy is recommended as one of the population and development strategy and policy [UNECA, 1984:6]. From that time onwards, increasing the participation of women in the labor force, especially in the modern or formal sector, has often been considered as a means to reduce the level of fertility. This idea is strongly advocated by many researchers involved in the study of population and development in the developing world [Chaudhury, 1983; Farooq and DeGraff, 1988; Standing, 1982; McCabe and Rosenzweig, 1976; Chang, 1979; UN, 1987].

In Ethiopia also, increasing female labor force participation in the formal sector is recommended as a means of reducing the current high level of fertility [Kesteren, 1989; Bethemariam, 1991: 168; Hussein, 1992: 168; Kestern and Markos, 1989:62]. The new Population Policy of Ethiopia also stresses the importance of employment diversification as one of the ways of achieving the objectives of the Policy [NOP, 1993:29].

1.2 Conceptual Framework

In studying the relationship between female labor force status and fertility, the concept of labor force status must be clearly defined. Female labor force participation is the involvement of women in productive activities both outside and around the home. The Report of the Director General of ILO to the 78th Session of the Conference [ILO, 1991:4], for example, attempts to approach the term 'informal sector' as "...small scale units producing and distributing goods and services, and consisting largely of independent, self-employed producers that use family labor or hired labor or apprentices". Labor force participation in the informal sector is, therefore, defined as any type of work in cottage industries (i.e. economic activities that use little power driven machine and/or skill of the worker), that are carried out at home or close to home of the worker; in small scale retail trade often carried out near the home of the worker; and in other types of economic activities such as agriculture, laundering, service giving, etc. which are carried out in the home of the worker or near by the home. In short, labor force participation of self employed women, unpaid family workers, and other 'employed women' as mentioned above are categorized under informal sector since the nature of their work tends to lack fixed or regular working hours and is not usually prescribed customarily.

Labor force participation in the formal sector, on the other hand, is defined as work in governmental, international, non-governmental and private institutions which have fixed normal working hours as well as rules and regulations that closely relate with daily activities.

1.3 Significance of the Study

Enhancing women's status in the labor force has an essential part in affecting their reproductive behavior. It is believed that there is a potential causal relationship between work outside home and fertility. Working in the formal sector increases women's exposure to smaller family norms and their access to information, concerning the use of contraception, age at marriage and birth intervals [Chaudhury, 1983; Concepcion, 1974; Farooq and DeGraff 1988; UN, 1985].

However, the link between female labor force participation and fertility remains inconclusive on a number of important issues. The pattern of the relationship is not uniform in the developed and developing countries. Various studies in the developed countries indicate that the relationship between work and fertility is almost negative while the direction of the relationship is found to be either positive or neutral in the case of the developing countries [Mason and Palan, 1981:549; Kasarda et al., 1986:109-112; Goldestein, 1972:412; Krishnan, 1991:179]. The results of studies in some of the developing countries, for instance, Philippines [Concepcion, 1974:514-516], and Thailand [Goldestein, 1972:429] show that the negative relationship that exists between these two variables are only in urban areas and in the modern sector of the economy.

Standing [1982], chang [1979] and Mueller [1982] have also arrived at similar conclusions after critically assessing the relationship between fertility and female labor force participation in developing countries.

Contrary to this, empirical findings based on surveys conducted in some developing countries do not support the general statement that women's work outside

home in metropolitan cities, particularly in the formal institutions reduce the level of fertility.

Chaudhury [1978:265-267], using data collected in the course of a socio-economic survey of working versus non-working women in Dacca reported that fertility and use of contraception were almost the same among women gainfully employed outside the home and those who have never worked, irrespective of the duration of employment.

On the other hand, the results of a survey conducted among industrial working class women in Delhi showed that women working in the industrial setting were found to have considerably larger family size and lower use of contraception compared to the general population [Bishet, 1978:86]. Similarly, a positive relationship between female labor force participation and completed fertility was found among Puerto Rican women [McCabe and Rosenzweig, 1976:347].

In spite of such inconsistencies, some of the developing countries such as Egypt, Columbia [Peek, 1975a:1] and Mauritius [Hein, 1982:1] have tried to construct industrial facilities in order to increase employment opportunities for women in the modern sector and, then, to reduce population growth rate.

Such efforts, nevertheless, have not received full support from some labor force-fertility analysts. Peek [1975a: 1-25; 1975b:213-214] argues that the creation of formal employment opportunities for women by itself does not necessarily reduce the level of fertility in developing countries. An employed woman is not the only person in the household to look after children. Other people such as extended family members, domestic servants and older children at home assist in child care when the mother is

absent. Furthermore, women with larger families are sometimes motivated to work because of an increased need for additional income. [Op. cit.].

Both theory and empirical evidences suggest that the relationship between female labor force status and fertility is very complex. The main reason behind such complexity is the fact that there is a reciprocal effect between work status of women and their fertility behavior.

Some investigators of the female employment-fertility relationship state that the dominant causal direction is from fertility to female employment so long as women with few or no children are more likely to be in the labor force than women with many children [Kupinisky, 1971 and Sweet, 1968 both as cited in Kasarda et al., 1986:115]. Others argue that working women usually wish to have smaller families than their non-working counterparts [Jones, 1981 as cited in Kasarda et al., 1986:115]. Actually, it is not yet clear whether women have fewer children because they participate in the labor force, or participate in the labor force because they have fewer children. The question, therefore, is whether increased labor force participation would lead to lower birth rates or high fertility would result in reduced female labor force participation.

If female labor force status responds to changes in their fertility behavior, then a likely result of introducing employment program is to lower fertility and hence population growth rates.

Therefore, it appears necessary to investigate the relationship between female labor force participation and fertility because it has a number of social, economic and demographic implications. In spite of the significance of such studies for policy

formulation and program implementation, there has not been an extensive study on this issue in Ethiopia. To the knowledge of the writer, there are only two small scale studies conducted in Addis Ababa [Kesteren, 1989; Kesteren and Markos, 1989].

The above studies provide some information on the type of female economic activity in Addis Ababa and its determining factors and the fertility conditions of females engaged in different types of work and of those not working. Other than this, the studies, however, did not indicate the extent of the relationship between female labor force participation and fertility and the direction of the relationship. Moreover, no attempt was made to control for some of the intervening variables in both of these studies.

The purpose of this study is to make an in-depth investigation of the relationship between female labor force status and fertility based on data obtained from a survey in Akaki - an industrial sub-urban town located near Addis Ababa.

1.4 Review of The Related Literature

Theoretical discussions on the relationship between female labor force participation and fertility state that the participation of women in economic activities will not necessarily result in fertility reduction unless there is greater incompatibility between the roles of mother and worker and high opportunity cost of bearing and rearing children [Kasarda et al., 1986:117-122; Chaudhury, 1979b:343-359 and Goldestein, 1972:419].

(a) Role Incompatibility

While considering the role incompatibility hypothesis, the sociological explanation of work-fertility relationship, two things, namely, the organization of production and the organization of child care must be taken into account [Mason and Palan, 1981:549; McCabe and Rosenzweig, 1976:322]. In addition, the type of work, place of work, duration of work, etc., must be considered during the study of the effect of role incompatibility in the employment-fertility relationship [Standing, 1983 as cited in Kesteren, 1989:3].

Results of different studies made in this field indicate that female participation in the traditional sector of the economy such as agriculture and cottage industries, which does not necessarily take married women away from home, has either positive or no effect on their fertility behavior. Contrary to this, participation in the modern sector of the economy where work is usually away from home is found to have a negative impact on their fertility [Chaudhury, 1983:86-87; Mason and Palan, 1981:549; Kasarda et al., 1986:113-119; Ware, 1976:413; UN, 1985:68; Youseff, 1982:174].

Work in the traditional sector of the economy, house-hold based activities or family controlled work organization are characterized by combining productive activities with child rearing and having more flexible time to carry on domestic activities. Because of the absence of role conflict, work in such a sector does not reduce fertility.

Jaffe and Azumi (1960:62) found the same level of fertility for women engaged in cottage industries and for those outside the labor force but significantly lower fertility for those who worked in the modern sector. For Thailand as a whole where

the majority of the women (about 90 per cent) were engaged in agricultural activities, Goldestein [1972:213] found no negative relationship between women's participation in the labor force and fertility except for Bangkok City where there was a high concentration of industrial jobs outside home.

In contrast, work in the modern economic sector like industrial establishments promotes an inverse employment-fertility relationship because of the existence of role conflict between working and mothering. Here work is organized outside the homestead in an environment where children are unwelcome and is done on a relatively fixed time schedule. Mothers working in formal sectors, for example in industrial establishments, are not at all allowed to be close to their children while working [Mason and Palan, 1983: 551]. This type of work which is usually organized on the basis of some rules and regulations, therefore, promotes smaller family size, longer birth intervals and use of birth control [UN, 1985:56-57; Groat et al., 1976:123; Alden et al., 1973:332]. For instance, the results of WFS for some of the African countries indicate that the mean number of children ever born to ever-married women aged 40-49 and working in the modern sector was the smallest (4.9) as compared to those women working in the traditional sector (6.6) and not working at all (6.3) [UN, 1987:266].

However, there are certain conditions under which child rearing becomes less problematic to mothers to participate in the modern sector of the economy. Availability of female relatives or domestic servants at minimal cost to look after young children and the prevalence of extended family system are the major ones that minimize role conflict between working and child-rearing among women working in

the modern sector [Chaudhury, 1979b:343; Mason and Palan, 1981:572; McCabe and Rosenzweig, 1976:324].

Employment policies regarding maternity leave, ease of reentry into the labor force and societal values for working instead of bearing children are some of the factors that are very important in determining the extent of role conflict between work and fertility [Weller, 1968:520].

Despite explaining the relationship between labor force and fertility, this argument is generally criticized because of two major shortcomings: (a) failure to fully explain variation in the work-fertility relationship - especially the condition under which positive relationship between the two variables could emerge; and (b) its connection with the general theory of modernization [Kasarda et al., 1986: 119; Mason and Palan, 1981:552; UN, 1987;256].

(b) Opportunity Costs

Economists' explanation of work-fertility relationship states that labor force participation of women puts a depressant effect on their reproductive behavior by increasing the opportunity cost of a child (i.e. income foregone by mother due to child-care) and decreasing mother's time allocated to economic activities [Chaudhury, 1983:78; and Kasarda et al., 1986: 121].

According to the neo-classical fertility theory, the opportunity cost of child bearing and rearing is high among women who are highly educated, highly paid and appointed to high status jobs. Such group of women are encouraged to delay child bearing, to keep birth interval longer and to have smaller number of children [Standing, 1982:167; Kasarda et al., 1986:122]. In support of this, McCabe and

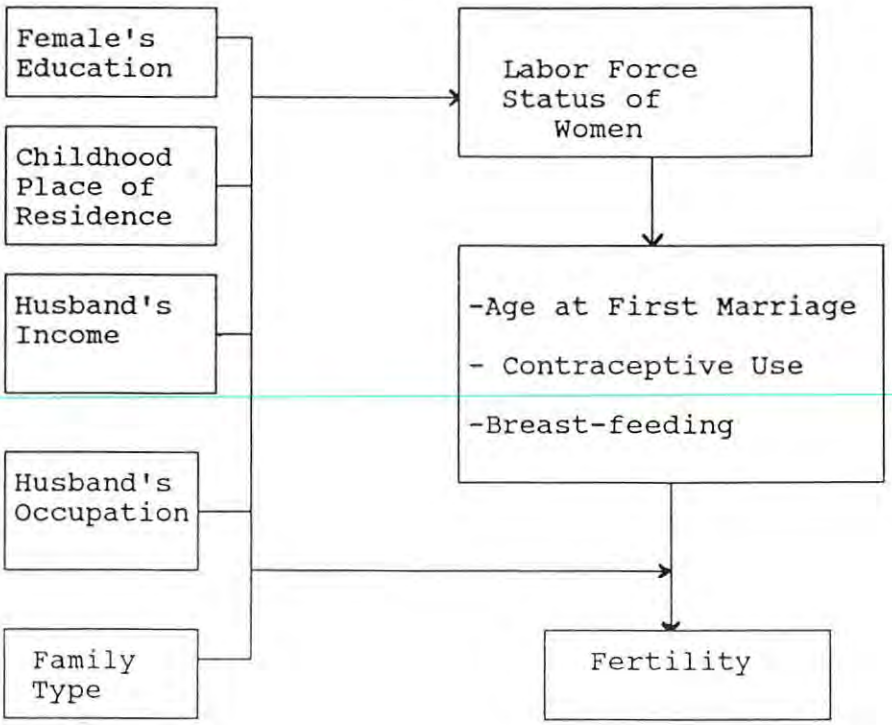
Rosenzweig [1976:340] argue that an increase in the opportunity cost of children is one of the important factors that keeps women in the labor force and motivate them to avoid pregnancy.

The opportunity cost "theory" does not, however, explain the relationship between work and fertility in the traditional or informal sector of the economy where mothers in the labor force often find ample time to care for children while working, and loose nothing by doing so [Mueller, 1982:82-83].

Mueller [1982:182], Standing [1982:167] and Rosenzweig [1976 as cited in Kasarda et al., 1986:121] state that opportunity cost of child care is low and becomes insignificant in areas where mother substitutes are readily available. This is because according to their suggestion, the relative cost of obtaining alternative mother substitute (i.e., domestic servant) takes a very small proportion of their income to generate opportunity cost effects. Under such condition the relationship between employment and fertility could be either very weak or non-existent. The concept of "opportunity cost" itself appears relevant if and only if an employed woman is prevented from spending more time on job by the presence of young child(ren) and forgone income.

The study of the relationship between female labor force participation and fertility is a complex one because each of these variables is a function of other demographic and socio-economic characteristics of the population under study. While attempting to examine the relationship between female labor force status and fertility, one has to pay due attention to some of the factors that directly affect these variables and others that play intervening roles. That means, the association between female

labor force status and fertility should be studied by theoretically establishing and empirically controlling common variables that influence labor force and fertility. The interrelationship between socio-economic, demographic and work-fertility relationship, can therefore, be shown schematically using the following diagram.



The framework shows the extraneous variables that affect the labor force status of women and their fertility independently, and the intermediate variables that influence work-fertility relationship which tend to create an artificial relationship between the dependent (fertility) and independent variables (labor force participation). These extraneous and intermediate variables are related to each of the variables under study either positively or negatively.

1.4.1 SOCIO-ECONOMIC DETERMINANTS OF FEMALE LABOR FORCE PARTICIPATION AND FERTILITY

(a) Female's Education

While studying the complex relationship between fertility and female labor force status, education should be used as one of the control variables. It reflects, among other things, proxy measures of the economic opportunities available to women, their know-how and practice of modern contraception, age of entry into marital union, their devotion to work and realization of modern role orientation. Education, in real terms, affects both the fertility behavior and labor force status of women and thus partly explains the causal relationship between the two variables.

From the point of view of fertility, education has great potential in influencing the age of entry into family formation, in promoting the use of contraception and in exerting influence upon the number and spacing of children after marriage [Krishnan, 1991:179; Adepoju, 1976:21; Alden et al., 1973:333].

Education of women is also highly related to their labor force participation status. Standing [1982 :141-163] asserts that an educated woman is more likely to be in the labor force. This is because education

(1) raises the opportunity cost of economic inactivity and thus the incentive to seek employment,

(2) provides a wider chance of employment opportunities which greatly increases a woman's chance of finding work outside home, and

(3) weakens the restrictive power of cultural traditions that limit women's non-domestic activities.

Peek [1975a: 16] and Elizaga [1974: 526-528] have also written in support of the aforementioned idea. They found a positive relationship between education and labor force participation. The association between the work-education interrelationship differs between the formal and informal sectors. A greater proportion of the least educated women enter into the informal, subsistence, non-wage or traditional forms of economic activities mainly because of lack of the required skill while the better educated women do not usually volunteer to accept such low status jobs and prefer to participate in the formal sector [Standing, 1982:145].

Apart from separately affecting each of the variables under study, education affects work-fertility relationship through its ability to create greater role conflict and increasing women's commitment to work [Kasarda et al, 1986: 127]. That means, the more educated a woman is, the more likely she is committed to her work and view it as an alternative to motherhood and, thus, tends to keep her fertility as low as possible.

In addition to this, education also affects the fertility of working women through its effect on the quality of children required by the family [Leibowitz, 1972 as cited in Standing, 1982:169]. An educated woman, for instance, has greater aspiration to raise "higher quality" children than that who has no education or very little education. Among families that have the ability and the incentive to do so, the presence of children, becomes a greater constraint on women's labor force participation because every additional child increases the opportunity cost. This, above all, motivates educated working mothers to use contraceptive more effectively [to limit their family

size. The results of the survey made in Old Delhi city, for instance, showed that women teachers had lower actual fertility than other working women with less education [Minker 1970 as cited in Youssef, 1982:180].

(b) Husband's Income and Occupation

Husband's income is another important variable that should be controlled in the study of the relationship between labor force status and fertility of a woman.

Studies made in some of the developing countries such as Chile [Peek, 1975b:214], Philippines [Encarnacion, 1968:3-4] and Quebec [Kryiazis and Henripin, 1982:435] indicate that in a household where the income of the husband is low, a wife is usually compelled to work outside the home mainly to meet the family's financial needs while in a household where the income of the husband is high the likelihood of a wife to work is less.

Standing [1982:144-145], on his assessment of the general situation in the developing countries, concluded that a woman whose husband's income is high, even if she is educated, does not necessarily work since there is a feeling that she is entitled to certain level of income. Encarnacion [1968:3] also concluded that a woman's participation in the labor force depends on whether or not the income of the husband is above or below the threshold values. In other words, higher values of the husband's income has a depressant effect on the probability that the wife is in the labor force while the effect would be reversed if the husband's income is below a certain limit.

The association between husband's income and fertility could also be explained from the point of view of the New Housenold Theory. The theory assumes that

children, like other goods, involve cost and benefits. The theory indicates the existence of positive relationship between household income, mainly contributed by the husband, and fertility. According to this theory, an increase in the household income would encourage a wife to have larger family because of the ability to afford all the required expenses to raise children. Such effect is usually known as "income effect".

The occupation of a husband, on the other hand, is supposed to have some effects on a wife's labor force status and fertility behavior. The study made in Chile [Peek, 1975a:25], for example, reveals that a woman has greater probability of participating in the labor force if her husband is self-employed in the urban informal/traditional sector. Thus, if such a woman is to participate in this type of work, her likelihood to bear many children is great.

(c) Family type

In developing countries like Ethiopia where extended family system is still decisive in determining family member's life style, the role played by a respondent's family structure in explaining work-fertility relationship is not negligible.

Chaudhury [1979b:344], in his study of the theoretical and methodological issues required to deal with the relationship between fertility and female labor force status, recommended that attention be paid to the type of the family since there are evidences showing that such relationship is inverse in the case of nuclear families but direct in the case of extended families. Anker and Catherine [1985:36] also stressed the importance of family type in the study of work-fertility relationship in developing countries. According to them, the degree of role incompatibility between mothering

and working that affects a working wife's fertility level is partly determined by a respondent's family structure.

Peek [1975b:213] reported that the presence of young children reduced a woman's chance of employment outside home by about 30 per cent in nuclear families while its effect was almost nil in the case of women in the extended family. The custom of living with husband's parents was found to be a solution to the problem of child-care for some of the working women in Taiwan [Alden et al., 1973: 333].

Apart from this, there is a general agreement among female labor force-fertility analysts that an extended family system has a tendency to promote both fertility and labor force participation of a woman. This idea is based on the fact that (1) a wife who lives with her parents-in-law is exposed to some pressure to produce more children as her status is partly determined by the number of children she gives birth to, and (2) such a woman is sometimes motivated to work outside the home simply to escape some conflicts that arise between her and her in-laws.

1.4.2 INTERMEDIATE VARIABLES IN THE FEMALE LABOR FORCE STATUS AND FERTILITY RELATIONSHIP

(a) Age at First Marriage

Age at first marriage, among others, is very important in explaining the relationship between female's labor force participation and fertility. The literature in this area reveals that labor force participation of a woman before marriage induces positive or negative effect on her age at entry into marital life that ultimately yields

considerable effect on the woman's fertility behavior. Premarital work experience may hasten age at first marriage in a society where a wife is expected to contribute her financial income to the marriage. Under such conditions, an unmarried working woman becomes an attractive marriage partner [Skilar, 1971 and Preston & Richards, 1978 both as cited in UN, 1988:22]. Work before marriage, on the other hand, may delay age at first marriage by providing financial independence that reduces the incentive to marry [UN, 1988:22-23; Hein, 1982:27-30].

(b) Use of Contraception

Variation in knowledge and practice of modern contraception is one of the factors that results in differences in fertility among women belonging to different labor force participation status. Several studies indicate that labor force participation outside home is positively associated with the use of contraception. Women engaged in productive activities in the modern sector are more likely to use family planning than those who work in the traditional sector as well as those who do not work. The former group of women are supposed to use contraception deliberately, consistently and effectively from the very beginning [Kasarda et al., 1986:124; UN, 1985:69]. Differences in the degree of roles incompatibility and exposure to modernity among these group of women are the major causes of the variation.

According to Weller [1968:507-510] the more mother-worker roles are incompatible, the higher would be the use of contraception.

Exposure to modernity contributes to a better knowledge and wider use of contraception. Chang [1979:176] reported that among Singapore working and non-

working women, the former had better knowledge of birth control methods and they have exhibited relative effectiveness than the latter. In addition to this, research in other parts of the world such as Bangladesh [Chaudhury, 1983:74-76]; North Carolina [Clifford and Tobin, 1977:276] and elsewhere in the United States [Groate et al, 1976:117] indicate that there is significantly high use of contraception among women involved in non-agricultural activities outside home. Effective use of contraception is also supposed to have strong connection with women's commitment to work [Tien 1967 as cited in Ware, 1976:418]. According to Tien, because of the intrinsic need to work, women who are highly committed to work may adopt more effective methods of contraception and use them more efficiently than those who have less attraction to the work and do not work at all.

(c) Breast-feeding

Breast-feeding, as indicated in a number of studies, has a depressant effect on fertility through its influence on the duration of postpartum amenorrhoea [UN, 1987:119-126]. Women who work outside the home tend to breast-feed their children for a shorter duration of time as compared to housewives and those who work nearby the home. It is believed that such a condition is partly due to the constraints imposed by their work on their capability and desire to do so [Van Esterik and Greineir, 1981:184-190]. This means that women who work away from home in modern or formal sectors do not have sufficient time to breast-feed their children as opposed to those women who work in the informal sector and have ample time to breast-feed at any time of the day so long as they can take their kids to work places.

A study made by Simpson-Herbert and Huffman [1981 as cited in UN, 1987:105] reveals that frequent suckling activates the production of hormones which suppress ovulation and menstruation. Other studies also show that feeding on "demand" tends to release higher levels of hormones than "scheduled" feeding. From this information it is, therefore, possible to deduce that work in the modern sector of the economy tends to decrease the incidence and duration of breast-feeding and reduces the amount of hormones released and thus diminishes its role in protecting against pregnancy. Other things being equal, women working in the traditional or informal sector and those who do not work at all may have lower fertility because of prolonged breast-feeding as compared to those who are working in the modern/formal sector.

From the above discussion, it may be concluded that in countries like Ethiopia where contraceptive knowledge and practice is very low[1] patterns of breast-feeding may have considerable effect in mediating fertility differentials among women belonging to different work status categories.

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[1] According to the 1990 Family and Fertility Survey only about 7.5 per cent and 3.9 per cent of all women aged 15-49 have ever used and are currently using contraception, respectively [CSA, 1993:192].

1.5 Objectives of the Study

As shown in the preceding discussion, a number of researchers advocate wider female labor force participation as a means of reducing fertility in the developing countries. This research, therefore, attempts to verify this in married women by using data obtained from a retrospective survey.

The General objective of the study is to examine the relationship between female labor force status and fertility while specific objectives of the study are as follows:

(i) To examine the extent to which female labor force participation affects the fertility performance and fertility control behavior of urban women and to indicate the direction of the relationship;

(ii) To understand the variation in the relationship between females labor force status and fertility;

(iii) To identify the socio-economic and demographic factors that influence fertility and to determine the relative weights of each factor;

(iv) To recommend appropriate policy measures to be taken in the sphere of fertility and female's labor force participation.

1.6 The Hypotheses

This study attempts to test the following hypotheses:

(1) Assuming that

- Working away from home and staying there for a longer period and the fixed schedule of time results in greater incompatibility between woman's roles as a mother and a worker; and

- Going out of the labor force to raise children increases opportunity cost of a working mother and the opportunity cost of having an additional child by forgoing income. Thus, it may be hypothesized that

(a) There is an inverse relationship between female labor force participation in the formal sector and fertility while the relationship may be either positive or non-existent in the case of participation in the informal sector; and

(b) Females participation in the formal sector and use of contraception may have positive relationship.

(2) Participation in the labor force offers economic self sufficiency, promotes exposure to the outside world and diminishes the desire of being a mother. Thus it may be hypothesized that work in the formal sector may motivate a woman to delay the birth of the first child and to postpone consecutive births, and, thus, reduce lifetime fertility.

(3) Work in a formal sector of the economy is assumed to provide satisfaction that can serve as an alternative to child bearing like recreation, creative activity, social and economic rewards. It is also supposed to eliminate or reduce the probability of depending on children for economic security during old ages. Thus, inter alia among other things, it may be hypothesized that women working in the formal sector desire less number of children than those who work in the informal sector and those who do not work.

(4) There is an inverse relationship between the number of years a woman has spent in the labor force in the formal sector and the total number of children born to her.

(5) Life in urban areas is more likely to encourage modern ideas and values such as women's work outside the home while life in rural areas seems to be bound by tradition. Therefore, other things being equal, it may be hypothesized that women of urban origin are presumably more likely to engage in economic activities in the formal sector than women of rural origin, and, consequently, have fewer number of children.

CHAPTER TWO

DATA COLLECTION AND METHODOLOGY

2.1 The Study Area

This study is based on data collected from Akaki town during August - November 1993 by the investigator himself. Akaki is selected as a study area for two main reasons: (1) it is very close to Addis Ababa, about 25 kilometers from the capital along the road to Debre Zeit (see Map 1), and (2) there is a chance of obtaining non-working women and women working in different institutions of the formal as well as informal sector which may enable one to conduct a comparative study of work-fertility relationship.

Under the new administrative structure, Akaki is the capital of Zone Six under Region Fourteen Administration Office. The town is an independent entity and has 11 kebeles organized under two weredas[2] (see also Map 2). Akaki is sometimes known as the industrial heart of the nation. There are about 36 major and 39 small scale industries in the town. Manufacturing is the dominant activity in which nearly 62 per cent of the population is engaged followed by services (22.8 per cent), whole sale/retail trade (9.1 per cent), agriculture (2.9 per cent) and other activities (3.9 per cent) [NUPI, 1989: 30].

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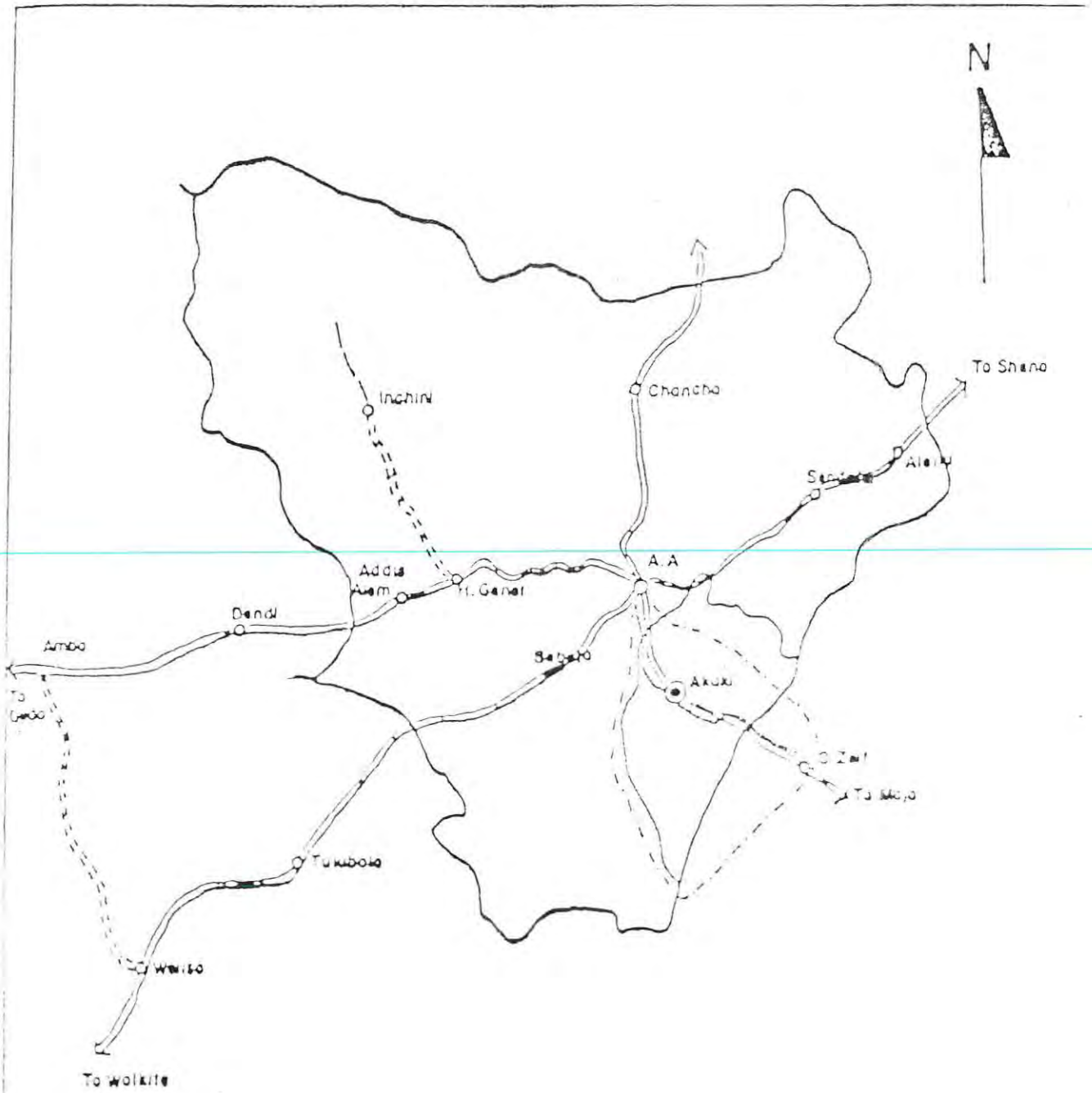
[2] A kebele is the smallest administrative unit in urban Ethiopia while a Wereda (formerly known as Kefitegna) is the immediate upper body of the administrative structure.

MAP 1 – LOCATION OF AKAKI TOWN



LEGEND

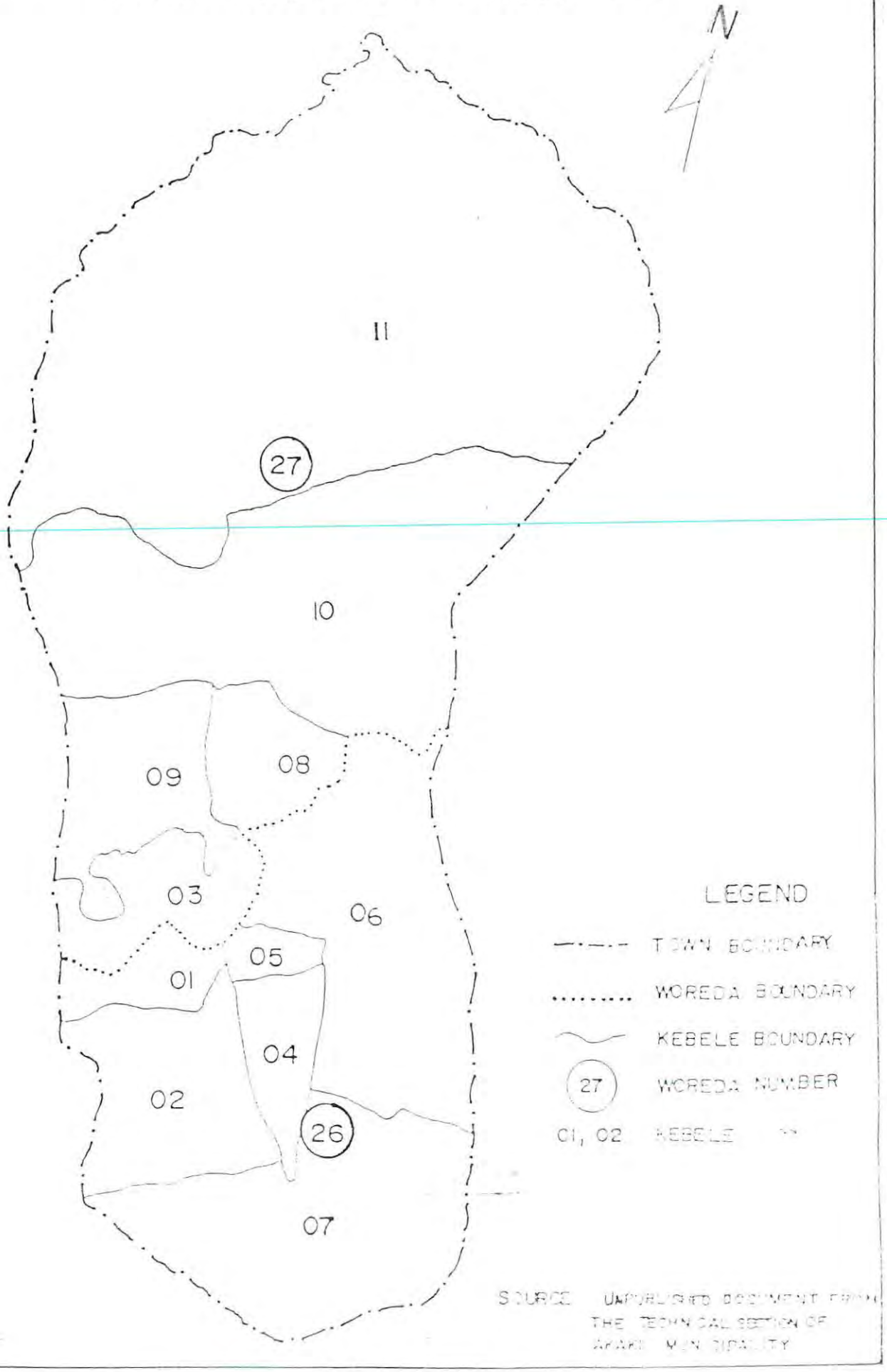
- ASPHALT ROAD
- GRAVEL ROAD
- MOTORABLE TRACK
- RAILWAY
- WEREDA BOUNDARY
- AWRAJA BOUNDARY
- MARKET INFLUENCE
- PROJECT TOWN
- OTHER TOWNS

Scale

0 10 20 30 40 KM

Adopted by: National Urban Planning Institute, Physical Planning Department, Dep. Dec

MAP.2 - KEBELES OF AKAKI, 1993



SOURCE: UNPUBLISHED DOCUMENT FROM THE TECHNICAL SECTION OF AKAKI WEN DISTRICT

Enumeration Areas (EAs) required for the complete listing of the population in the town. A total of 14,111 households were covered in the entire 11 kebeles. Some demographic information on household members was also collected during the listing of households. A total of 1683, 513 and 1790 eligible women respectively belonging to the formal, informal and no-work categories in about 3984 households were identified.

The number of eligible women belonging to the informal sector was quite small (only 513) as compared to those belonging to the other two groups. As soon as females belonging to each of the labor force status categories were identified, lists of women belonging to the formal, informal and no-work categories were prepared and these were used as a sampling frame.

2.2.1.2 Sample Design and Sampling Procedure

Due to time and resource constraint, it was planned to include a total sample size of 1,500 women, of which 500 to be taken respectively from the formal, informal and no-work categories. However, because of the small number of eligible women belonging to the informal sector (i.e. 513 in number) the original sampling procedure was modified and all of the 513 eligible women belonging to the informal sector were included. The sample size of the other two groups was adjusted to this figure and a total of 1026 eligible women of which 513 each from the formal and no-work categories were selected using systematic sampling. Nevertheless, only 1475 women of which 497, 483 and 495 each belonging to the formal, informal and no-work categories were interviewed. Response rate for each of these groups was 96.9, 94.2 and 96.5 per cent respectively.

2.2.2 The Questionnaire

The questionnaire was originally prepared in English and then translated into Amharic. This was to avoid errors and mistakes that are likely to occur if the translation was left to the enumerators.

Before printing the final version of the questionnaire, a pilot survey was carried out on 60 eligible women, 20 from each category in order to amend the questionnaire. The pilot survey was quite useful for assessing the content, logical flows, clarity of the questions and length of interview. The questionnaire was amended accordingly.

A detailed survey manual expressing the general procedures as well as steps required to collect the data together with further explanation on each of the questions was prepared and handed over to all of the enumerators and supervisors in order to help them understand the content of the questions and the essence of the study.

A detailed data on demographic, and socio-economic characteristics of sampled women were obtained during the main field work. For the sake of low cost and simplicity structured questionnaire was used throughout the whole data collection process (see Appendix). In brief, the questionnaire was designed to collect the following information:

A. Household related questions

-Questions were set to elicit

.household members age, sex, relationship to the head, marital status for all aged 10 and over,

.labor force, motherhood and fecundity status, duration of current marriage, stability of first marriage, presence of husband in the household (at least during the previous three months of the survey) for married women in their reproductive age group;

population under study. Efforts were made to select the best enumerators and supervisors from among those who were ready to participate in the data collection process.

Twenty female enumerators were selected from among school leavers who had scored a cumulative Grade Point Average of 2.4 and above in the Ethiopian School Leaving Certificate Examination (ESLCE). Also five female and two male supervisors, all of whom are college graduates, were recruited from among government employees residing in the area. The choice of female enumerators and a larger number of female supervisors was not made randomly. All of the respondents were females for whom some sensitive questions such as family planning matters are to be posed and it is believed that respondents will provide the necessary information to females than to males.

All the enumerators were given intensive training both in and outside a classroom for about two and four consecutive days before starting the task of listing so as to prepare the frame and before they embarked on the main survey to collect the actual data. The training focused on the art of posing questions and recording answers. Apart from this, discussions were held on each of the questions until they understood the subject and the meaning of the questions.

Supervisors, on the other hand, were given a one-and-half day orientation on how to check for coverage, completeness, consistency of responses and the like. Furthermore, brief explanations on different questions were given to all of them since there was frequent contact between them and the investigator.

2.2.3.2 Field Problems

One of the major difficulties encountered during the field work was lack of consistent and update house number almost in all of the kebeles. Some of the houses had no identification numbers while others were given numbers that did not follow the sequential order of figures assigned to other dwelling units found in a specific enumeration area.

Poor numbering of houses, in general, caused difficulties in recording the exact address of respondents as well as identifying such households. However, employing informants (kebele personnel as well as natives of that particular area) to tell the whereabouts of respondents, helped enumerators and supervisors to fulfill their respective missions.

2.3 Data Quality

Demographic data obtained from censuses and surveys conducted in developing countries are not always free of errors. One, therefore, should suspect errors of under-reporting and misreporting of age, births and deaths. Assessing the quality of data before any in-depth analysis is, thus, an essential component of any research.

Literally, there are two types of errors in sample surveys as well as census data. The first refers to coverage errors i.e., errors that deal with double counting or failure to include all individuals living in the study area while the second refers to content errors, i.e., errors that relate to the provision of incorrect information either deliberately or due to ignorance.

Age data as well as births reported by women in their reproductive ages, i.e., 15-49, among others, will be examined here for coverage and content errors.

2.3.1 Age Data

Customarily, keeping records on date of birth of children and commemorating one's birth-day is almost an unknown phenomenon in Ethiopia. Obtaining accurate and correct information on age, therefore, is one of the serious difficulties one might encounter during demographic data collection in this country.

Field experiences, reveal that most of the respondents report their ages by guessing, while others let an enumerator record their ages by making his best estimate. Sometimes there are cases in which no hint about the age of an individual is available. In such circumstances enumerators usually try to impute ages using some calendar of historical events of national or local significance or cohort identification method[5] to place the life events of an individual on the standard time scale [Kpedepko, 1982:41]. True, this may lead to over/under enumeration of population belonging to certain specific ages and eventually may result in irregular population age distribution.

However, a number of techniques, have been developed to measure errors in age data. Nonetheless, two methods, namely, the graphic method and Myer's blended index method are used in this exercise. These methods are preferred to others for the simple reasons that (1) some of the other methods are more laborious and time

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[5] It is a method of age determination by considering those people who underwent some event, say for example circumcision among the Kikuyu, in the same year. These people are considered as if they belong to the same age group and, thus, are given a special name.

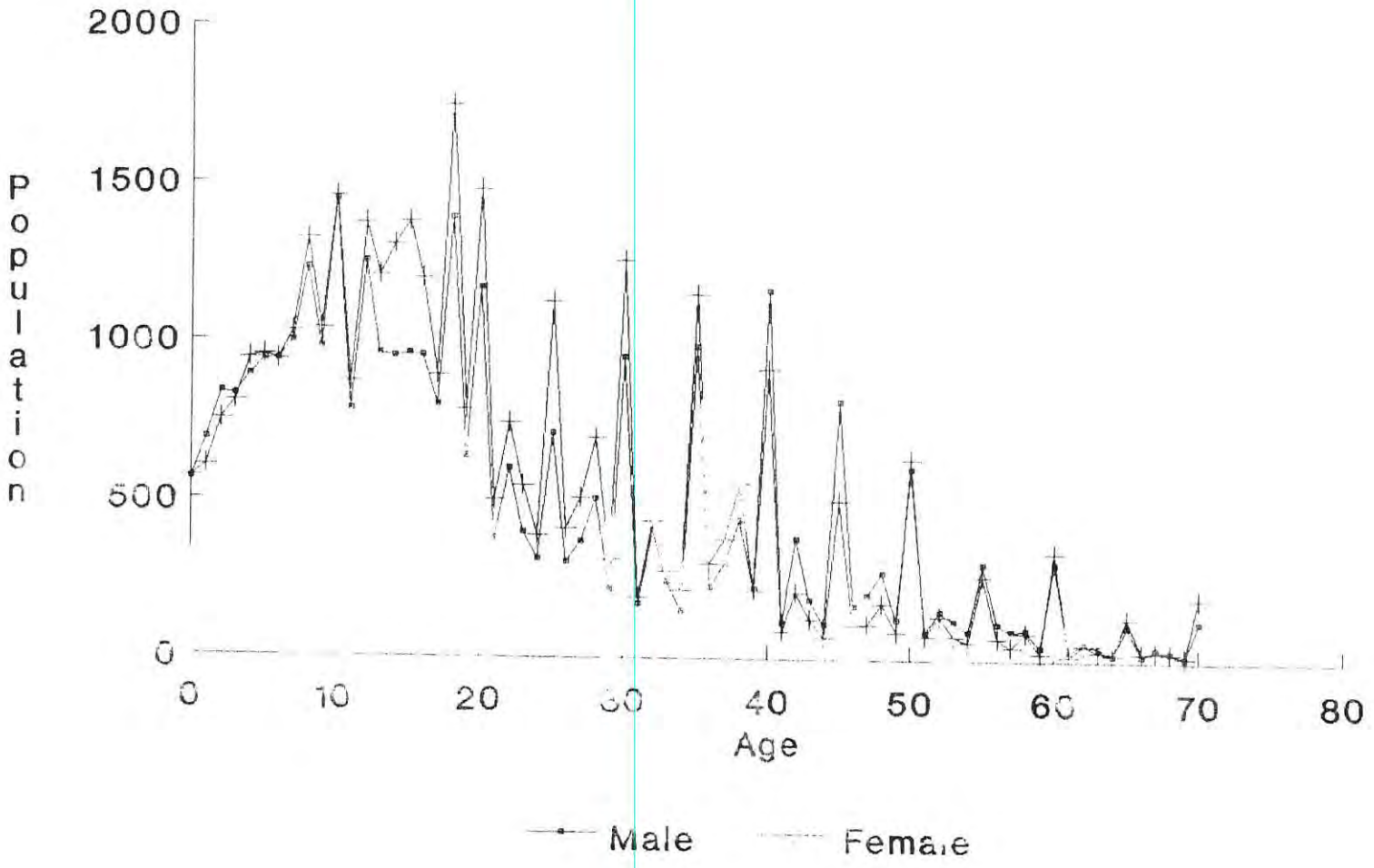
consuming, and (2) the results obtained by any of the other methods do not show a significant different from those obtained by the methods already suggested.

In the absence of disturbing factors such as age selective migration or heavy age selective mortality, the relationship between the number of survivors of a given age and the births to which they appertain is expected to be a smooth function of age [Kpedepko, 1982:51].

Figure 1, shows a single year age distribution of the population of the study area as recorded during the present study. It indicates that there are errors in age reporting. From the figure, one can easily observe that there were excess persons in ages ending in digits 0, 5 and 8 while there was deficiency in age ending in digits 9, 3, 2 and 1. It is, therefore, possible to say that there is a tendency either on the part of enumerators or respondents to report certain ages at the expense of others. But, to what extent was this age data misreported?

Myer's Blended Index, based on the assumption that "... if there are no systematic irregularities in the reporting of age, the blended sum at each terminal digit should be approximately equal to 10 per cent of the total blended population" [Kpedepko,1982: 46], is used to measure the degree to which there is digit preference and/or avoidance in a census age distribution. Myer's Blended Index, as shown in Table 1, was computed to ascertain the presence of digit preference. Theoretically, Myers' index ranges from 0 to 90. It reaches its maximum, that is 90, if all ages were reported at a single digit and 0, if there is no heaping at all [Shryock and Siegel, 1976:118].

Fig 1: Single Year Age Distribution of Population: Akaki, 1993



Both males and females show a tendency of over-reporting ages ending in digits '0', '5' and '8' and understating of ages ending in digits '1','4','9','3' and '6'. The highest digital preference occurred at ages ending in '0' while terminal digits ending in '5' and '8' received the second and third highest age heaping respectively. The most avoided digit is '1' while '4' and '9' were the second and third most avoided terminal digits, in the order mentioned (Table 1).

Table 1 Myers' Blended Index of Terminal Digit Preference by Sex of Respondent: Akaki, 1993.

Terminal Digit (X)	Deviation from 10	
	Male	Female
0	11.81	11.72
1	-5.35	-5.43
2	-0.36	-1.39
3	-3.24	-3.30
4	-4.31	-3.88
5	7.18	7.39
6	-2.64	-2.42
7	-1.99	-2.32
8	2.64	3.40
9	-3.74	-3.77
Summary Index	21.63	22.51

The Summary Index of digit preference for all digits is 21.63 for males and 22.51 for females. Makonnen [1993:52] obtained a summary index of 24.3 for males and 26.1 for females in Sebata town. The 1984 census data for urban population of Shewa Region revealed a figure of 18.1 and 23.0 for males and females, respectively [OPHCC, 1989:9]. Such a summary index for the city of Addis Ababa, where age is

expected to be reported well, according to the 1984 Population and Housing Census is about 14.0 for males and 15.5 for females [OPHCC, 1987:7]. Surprisingly, in all cases males seem to report their ages better than females. The indices for Akaki Town do not deviate substantially from those for other urban centers in Ethiopia.

2.3.2 Reporting of Births

Data on children ever born (CEB) are, mostly, suspected of inaccuracy either due to under-reporting of live births the source of which could be memory lapse and unwillingness to recall past events, and/or inclusion of an adopted child, a stepchild or a stillbirth.

The quality of children ever born (CEB) data could be examined using a graphic presentation of reported number of children ever born by single year age of mothers and also by computing average parities for conventional age groups.

Total number of children ever born to a woman, being a function of her age, is expected to increase with age of mother. Mean number of children ever born (CEB) reported by women at age 40 and above shows some fluctuations, and these ups and downs in the peak fertility ages could be due to variation in fertility rates from one cohort to another while such inconsistencies at older ages are most probably due to omission of children ever born, perhaps due to memory lapse at latter ages. (See Fig 2).

Fig 2: Reported Number of Children Ever Born by Single Year of Women: Akaki, 1993

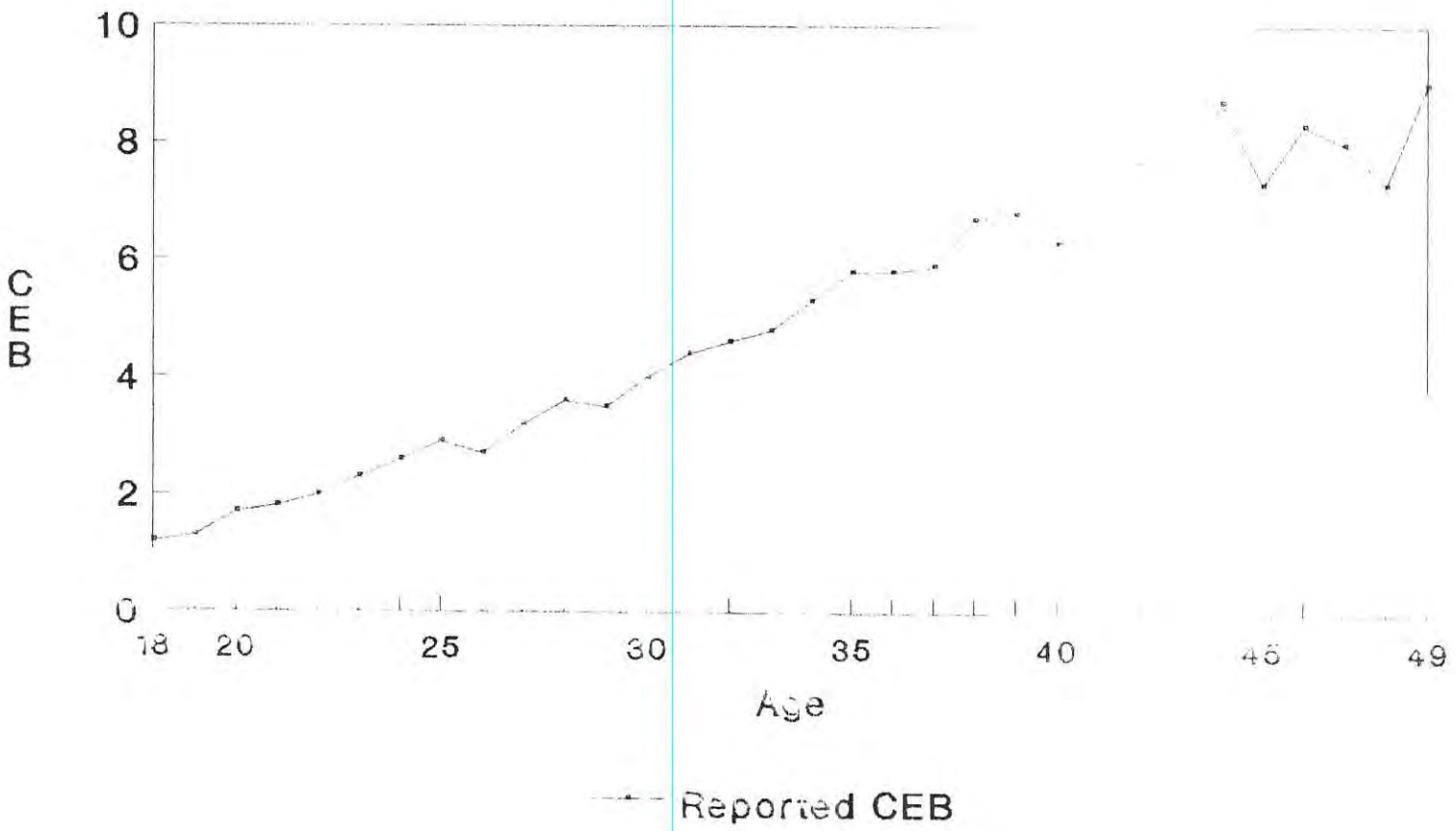


Table 2 Total Number of Children Ever Born, Average Parity and Number of women in Convectional Five Year Age Groups: Akaki, 1993.

Age of Women	Number of Respondents	Children Ever Born	Average Parity
15-19	17	22	1.3
20-24	173	379	2.2
25-29	393	1244	3.2
30-34	353	1606	4.6
35-39	322	1964	6.1
40-44	158	1104	7.0
45-49	58	441	7.6
Total	1475	6670	4.6
Over all Sex Ratio at Birth		103.7	

Examination of average parities (see Table 2), on the other hand, reveals that as expected mean CEB increased with the age of woman.

To summarize, assessment of the data quality exhibits that the data, in general, is not of high quality. It involves age heaping, shifting and under-reporting. In addition to this, omission of children at older ages is observed. Nevertheless, so long as broad age groups are used, the effect of such errors on further analysis is expected to be negligible.

2.4 Method of Data Entry and Analysis

The data was accessed into computer using an update and structured software known as ISSA (Integrated System for Survey Analysis). ISSA is preferred to other data entry programs such as SPSS Data Entry II, Debase, etc. because of its advantages over the others. Some of the advantages of ISSA for data entry are:

(1) It is a hierarchical data base; requires less space and can easily be interfaced to other software.

significant. In addition, Scheffe's[6] test was applied to the results in order to specifically indicate the existence of variation between groups. All tests were based on a 5 per cent level of significance.

The interrelationship between labor force participation and fertility, was examined using a multi-variate analysis. The purpose of using a multi-variate analysis was to determine whether the relationship between work and fertility was maintained after other confounding variables were controlled. For this purpose, Multiple Classification Analysis (MCA) was used. Simple forms of traditional multi-variate models such as analysis of variance (ANOVA), multiple regression and discriminant functions could have been used. Application of such statistical techniques, however, has a danger of facing the problems of correlated predictors that may distort the estimation of the total variation explained by a set of predictors. Besides, they usually require that all variables be measured on interval scales, and that the relationship be linear [Andrew et al., 1973:3-5]. MCA is a statistical technique that keeps itself free from such restrictions. It can handel cases even when predictors are correlated and the relationship is not linear. It has special advantages such as (a) showing the effect of each predictor on the dependent variable both before and after considering the effect of all other predictor variables (b) treating the input data in any form, that is, it doesn't matter whether a particular set represents a nominal scale (categories), an ordinal scale (ranking) or an interval scale (classes of a numeric variable); and (c)

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[6] Scheffe's test which makes pair-wise comparison between means is preferred to others as it is quite conservative and requires larger differences between means for significance.

expressing the non-standardized and standardized means after making simple mathematical operations.

This technique is well known in providing unadjusted (gross) and adjusted (net) effects of each predictor variable on the dependent variable. The former indicates the effects of the predictor together with all other variables while the latter measures the effects of a single predictor after making allowances for the effects of all other predictors. [Ogawa, 1980: 114-120; Little:1980:24-26].

The MCA model, which is based on the additivity assumption, is expressed by the following equation:

$$Y_{ijk} = Y + A + B_j + ... + e_{ijk}$$

where Y_{ijk} - Score of a particular individual that falls into i-th category of predicator A, j^{th} category of predictor B, etc.

Y - grand mean

a_i - added effect of i^{th} category of predictor A (i.e. difference between Y and the mean of i^{th} category of predictor A)

b_j - added effect of j^{th} category of predictor B (i.e, difference between Y and the means of the j^{th} category of predictor B).

The model, moreover, has other interesting statistics that tells the closeness of the relationship between the predictors and the dependent variable. These are:

1. ETA -the correlation ratio, that shows the extent to which the given predictor can explain the variation in the variable;

2. BETA - that measures the ability of a given predictor to account for variation in the dependent variable on the basis of the adjusted mean;

3. ETA^2 - that measures the proportion of variation explained by the predictor alone;

4. $BETA^2$ - that measures the proportion of variation explained by the predictor alone after considering the proportion explained by other predictors; and

5. R^2 - that measures the extent to which the coefficients obtained in an additive model could explain such variation in the dependent variable if applied to different but comparable data cases.

In addition, Bongaarts' model that tests the effects of proximate variables on fertility both separately and jointly is used. The model is based on the assumption that the interplay among these intermediate variables; namely, marriage, contraception, induced abortion and postpartum infecundability is expected to cause variation in the total fertility rates. In general, it explains the effect of each of the aforementioned variables on the basis of the relationship that $TFR = C_m \cdot C_c \cdot C_a \cdot C_i \cdot TF$ where TFR = total fertility rate, C_m, C_c, C_a and C_i are the indices of marriage, contraception, induced abortion and postpartum infecundability respectively and TF is the total fecundity rate or the maximum level of fertility possible in a population without the practice of lactation and postpartum amenorrhea. Total fecundity rate is assumed to be constant in all populations at the level of 15.3 births per woman [Bongaarts, 1978: 105-132; Bongaarts and Potter, 1983 : 78-102].

2.5 Limitations of the Study

The basic research design in any study would result in impressive outputs if the observation is grouped and classified into meaningful categories. It is believed to help a researcher in explaining the observed differences among categories, say for example, the apparent differences in mean number of children ever born in our case. This was,

however, not fully achieved in this study due to small number of observations in certain cases. As a result, some of the variables were grouped broadly while others were not included in further analysis.

In addition, despite having a number of advantages, the multiple classification analysis technique that is applied in this study has a few shortcomings : requiring substantial number of data cases in order to produce reliable estimate of means, and dealing only with the between category effects excluding the within category effects. However, the problems were solved by attempting to classify observations in such a way that a reasonable number of cases would appear in each cell, and also by making stratified analysis (i.e. making analysis for all women in the child-bearing age first, and then doing separate analysis for each of the three broad age groups, 15-24, 25-34 and 35-49) respectively.

Furthermore, analysis of duration of breast-feeding was based on information collected for the next-to-last child that survived to the age of weaning. It is, in fact, impossible to deny a bias introduced into this analysis by virtue of excluding women with one parity and also those who lost their next-to-last child before the age of weaning. The bias, however, is expected to be minimum.

CHAPTER THREE

BACKGROUND CHARACTERISTICS OF THE STUDY POPULATION

3.1 Demographic Characteristics

As already mentioned, while identifying eligible women for interview, information on age and sex composition of the total population, on marital status for all enumerated persons 10 years and above as well as other characteristics of currently married women in their child-bearing age (15-49) were collected. The following discussion is based on these data.

3.1.1 Age-Sex Composition of the Population

A de jure approach, i.e. counting of people in their usual place of residence, was employed while preparing the sampling frame.

Table 3 Population Size by Sex, Sex Ratio and Average Annual Rate of Growth: Akaki, 1978, 1984, 1993.

Year	Population Size		Overall Total	Sex Ratio	Date of Survey/ Census	Period	Average Annual Rate of Growth
	Male	Female					
1978[1]	14,758	17,563	32,321	84.0	July '78		
	(45.7)	(54.3)	(100.0)				
1984[2]	26,285	28,959	55,244	90.8	May '84	1978-84	8.8%
	(48.0)	(52.0)	(100.0)				
1993[3]	34,668	38,152	72,820	90.9	oct. '93	1984-93	3.1%
	(47.6)	(52.4)	(100.0)			1978-95	5.5%

Source: 1 CSO, 1978: 12 and 76.
2 CSA, 1991:36.
3 survey Data.

Note Figures in parenthesis represent percent distribution in the cell.

Table 3 indicates that at the time of the survey Akaki town had a total population of 72,820[7] of which 34,668 were males and 38,152 were females giving a sex ratio of 90.9 males per 100 females. The overall sex ratio observed during the 1984 population and Housing Census was 90.8 - exactly the same as the figure obtained during the recent count.

The population of the town was growing at a rate of 5.3 per cent per annum during the last 15 years. The growth rate of the population at the beginning, that is, between 1978 and 1984, was very high - about 8.8 per cent per annum. This could be attributed to high rate of labor force migration to the town as a result of sky-rocketed industrial employment opportunities just after the nationalization of a number of factories established in the area during the 1974 Ethiopian Revolution.

Since 1984, nonetheless, the growth rate of the town has slowed down. Actual enumeration during this study reveals a growth rate of 3.1 per cent per annum confirming that the population of the town is growing at a rate equal to the national rate. It can be observed that migration is less important in determining/affecting the rate of growth of the population of the town at present. The recent decline in the population growth rate could be due to reduction in the number of in-migrants as a result of freezing of employment opportunities. During the early 1980s, most of the factories seemed to be saturated and a small number of industrial settings have been established since then.

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[7] This figure doesn't include all boarding students living at Akaki Adventist Mission.

Table 4 Percentage Distribution of Population by Broad Age Group and Sex: Akaki,1978[1] and 1993[2].

	Male		Female		Both Sexes	
Age Group	1978	1993	1978	1993	1978	1993
0-14	44.8	41.4	42.2	39.9	43.4	40.6
15-64	51.0	56.8	52.4	58.0	51.8	57.4
65+	4.2	1.8	5.3	2.0	4.8	1.9
Total	100	100	99.9	99.9	100	99.9

Source: 1 CSO, 1978: 62.
2 Survey Data.

N.B. Percentages might not be added up to 100.0 in this and subsequent tables due to rounding.

Table 4, reveals that the town's population, is predominantly of young with about 40 per cent aged under 15 years. The proportion of total population in the economically active age group (15-64) was about 57 per cent while that aged 65 years and over was only 1.9 per cent. An examination of the age structure of the population of the town exhibits an increasing trend on the part of the population in the economically active age group since 1978 (from 51.8 per cent to 57.4 per cent). (See Table 4). Assuming that errors of age misreporting remained the same, this could be due to past in-migration.

3.1.2 Marital Structure

In a country like Ethiopia where traditional norms and values are still powerful in governing individual's life style and child-bearing out of wedlock is discouraged,

knowledge of the pattern of marriage is quite important in providing a better understanding of the reproductive behavior of women.

Table 5 Percentage Distribution of Population Ten Years and Over by Sex and Marital Status: Akaki, 1978[1] and 1993[2].

	Male		Female		Both Sexes	
Age Group	1978	1993	1978	1993	1978	1993
Single	34.8	57.9	29.5	51.6	31.8	54.5
Married	53.2	37.4	45.3	32.9	48.7	35.0
Widowed	1.0	1.2	6.8	7.8	4.3	3.9
Divorced	6.6	2.1	13.8	6.2	10.7	5.2
Separated	--	1.0	--	1.1	--	1.1
N/S	4.4	0.5	4.7	0.4	4.6	0.4
Total	100	100.1	100.1	100	100.1	100

Source: 1 CSO, 1978 :
2 Survey Data

N.B. N/S = Not Stated

-- Information not available

The marital structure of the population of the town aged ten years and over are presented by sex for the years 1993 and 1978 in Table 5. According to Table 5, the tendency to remain unmarried for both males and females increased over time. The table shows that 57.9 per cent of males and 51.6 per cent of females aged 10 years and over were single in 1993 while the corresponding percentages were 34.8 and 29.5 respectively in 1978. Marital dissolution, be it by divorce, widowhood or separation, seems to be higher (15.1 per cent at present) among females than males.

Table 6 Distribution of Proportion Single for Women in the Reproductive Age Group (15-49): Akaki, 1993.

Age Group	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Proportion single	94.9	58.1	23.1	6.4	2.2	0.9	0.6

The proportion of single women in the younger reproductive age groups (15-19 and 20-24 years) were 94.9 per cent and 58.1 per cent respectively. These proportions diminished as age of women increased approaching almost zero at the age of 40, indicating that marriage is universal in the town (see Table 6).

3.2 Characteristics of Currently Married Women in Their Reproductive Ages (15-49)

The results of the survey reveals that a total of 3995 eligible women (46.1 per cent) out of the total ever married women in the town were obtained.

Motherhood status among those currently married and fecund, as reported by the women themselves, is really substantial for the town as a whole. More than 90 per cent of these women have reported to have given birth to at least one child during their life. Responses to question on the self-declared fecundity status of currently married women of reproductive age (15-49), on the other hand, indicate that almost three-fourth (75.3 per cent) of them did not have any medical or biological problems to give birth if they wish to do so. Self-declared infecundity was about 23.7 per cent among all currently married women in the reproductive age.

more than half (53.6 per cent) were engaged in some kind of work at the time of interview while 0.8 and 0.75 per cent, a small proportion of them, had been engaged in such type of work during the 12 months before the survey and since marriage respectively. The remaining (44.8 per cent) were found to be housewives since the time of their first marriage.

Additional inquiry was also made on types of employment. The result indicates that 12.5, 9.2 and 78.4 per cent of currently working/ever worked women were employed in their own account, in family business or in other institutions respectively. Of those employed by other institutions, the majority (91.5 per cent) were employed by governmental/international/non-governmental organizations while only a small percentage (8.5 per cent) were employed by privately owned institutions which may be because private investment had been discouraged by the previous regime.

3.4 Characteristics of Sampled Women

As already mentioned, 497, 483 and 495 currently married women in the reproductive ages (15-49 years) representing the formal, informal and no-work categories of labor force status were successfully interviewed. The majority of the respondents (26.6 per cent) were in the peak fertile ages, i.e., 25-29, while the proportion of respondents in the early reproductive ages (i.e., 15-19) is quite small - about 1.2 per cent only (see Table 7).

Table 7 Distribution of Respondents by Age Group: Akaki, 1993.

Age Group	Number	Percent
15-19	17	1.2
20-24	173	11.7
25-29	394	26.7
30-34	353	23.9
35-39	322	21.8
40-44	158	10.7
45-49	58	3.9
Total	1475	99.9

N.B. In this and subsequent tables percentages might not add up to 100 due rounding.

The bulk of the women (50.6 per cent) were selected from the age group 25-34; followed by those aged 35 and over (36.4 per cent) who are supposed to represent older women that had long experience of childbearing. The percentage distribution of women belonging to the young reproductive age group (15-24) was about 12.9 per cent (Table 7).

According to Table 8, the majority of the successfully interviewed women (71.4 per cent) were literate: only 28.6 per cent reported that they could neither read nor write. Of the total women chosen for the study, 47.1 per cent said that they had attended formal education whereas 24.2 per cent had not attended formal schooling but could read and write. Information on the educational distribution of respondents shows that about 24.5 and 12.6 per cent, respectively, had elementary and secondary and above education while the proportion with junior secondary education was about 10.0 per cent.

The breakdown by different categories of labor force status reveals that a greater proportion of females in the formal sector (65.2 per cent) had formal education while the reverse is true for those in the informal and no-work categories. These figures, of course, prove the general conclusion that educational achievement has strong connection with participation in the formal or modern sector of the economy.

At the time of the interview, 22.8 per cent of the respondents were reported to have been born in the town (i.e. natives) while the overwhelming majority (77.2 per cent) were not (see Table 8). This is true for each category of labor force status. One can, therefore, explicitly say that the sample is dominated by migrants.

Information on the respondents' childhood place of residence[8], reveals that 44.3 per cent grew up in rural areas, 20 per cent in small towns and about 17 per cent in large towns[9]. Half of the respondents in the informal and no-work categories were of rural origin while the proportion for those in the formal sector was less than one-third (only 31.8 per cent) (Table 8). Respondents with city background, however, seem to predominate in the formal sector compared to the other two groups. The data, as a whole, goes in line with the general framework that women of urban origin are more likely to engage in economic activities outside home.

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[8] Measured in terms of describing the area she was living in when she was growing up, say when she was about 12 years old.

[9] Urban classification in this study is based on the standard set for all towns and cities of the country by the National Urban Planning Institute in 1990. Urban centers classified as Level VI and V (consisting of 60,000 to 250,000 population and more than 250,000 population respectively) are grouped as LARGE TOWNS while those classified as Level III and below are grouped as SMALL TOWNS. (For further information see NUPI,1990).

Table 8 Percentage Distribution of Respondents by Selected Socio-Demographic Characteristics and Labor Force Status Group: Akaki, 1993

	WORK STATUS OF WOMEN				
	FORMAL	INFORMAL	NO-WORK	TOTAL	N
Educational Level					
Non-Formal Education	34.8%	65.0%	59.0%	52.8%	779
Illiterate	17.9%	34.2%	33.9%	28.6%	422
Read & Write Only	16.9%	30.8%	25.1%	24.2%	357
Elementary (1-6)	31.2%	20.5%	21.8%	24.5%	362
Junior & above (7+)	34.0%	14.5%	19.2%	22.6%	334
Junior (7-8)	15.2%	6.0%	8.7%	10.0%	148
Sec & above (9+)	18.7%	8.5%	10.5%	12.6%	186
Status of Current Contraceptive Use					
Users	47.9%	20.3%	18.6%	29.0%	428
Non-users *	46.7%	75.8%	78.0%	66.7%	984
Not Stated	5.4%	3.9%	3.4%	4.3%	63
Religion					
Orthodox	89.1%	80.1%	87.1%	85.5%	1261
Other Christian	4.8%	4.1%	2.4%	3.8%	56
Islam	6.0%	15.5%	10.5%	10.6%	157
Not Stated	--	0.2%	--	0.1%	1
Ethnic Group					
Oromo	38.6%	33.5%	39.4%	37.2%	549
Amahara	37.4%	26.5%	32.5%	32.2%	475
Others	23.9%	40.0%	28.1%	30.6%	451
Childhood Place of Residence					
Rural	31.8%	50.9%	50.5%	44.3%	654
Small Town	47.7%	35.4%	36.2%	39.8%	587
Large Town	20.5%	13.7%	13.3%	15.9%	234
Family Type					
Nuclear	64.8%	65.0%	74.1%	68.0%	1003
Extended	35.2%	35.0%	25.9%	32.0%	472
Migration Status					
Native	26.8%	20.1%	21.4%	22.8%	336
Migrant	73.2%	79.9%	78.6%	77.2%	1139
Husband Occupation					
Formal	93.4%	74.0%	83.8%	83.8%	1234
Informal	6.0%	25.8%	16.0%	15.8%	233
No-work	0.6%	0.2%	0.2%	0.3%	5
Age at First Marriage					
Below 16 years	26.8%	44.7%	45.1%	38.8%	572
16-18 years	37.2%	34.2%	35.6%	35.7%	526
19+ years	33.8%	20.1%	18.2%	24.1%	355
Married After Birth **	2.2%	1.0%	1.2%	1.5%	22
Husbands Income					
Less than 150 Birr	18.1%	36.9%	28.5%	27.7%	409
150-299 Birr	45.1%	38.9%	45.1%	43.1%	635
300 Birr & above	36.2%	22.8%	26.1%	28.4%	419
Not Stated	0.6%	1.4%	0.4%	0.8%	12
Premarital Work Experience					
Worked Before Marriage	56.3%	23.8%	9.9%	30.1%	444
Never Worked	43.7%	76.2%	90.1%	69.9%	1031
Woman's Occupation					
Production & related	74.4%	2.7%	--	26.0%	383
Sales Workers	1.0%	74.9%	--	24.9%	367
Agricultural Workers	0.4%	19.7%	--	6.6%	97
NCE	17.9%	2.1%	--	6.7%	99
House wives	--	--	100.0%	33.6%	495
Not Stated	6.2%	0.6%		2.3%	34

* It includes currently pregnant women and missing cases.
** This includes those who gave birth out of wedlock but intact to initial marriage.
*** Not Classified Elsewhere .

The majority of the respondents (68.0 per cent) were living in nuclear families while about one third (32 per cent) were living in extended[10] families. The percentage distribution of respondents in different labor force status indicates that slightly higher proportion of women in the labor force are living in extended families as compared to those who have no work since marriage. Possible explanation for this could be that couples wish to live with relatives, probably to get help in managing household and child care activities while participating in the labor force.

Considering ethnic distribution of respondents, Oromos and Amharas were the first and second dominant groups: each constituting 37.2 and 32.2 per cent respectively while the rest classified as other[11] made up 30.6 per cent.

The classification of respondents by religion (see Table 8) shows that the overwhelming majority (85.5 per cent) were Orthodox Christians, followed by Muslims accounting for 10.7 per cent. Other religious groups (Protestant, Catholic, Johova etc.) contributed 3.8 per cent only. The percentage distribution along labor force status categories, revealed that Orthodox Christian still held the leading position in all categories of labor force status (more than 80 per cent) while Muslims were about 15.5, 10.5 and 6.0 per cent in the informal, no-work and formal sector respectively. The figures, although low, indicate that Muslim females' participation in the informal sector was higher as compared to those in the formal sector.

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[10] Extended family is a type of family in which couples are living with other relative(s) besides their own children whereas nuclear family is a type of family in which couples are living with their own children only.

[11] It includes Guragheas, Tigrawais, Wolayita, Kambata, Hadiya and others who originated from two or more different ethnic groups. They are classified under others since their number is too small to set a category for each of them.

The labor force status of the respondents' husband indicates that 83.8 per cent of the husbands were engaged in the formal sector while 15.8 per cent made their earning by working in the informal sector. Only 0.3 per cent of the respondents reported that their husbands had no work at the time of the survey.

According to Table 8, at the time of the interview, respondents' husbands earning a monthly income between Birr 150 and Birr 300 were 43.1 per cent, those earning Birr 300 and above were 28.4 per cent while those earning below Birr 150 were 27.7 per cent. The mean and median monthly income of all respondents' husbands were Birr 233 and Birr 200 respectively. Mean and median income of respondents' husbands engaged in the formal labor force status category were Birr 267 and Birr 262 respectively, while for those in the informal labor force status category were Birr 207 and 180 respectively. Husbands' income of housewives is in between. The data, generally, indicates that average monthly household income of the interviewees is low if husbands' income is taken as a proxy.

In terms of labor force participation history, 69.9 per cent of the respondents had not worked before marriage while 30.1 per cent had been engaged in some kind of work. Such distribution among different labor force status categories reveals that there is a direct relationship between premarital work experience and continuation of work in the formal sector as 56.3 per cent of women in the formal sector were found to have had work experience before marriage. The opposite seems true in the case of housewives - only 9.9 per cent of them were found to have had work experience before marriage.

The statistics on age at first marriage (Table 8) also shows that nearly two out of every five women (38.8 per cent) reported to have got married before the age of 16 whereas those who entered into marital union for the first time between ages 16

and 18 years were about one in three (35.7 per cent). Those who married at ages 19 and older were about one out of four (24.1 per cent). Slight variation is, of course, observed when one looks at the data along different labor force status categories. About one-third (33.8 per cent) and a little over one-fourth (26.8 per cent) of the women in the formal sector respectively reported to have got married after age 18 and before age 16 while these rates were different in the case of housewives in the same age limits indicated (18.2 and 45.1 percent respectively). As expected, it appears that women working in the formal sector seem to marry later than others.

Examination of the data on births shows the presence of illegitimate births of a very small magnitude (1.5%). Comparison of these figures along different labor force status categories reveals that a small proportion of them (around 2 per cent in the formal sector but about 1 per cent in the other categories of labor force status) appeared to have been involved in premarital sex. As their age at first marriage has no effect on their child bearing experience, these women were excluded from further analysis.

Information on use of contraception[12], as indicated in Table 8, reveals that only 29.0 per cent of the sampled women were found to be contraceptors. Responses given by women belonging to different categories of labor force status, tends to go in line with the expectation that women in the formal sector of work are more contraceptors than others : 47.9, 20.3 and 18.6 per cent of women each belonging to

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[12] Status of current use of contraception is measured in terms of current use. Current users are those who reported themselves as currently practicing some method of contraception and mention the name of the method being practiced. In this study both traditional and modern methods are treated equally since the use of safe period, prolonged abstinence, withdrawal and the like is found to have significant effect on the fertility behavior of respondents.

the formal, informal and no-work categories were found to be using one or another method of birth control at the time of the interview (see Table 8).

A simple percentage distribution on respondents' occupation[13] shows that of those women in the formal sector, three out of four (74.4 per cent of them) were engaged in the production and related activities while the same proportion (74.9 per cent) of women from the informal sectors were found to have been engaged in petty trade. Further occupational classification of respondents also reveals that 19.7 per cent of the respondents in the informal sector were engaged in agricultural work while 17.9 per cent of the women in the formal sector were employed in major occupational categories known as clerical, service, professional, and administrative sectors but all were grouped under the Not Classified Elsewhere (NCE) category because of small sample size.

[13] Categorization of respondents' occupation is based on the country's occupational classification literally prepared by the Ministry of Labor and Social Affairs [see MOLSA, 1978].

CHAPTER FOUR

FERTILITY LEVELS AND DIFFERENTIALS

4.1 Fertility Levels

This section deals with the marital fertility levels of women living in Akaki that belonged to three different labor force status categories, namely, formal, informal and no-work. To accurately indicate the levels of fertility, one, of course, needs to have complete registration of births. In developing countries like Ethiopia, however, there is no registration of vital events at all. In order to overcome such a problem Coale, Hill and Trussell [UN, 1983: 64] developed a method known as the **P/P^* ratio method** (where P is observed average parity, and P^* is standard average parity by duration of marriage). The method helps to indirectly estimate the levels of marital fertility using defective data obtained from censuses and surveys. The method requires data on retrospective and current fertility (i.e. children ever born and births in the last 12 months preceding the survey) by duration of marriage.

Though information required for the application of the method were available, this indirect technique of fertility estimation could not be applied in this study due to the fact that the method can only be used in populations in which there is and has been very little voluntary fertility control. The method is highly dependent on the assumptions that in the absence of voluntary birth control, fertility by duration of marriage is supposed to have similar pattern of natural fertility [Loc. cit. 64-65]. About 30 per cent of the total women and half of the women in the formal sector were found to be contraceptive users at the time of the survey. (see Table 8).

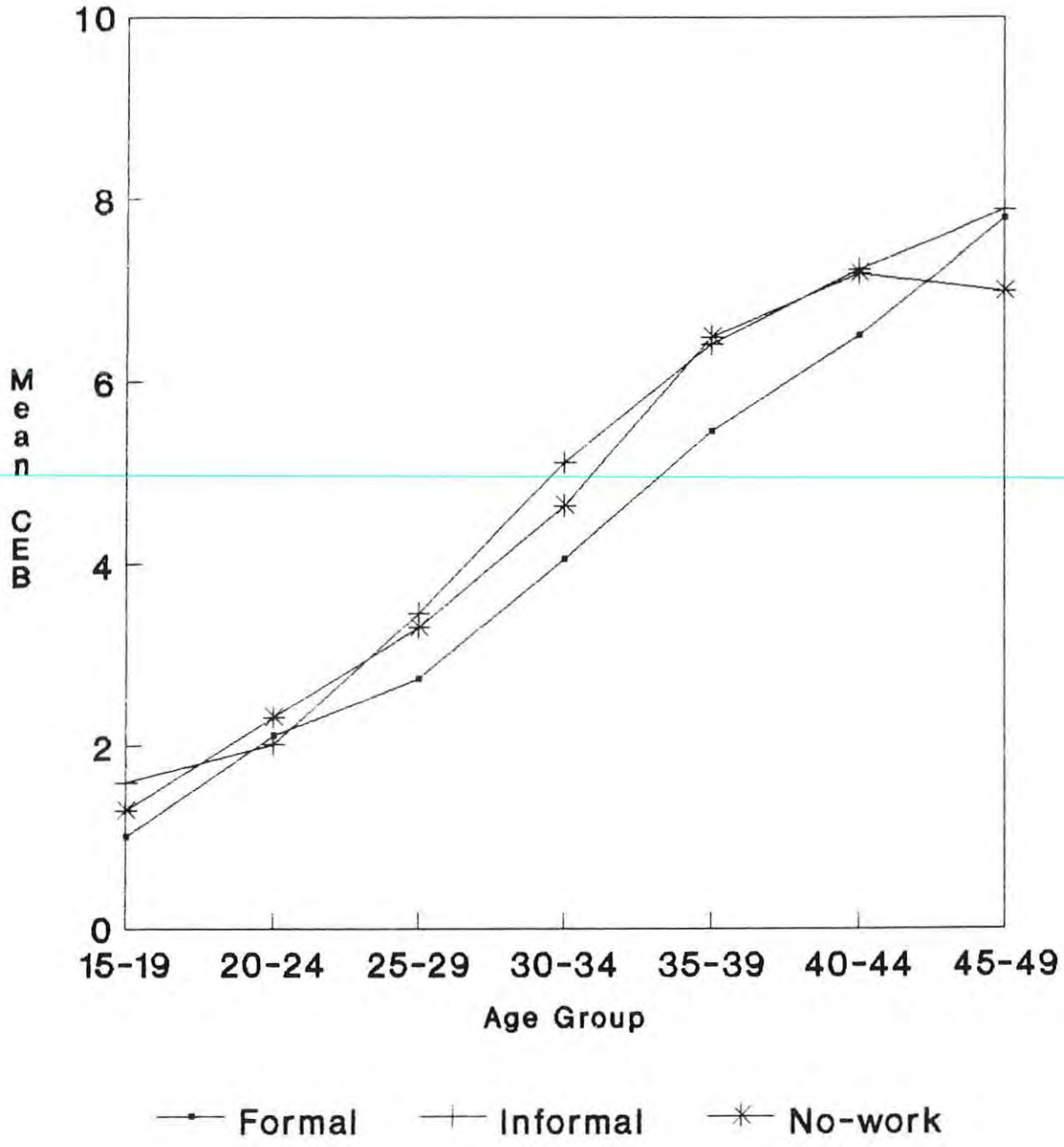
The mean number of children ever born, sometimes known as current parity, was used to indicate the fertility levels of women under study. It is the average number of children ever born by individual women at certain specific age group and is one of the most commonly used measure in fertility analysis. It indicates the quantum of fertility of a population. The mean number of children ever born to women aged 45-49, for instance, reveals an estimate of the cumulative fertility by the end of the reproductive period while the same information for those in the age group 25-29 provides an estimate of the cumulative fertility at the peak fertile age group.

Table 9 Mean Number of Children Ever Born per Woman by Age Group and Work Status: Akaki, 1993.

Age Group	Status of Work			All Women	N
	Formal	Informal	No-work		
15-19	1.00	1.60	1.29	1.30	17
20-24	2.11	2.02	2.31	2.19	173
25-29	2.74	3.46	3.30	3.15	394
30-34	4.06	5.12	4.64	4.55	353
35-39	5.46	6.42	6.49	6.10	322
40-44	6.51	7.23	7.19	6.99	158
45-49	7.80	7.89	7.00	7.60	58
Total	4.21	5.10	4.45	4.58	1475

Table 9 presents the mean number of children ever born (CEB) to all women and to women that belong to different categories of labor force status by age at survey. Reported average parity was the highest for women in the informal sector, followed by those in the no-work category and lastly by those in the formal sector. As expected, the means increase consistently with increasing of age. Exception to this is the mean number of children ever born in the last age group (45-49) in the no work sector which

Fig 3: Mean Number of Children Ever Born
By Age Group of Mother and Status
of Work: Akaki, 1993



4.2 Fertility Differentials

Reproductive behavior of a woman is affected not only by her biological makeup but also by a number of other factors such as social, economic, demographic and psychological factors among others. Differences in the age at first marriage, use of contraception, duration of breast-feeding and other factors that instantly affect fertility may come to existence due to variation in the woman's socio-economic characteristics. Fertility may vary among women who are engaged in different categories of labor force status, who have attained different levels of education, who follow certain religious doctrine, etc. Traditions and customs may also have a non-negligible effect in motivating women to have a given number of children [Assefa, 1990:242-250].

This chapter, therefore, attempts to examine the fertility behavior of women with regard to such demographic and socio-economic variables like age at first marriage, duration of breast-feeding, current status of contraceptive use, education, childhood place of residence, family type, husband's income and occupation. Other variables such as migration status, religious affiliation and ethnic origin may also cause fertility differentials. However, it was not possible to include all these variables in the analysis because of small number of observations.

Different birth cohorts may be exposed to different socio-economic conditions that may affect the fertility behavior of women under study. While assessing the effects of socio-economic and demographic variables on the fertility experience of women, one has also to make efforts to control for the effect of such variation due to age by considering women belonging to different age cohorts separately. In this analysis

women are grouped into three broad age groups: the young (15-24) - those in their early fertility age; the middle (25-34) -those in their peak fertility age; and the oldest (35-49) - those who were approaching the end of their reproductive age.

Table 10 presents the mean number of children ever born to women by broad age group and socio-demographic variables. The table appears to give a general picture that shows if there is significant variation in mean number of children ever born by some background characteristics.

4.2.1 Age at First Marriage and Fertility

For the purpose of this study, age at first marriage was classified into three categories - those who married before age 16, between 16 and 18 years and those who married at age 19 or older.

The data given in Panel A.1 of Table 10 indicates that mean parity is inversely related with age at first marriage. The former declines as the latter increases. The difference is found to be statistically significant for all women (15-49), as well as for those in different age cohorts at 0.05 level of significance. According to the data, when all women in the child bearing age (15-49) are considered, women who married before their 16th birthday had 5.5 children while those who married between 16 and 18 years had 4.4 children per woman and those who married at 19 years or older had 3.3 children per woman on average (Table 10 panel A.1).

Examination of the data through the application of Scheffe's test, moreover, reveals that differences are statistically significant between all categories of age at first

marriage except the last two categories (i.e. 16-18 and 19+) for the young (15-24) age cohort. The difference for the entire child bearing age group (i.e. 15-49) is about one child from one category of age at first marriage to another. Separate examination of the data in the young, medium and older ages of child-bearing also revealed results in the expected direction. The persistence of fertility differentials due to variation in age at first marriage may, therefore, be the consequence of differences in the period of exposure to conception and its strong correlation with the attainment of better education and employment outside home.

4.2.2 Current Contraceptive Use and Fertility

A woman who does not have any knowledge of family planning is not expected to use contraceptive. Information obtained from the study area indicates that almost all (98 per cent) of the respondent have heard of at least one method of family planning but the proportion who reported use of at least one method of family planning is limited to 50.3 percent. The mean and median ages at first use of contraceptive were found to be 25 and 24 years respectively with a standard deviation of 5.65 years. The minimum age at first use of contraception was reported to be 15 while the maximum age was 44. Information on current use of contraception was collected by directly asking women whether they or their spouses were using any method of family planning to delay pregnancies at the time of the survey. For the analysis respondents were, therefore, classified into current users and non-users.

Women usually use contraceptive for spacing of births or for stopping. Use of contraception is found to cause fertility differences among women under study. At

Akaki current contraceptive users were found to have substantially lower number of children ever born as compared to non-users. Results were similar for respondents in the entire age group (i.e. 15-49) and also for each of the three age cohorts: the young (15-24), the peak reproductive (25-34) and the oldest (35-49 years). The variation in average parity, was found to be statistically significant only for those in the peak fertile (25-34) age cohort and those in the entire reproductive age (15-49). (See Panel A.2 of Table 10). Probable explanation for such finding could be that older women (35 and over years) might have started using contraceptive recently, i.e., after their fecundity is reduced, while couples at young ages (less than 25 years) might have used contraceptive for a limited period of time.

4.2.3 Duration of Breast-feeding and Fertility

Duration of breast-feeding indirectly alters the level of fertility through its influence on postpartum amenorrhea that affects the duration of birth interval.

In the present study, data on duration of breast-feeding were collected only for the ultimate and pen-ultimate child. The rationale for collecting such limited information was that women failed to give reliable information on the duration of breast-feeding for older children, may be due to memory lapse. Here the aim was to measure duration of breast-feeding by taking the average duration of the last two closed birth intervals. Unfortunately, this was hardly possible since 37 per cent of the respondents were lactating their ultimate child during the time of interview and women with the last closed interval have become smaller in size. Since the collected data did not permit to take the average duration of breast-feeding of the last and next-

to-last children it was, therefore, decided to confine the analysis for the pen-ultimate child alone.

Incomplete duration of breast-feeding as a result of death of a child before reaching the age of weaning was the other serious problem encountered during the analyses. Because for those women whose children died at an early age, shorter duration of breast-feeding was recorded. Since this condition tended to distort the overall effect of lactational amenorrhea on the level of fertility, it was further censored and women whose pen-ultimate child died before reaching the age of weaning were excluded and the analysis was restricted to women whose next-to-last child has survived for a full period of breast-feeding.

The results of the examination of the relationship between fertility and duration of breast-feeding indicate that there is no statistically significant difference in mean number of children ever born by duration of breast-feeding. Specific analysis made for those distinctive age cohorts have also revealed the same result. The persistence of statistically insignificant differences in fertility by duration of breast-feeding could be attributed to the possible effects of contraceptive use in the absence of longer duration of breast-feeding.

Table 10 Mean Number of Children Ever Born by Socio-Economic and Demographic Variables and One-way ANOVA[14] Results: Akaki, 1993

	AGE Group			
	15-24	25-34	35 & Over	All Ages
A. Demographic Variables				
A.1 Age at First Marriage				
Below 16 years	2.6 (57)	4.6 (264)	7.1 (249)	5.5 (570)
16-18 years	2.0 (94)	4.0 (254)	6.4 (178)	4.4 (526)
19+ years	1.7 (39)	2.6 (213)	5.5 (103)	3.3 (355)
F ratio	10.1946***	80.2843***	15.8549***	83.3312***
Degree of Freedom	2	2	2	2
A.2 Status of Current Use				
Users	2.0 (64)	3.5 (248)	6.2 (114)	3.8 (426)
Non-users	2.2 (117)	4.0 (454)	6.6 (413)	4.9 (984)
F ratio	2.0068	13.4461*	3.3114	39.1390*
Degree of Freedom	1	1	1	1
A.3 Duration of Breast -feeding in months				
0-12 months	2.6 (60)	4.0 (253)	6.7 (165)	4.8 (478)
13-24 months	2.8 (41)	4.1 (235)	6.8 (200)	5.1 (476)
25+ months	2.3 (16)	4.2 (137)	6.3 (121)	5.0 (274)
F ratio	2.4070	.6468	1.4964	2.9094
Degree of Freedom	2	2	2	2

[14] Results were obtained by running one-way ANOVA for each of the age groups separately, and by taking a single variable at a time. The table was made by combining summary results .

(Contd.)

B. Socio-Economic Variables

B.1 Educational Level								
Non-formal	2.3	(53)	4.4	(339)	6.8	(387)	5.5	(779)
Elementary (1-6)	2.2	(57)	3.8	(197)	6.2	(108)	4.2	(362)
Junior & above (7+)	2.0	(80)	2.8	(211)	4.7	(43)	2.8	(334)
F ratio		1.9414		50.8855*		18.7548*		147.75*
Degree of Freedom		2		2		2		2
B.2 Childhood Type of Place of Residence								
Rural	2.0	(51)	4.2	(299)	6.6	(304)	5.2	(654)
Small Town	2.2	(105)	3.8	(316)	6.5	(166)	4.2	(587)
Large Town	2.0	(34)	3.2	(132)	6.2	(68)	3.9	(234)
F ratio		.2020		14.0250***		.7400		30.2586***
Degree of Freedom		2		2		2		2
B.3 Family Type								
Nuclear	2.2	(132)	4.0	(492)	6.7	(379)	4.8	(1003)
Extended	2.0	(58)	3.4	(255)	6.2	(159)	4.2	(472)
F ratio		1.3534		15.9594***		4.7545*		17.5608***
Degree of Freedom		1		1		1		1
B.4 Husbands Income								
Less than 150 Birr	2.1	(69)	3.7	(206)	7.3	(134)	4.6	(409)
150-299 Birr	2.2	(70)	4.1	(329)	6.1	(236)	4.6	(635)
300 Birr & above	2.1	(50)	3.4	(209)	6.6	(160)	4.4	(419)
F ratio		.1229		10.4089***		9.7811***		.5871
Degree of Freedom		2		2		2		2
B.5 Husband Occupation								
Formal	2.1	(158)	3.8	(612)	6.4	(464)	4.6	(1234)
Informal	2.0	(31)	3.8	(132)	7.34	(70)	4.6	(233)
F ratio		.2595		.0001		8.0437*		.7482
Degree of Freedom		1		1		1		1

N.B. Figures in parenthesis () are number of observations.

*significant at .05 level
**significant at .01 level
***significant at .001 level

4.2.4 Educational Level and Fertility

In this study respondents' educational level is divided into three categories[15]: non-formal[16] education, primary (1-6), and junior secondary and above (7+). In spite of the low level of higher educational attainment among the study women (please see Table 8), there appears to be statistically significant differences in the mean number of children ever born by level of education. Achievements in education, as shown in Table 10, tend to be inversely related with the level of fertility.

Results of this analysis are in agreement with previous findings in the country. Educational level is found to be one of the most important socio-economic factors that account for variation in the level of fertility [see CSA, 1993:149-151; Assefa, 1990:256-258].

The results of one-way ANOVA is presented in Panel B.1 of Table 10. It reveals that there is statistically significant fertility differential by level of education. According to the data, fertility is getting lower and lower with increasing level of education. Similar results were also obtained when the analysis was carried out separately for the three age cohorts: the youngest (15-24); the midst (25-34) and the oldest (35-49). The difference in the youngest age group (15-24) is, however, not statistically significant perhaps due to limited exposure to fertility experiences or because of small number of observations in the age group.

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[15] Because of problem of sample size analysis could not be made by grade attained at each level.

[16] Non-formal education includes those with no education as well as those with non-formal education (church, mosque, national literacy etc.).

Further examination of the data through the application of Scheffe's test shows that such differences are statistically significant between those who have non-formal education and the other two groups, independently; and also between those who have attained primary, and junior and above schooling.

A remarkable effect of education on the fertility of respondents is observed among those who have attained grade 7 and above. The result, in general, seems to replicate the findings of Cochraine [1979] and Teinda [1984, both cited in Assefa, 1990:258] who state that "... the most substantial reduction [in fertility] often comes with the increase from elementary schooling to secondary and above".

4.2.5 Childhood Place of Residence and Fertility

Growing-up in different environment by itself is supposed to play important roles in bringing about variation in outlook, behavior and attitude. A city environment, for example, exposes respondents to modernization elements. Traditional values and norms look to be less effective in metropolitan communities. Information like use of contraceptives and way of leading better life are diffused at the lowest rate in rural villages. The pace of diffusion is relatively high in large urban centers. These and similar differences among rural, petty towns and city environments may bring about disparities on factors that influence the level of fertility.

The data presented in Panel B.2 of Table 10 indicate that reported mean parity is the lowest for women of city origin compared to those from rural and small urban towns. Average parity is 3.2 children per woman for those of city origin while it is 4.2 and 5.2 for those who were brought up in rural areas and small towns respectively.

The difference among these groups is found to be statistically significant for all ages and for those in the peak fertile age cohort (i.e. 25-34). When Scheffe's test was applied, statistically significant difference was observed between those who grew up in rural areas and large towns only. The variation in other combined groups (i.e. rural and small towns on the one hand and small and large towns on the other hand) is not statistically significant.

As already discussed, results obtained for the oldest (35-49) and the youngest (15-24) age cohorts are inconsistent. Relying on the results obtained for the midst (25-34) age cohort and the entire age group (15-49) it could be said that females with city background have smaller number of children than those who grew-up in rural areas and small towns.

4.2.6 Family Type and Fertility

Information collected on family type were examined with respect to data on a number of children ever born. Examination of the data for the study population through one way ANOVA revealed that differences in fertility due to family type has gone contrary to expectation (see panel B.3 of Table 10). Women in extended families were found to have fewer number of children ever born than those who were living in nuclear families. The difference is found to be significant. Results were not different when the analysis was done separately for the last two age cohorts.

Nag [1967] and Pakrasi and Malaker [1967 both cited in Burch and Gendell, 1970:227-229] indicated that substantial number of women living in joint families have smaller number of children ever born as compared to those simple (same as nuclear)

families. Ignoring the results obtained for the youngest age group because of small sample size, one may explain such unexpected results, i.e. lower fertility among women living in the extended families, as follows:

(1) There may be lack of privacy among couples. Over-crowdedness may reduce the rate of coital frequency between husband and wife. Lower rate of sexual intercourse for a longer period of time may result in low fertility.

(2) The influence of extended family in an industrial town may not be as strong as it is in traditional societies. Relatives living in extended families may not have real power to motivate reproduction. Some of these individuals might be those who were allowed to live with couples to provide help in managing household duties.

(3) Parents in the extended families in the town may have less motivation for many children to make up the family life and/or their own status in the household (see also Burch and Gendell, 1970: 227-236].

(4) Increased cost of urban life may not encourage parents in extended families to have larger family size.

4.2.7 Husband's Income and Occupation and Fertility

In order to investigate differences in fertility due to variation in husband's income, three categories of income[17] were set: those earning less than 150 Birr, 150-299 Birr and 300 Birr and over .

As indicated in panel B.4 of Table 10, mean number of children ever born does not increase, as expected, with the rise of husband's income. It rather tends to decline at higher levels of income in all of the age groups with the exception of the 35-49 age

[17] Having several categories of income other than this may better indicate the effects of husband's income on fertility. That was, however, hardly possible as sample sizes became smaller and smaller while further classification was made. This categories, anyhow, are believed to mark such differences due to husband's income, if any.

cohort. Examination of the data across different age cohorts, on the other hand, shows that there was statistically significant differences in average parities among women in the midst (25-34) and the oldest (35-49) age cohorts. They, however, have different fertility patterns. Irregularities in mean number of children ever born have been observed as husband's income increased. In general, a critical observation of the data indicates that husband's income does not seem to affect fertility in a consistent and uniform manner.

The impact of husband's occupation on fertility was also assessed using one way ANOVA test. Results reveal that husband's participation in the formal sector tend to depress the fertility of women in the oldest (35-49) age cohort but not in others. Mean number of children ever born appeared to be the same among women belonging to the whole child bearing age (i.e 15-49), the young (15-24) as well as those in the medium (25-34) age cohort (see Panel B.5 of Table 10). Giving allowances for the effects of errors in average parities of women in the oldest age group it appears that husband's occupation doesn't contribute to fertility differential significantly.

To summarize, assessment of the fertility levels of women in different labor force status category indicates that there was variation in the fertility performance of women under study. Examination of fertility differentials by socio-demographic variables also indicates the existence of significant fertility differentials by some of the socio-demographic variables like age at first marriage, use of contraceptive, educational level, childhood place of residence and family type. Does the variation in reproductive performance of women in different labor force status groups continue to exist when life time fertility is taken into account and the variables that significantly

affect fertility and female labor force status are controlled? In order to observe the net effect of females' labor force status on life time fertility, results of multi-variate analysis and the Bongaarts Model are presented in the following chapter.

CHAPTER FIVE

THE RELATIONSHIP BETWEEN FEMALE LABOR FORCE STATUS AND FERTILITY

5.1 Multi-Variate Analysis

As indicated earlier, while fitting the model, children ever born to currently married women were used as a dependent variable. Three categories of female labor force status (i.e. formal, informal and no work) were used as measures of the independent variable. Other predictors such as age at first marriage, status of current use of contraception, duration of breast-feeding (in months), educational level, childhood place of residence, family type, husbands income and occupation were treated as control variables. Desired family size and consecutive birth intervals were also used as dependent variables. Age of respondent was included as a co-variate while analyzing the effect of female labor force status on the fertility of women in the entire child bearing age, i.e., 15 to 49.

The analysis was done for those women in the entire childbearing age group (15-49); and also for those in each of the three separate age cohorts: 15-24, 25-34 and 35-49 in order to see life cycle or cohort effects on the linkage between female labor force status and fertility.

While analyzing the data, careful examination was made to treat interaction effects using analysis of variance. The results indicated no statistically significant interaction effects.

5.1.1 Female Labor Force Status and Fertility

In this section, the focus is to examine the fertility of women in relation to their labor force participation status. The analysis is based on 1,148 currently married women[18] of reproductive age of which 377, 380 and 391 of them respectively belonged to the formal, informal and no-work categories.

Table 11 presents the results of multiple classification analysis applied to all women in the childbearing age (15-49), and also the three broad age cohorts (15-24, 25-34 and 35-49) by labor force status. The average parity for all women of childbearing age is 5.0 children per women. It is 2.7, 4.1 and 6.7 children per women in the youngest (15-24), middle (25-34) and oldest (35-49) age cohorts respectively (see Table 11).

The effects of female labor force status on marital fertility for all age group and the separate age cohorts are shown in Table 11. The unadjusted values are the gross effects of that particular predictor on the fertility of women together with other predictors while those in the adjusted column are net effects obtained after controlling for the influences of other predictors.

Values of **ETA** and **BETA** are also indicated in Table 11 and subsequent tables just following the values of the effects of each predictor in their respective category. They are, of course, not the squared once. In addition, R squared that shows the proportion of variance in the dependent variable being explained by the model is given

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[18] The sample size is reduced to this figure due to omitting some women who didn't give responses to one of the variables taken into account and also because of exclusion of not applicable cases.

at the end of Table 11 and in subsequent tables. The model explained 52.6 per cent of the variation in mean parities (see Table 11).

Table 11 Unadjusted and Adjusted Deviations of Children Ever Born from the Grand Mean by Age Group and Female Work Status, Akaki:1993.

Work Status	UNADJUSTED DEVIATION					ADJUSTED DEVIATION			
	15-24	25-34	35-49	All		15-24	25-34	35-49	ALL
Formal	-.13	-.49	-.57	-.45		-.03	-.18	-.30	-.24
Informal	-.06	.48	.40	.58		.05	.26	.18	.23
No-Work	.08	.06	.14	-.14		-.01	-.06	.10	.01
Eta	.10	.22	.17	.17	**Beta**	.03	.10	.09	.08
Grand Mean	2.65	4.09	6.70	5.0					
N	114	572	462	1148					
R Squared	.422	.382	.237	.526					

N.B. Adjusted (net) effect of work status on fertility is found after making allowances for the effects of the following variables (1) Education (2) Status of Current Use of contraception (3) Family type (4) Childhood type of place of residence (5) Husband's income (6) Husband's occupation (7) Age at first marriage (8) Duration of breast-feeding and (9) Age (in the case of all women).

According to the results of the multiple classification analysis, labor force participation in the formal sector appears to have a negative effect on the fertility of women in the entire child bearing age (15-49). It tends to reduce the fertility of women in this age group by about 0.24 children per woman. Here participating in the traditional sector of the economy, on the other hand, tends to increase average parity by about 0.23 children per woman. Never participating in the labor force since marriage appears to have no relationship with the fertility of women in the age group 15-49 - adjusted deviation from the grand mean is very small (0.01) to be significant.

According to Table 11, it may be seen that the gross effect of female labor force participation in the formal sector was to reduce number of children ever born

to women in the total reproductive age (15-49) by about half a child per woman. Participating in the informal sector, on the other hand, was to increase fertility by 0.6 child. The unadjusted effect of not participating in the labor force since marriage appeared to decrease the fertility of this group of women by about 0.14 child from the grand mean. Nevertheless, when age and other predictors are controlled the net effects of the latter disappeared. The adjusted and unadjusted impacts of participating in the formal sector were to reduce fertility while, as opposed to this, the effects of participating in the informal sector was to increase fertility.

Separate analysis made for different age cohorts, on the other hand, reveals different patterns. The relationship between female labor force status and mean number of children ever born for the last (35-49) age cohort was found to be negative for the formal sector but positive for the informal and no-work categories both before and after making allowance for the effect of other intervening variables. Here, labor force participation in the formal sector was negatively related to average parities while positive relationship between the dependent and independent variables was observed in the case of those women in the informal and no-work categories.

As expected, the gross effect of labor force participation status on fertility of women in the peak reproductive age (25-34) was negative in the case of those who have participated in the formal sector while positive relationship was found for those who worked in the informal sector and for those who did not work at all. This pattern of relationship, however, changed among the latter group (i.e. housewives) when adjustment is made for age and other predictors. Mean parity of women for this age group was reduced by 0.06 children per women from the grand mean. This may

indicate that housewives in this age cohort may not wish to have large family size perhaps due to higher cost of living.

The unadjusted effects of female labor force participation on the fertility of women in the youngest age cohort (15-24) appeared to be negative for those in the formal and informal labor force categories, but positive for those who have not engaged in any kind of work since marriage. On the other hand, when allowances were made for the effects of other predictors the direction of the relationship remained the same (i.e. negative) for those in the formal sector but turned to be negative for those who never worked at all. Positive association between work and fertility was observed among women in the informal sector. (see the adjusted column of Table 11). Nonetheless, adjusted deviations from the grand mean at all categories of work status are quite small (much closer to zero) to be considered. It may, therefore, be concluded that the effect of female labor force status on the reproductive behavior of young women is insignificant when the effect of other variables is controlled.

Considering the net effects of female labor force status on the fertility behavior of women in the entire reproductive age group (15-49), in the peak (25-34) and the oldest (35-49) age cohorts, it may be seen that the direction of the relationship is not consistent for women in the no-work category of labor force status while similar pattern of relationship is observed among respondents in the formal and informal sectors. It may, therefore, be concluded that fertility is negatively related to working in the formal sector, positively related to those in the informal sector and has no definite relationship for those with no-work.

5.1.2 Duration of Work and Fertility

Prolonged duration of work is assumed to have negative effect on the fertility of women in the formal sector. The assumption is based on the general theoretical frame-work that there is increased roles conflict and opportunity cost of child bearing and rearing for women who have worked for a longer duration in the modern sector of the economy.

Table 12 Unadjusted and Adjusted Deviation of Children Ever Born from the Grand Mean by Age Group and Duration of Work, Akaki:1993.

Duration of Work in the **formal sector**	UNADJUSTED DEVIATION					ADJUSTED DEVIATION			
	15-24	25-34	35-49	All		15-24	25-34	35-49	ALL
0-2 years	-.02	.20	-.15	-.09		.09	.23	-.05	.15
2-6 years	.04	-.30	-.32	-.52		-.05	-.05	-.07	-.06
6+ years	-.52	.21	.30	.65		.11	-.17	.07	-.05
Eta	.14	.15	.12	.21	Beta	.09	.10	.10	.04
Grand Mean	2.52	3.60	6.12	4.55					
N	25	199	153	377					
R Squared	.567	.468	.292	.547					

Duration of Work in the **Informal sector**	UNADJUSTED DEVIATION					ADJUSTED DEVIATION			
		15-24	25-34	35-49	All	15-24	25-34	35-49	ALL
0-2 years	-.02	.05	.07	-.06		.01	.02	.11	.07
2-6 years	.07	-.12	-.70	-.40		-.04	.01	-.52	-.23
6+ years	---	-.03	.58	.86		---	-.11	.27	.05
Eta	06	.04	.18	.15	Beta	.03	.02	.12	.05
Grand Mean	2.59	4.57	7.10	5.58					
N	27	180	173	380					
R Squared	.759	.354	.260	.502					

--- Not Available

N.B. Adjusted (net) effect of duration of work on fertility is found after making allowances for the effects of the following variables (1) Education (2) Status of Current Use of contraception (3) Family type (4) Childhood type of place of residence (5) Husband's income (6) Husband's occupation (7) Age at first marriage (8) Duration of breast-feeding and (9) Age (in the case of all women).

Women in the formal sector had worked for about five years on average while the mean duration of work for those in the informal sector was about two and half

years. Duration of work in the analysis is, thus, classified into three groups; that is, below, around and above average.

Results of the application of the multi-variate model to the fertility - duration of work relationship indicate that for both informal and formal sectors, fertility in aggregate terms, appeared to be inversely related to duration of work up to certain stage but suddenly changed its direction as the durations become longer (Table 12). When adjustment was made for age and other factors similar relationship appeared to exit among women engaged in the informal sector. This pattern of relationship, however, did not appear in a clear manner in the formal sector. (see Table 12). It may, therefore, be concluded that longer duration of work is not inversely related to fertility in either categories. It rather tends to show positive relationship with the fertility of women in the informal sector.

5.1.3 Birth Interval and Female Labor Force Status

Birth history analysis in the present study is based upon the timing or tempo of fertility approach. Because the immediate objective of this study is to measure variation in the timing or period between consecutive births. While analyzing birth history information, one has to understand the fact that women usually move successfully from marriage to first birth, from first birth to second birth, from second to third, etc. till they reach their completed family size [Rodriquiz and Hobcraft, 1980:8]. In the present study, therefore, a consideration of the transition from one parity to the next is made with marriage as the starting point.

Table 13 **Unadjusted and Adjusted Birth interval Between First and Second Children by Age Group and Status of Work, Akaki:1993.**

Status of Work	UNADJUSTED MEAN					ADJUSTED MEAN			
	15-24	25-34	35-49	All		15-24	25-34	35-49	ALL
Formal	29.4	33.5	32.5	32.8		28.7	34.8	33.5	33.8
Informal	24.9	30.8	29.2	29.6		26.2	30.5	29.1	29.3
No-Work	29.9	32.5	33.8	32.5		29.9	31.5	32.9	31.9
Eta	.13	.05	.09	.07	Beta	.09	.09	.09	.90
Grand Mean	28.5	32.3	31.7	31.7					
N	106	523	399	1028					
R Squared	.218	.062	.042	.038					

Table 14 **Unadjusted and Adjusted Birth interval Between Second and Third Children by Age Group and Status of Work, Akaki:1993.**

Status of Work	UNADJUSTED MEAN					ADJUSTED MEAN			
	15-24	25-34	35-49	All		15-24	25-34	35-49	ALL
Formal	26.7	34.3	35.6	34.6		21.0	34.1	35.9	34.7
Informal	22.5	30.8	30.3	30.2		27.1	31.7	30.2	30.5
No-Work	34.1	34.3	29.6	32.5		33.8	33.7	29.4	32.2
Eta	.34	.09	.13	.09	**Beta**	.32	.05	.14	.09
Grand Mean	29.8	33.1	31.7	32.4					
N	51	404	373	828					
R Squared	.542	.071	.065	.057					

Table 15 **Unadjusted and Adjusted Birth interval Between Third and Fourth Children by Age Group and Status of Work, Akaki:1993.**

Status of Work	UNADJUSTED MEAN					ADJUSTED MEAN			
	15-24	25-34	35-49	All		15-24	25-34	35-49	ALL
Formal	***	33.7	32.2	33.8		****	32.9	33.2	33.4
Informal	***	30.7	29.2	30.6		****	30.9	29.1	30.9
No-Work	***	35.0	33.9	32.8		****	35.5	32.9	32.7
Eta	.**	.09	.09	.07	**Beta**	.**	.10	.09	.05
Grand Mean	****	33.1	31.6	32.2					
N	15	291	400	665					
R Squared	.***	.059	.042	.058					

**** Cases are too small to be considered.

N.B. Adjusted (net) effect of female labor force status on birth intervals is found after making allowances for the effects of the following variables (1) Education (2) Status of Current Use of contraception (3) Family type (4) Childhood type of place of residence (5) Husband's income (6) Husband's occupation (7) Age at first marriage (8) Duration of breast-feeding and (9) Age (in the case of all women).

Even though the interval between marriage and birth of the first child has a great implication on fertility of women under study, it was not considered in the analysis because information on date of marriage (particularly the month in which the marriage took place) was not reported for a significant proportion of the respondents. Assuming that the birth interval between the first and the second, the second and the third as well as the third and the fourth child indicate any variation that may exist among female labor force participation status, the analysis was carried out on the basis of this information.

Tables 13, 14 and 15 present the results of gross and adjusted average reported birth intervals by status of work. It may be observed from these tables that the grand means of the length of birth intervals was concentrated around 30 months for all ages taken together, for the separate age cohorts and for consecutive births. General observation reveals that the unadjusted means for women in the informal sector appear to be the lowest while the intervals for those in the formal and no-work categories are almost comparable with slightly higher values for women in the formal sector.

Nevertheless, when adjusted for age and other variables, birth intervals for women in the formal sector for all consecutive births seem to be the highest with the exception of the interval between the third and fourth birth for women in the peak fertile (25-34) ages. This comparison is made disregarding the results for women in the youngest age cohort (15-24) because of small number of cases. It may be observed that birth interval of women in the informal sector is the shortest for all consecutive births

except at two points where interval for women in the informal sector appears to be higher than that for the non-working.

The difference in birth interval between women in the formal and no-work categories is about two months while it is not less than four months in the case of women in the informal and formal sectors of work.

Generally speaking, it is possible to say that exposure to the outside world tends to motivate wives working in the formal sector to delay their pregnancies which may lead to a reduced life-time fertility.

5.1.4 Breast-feeding, Current Status of Contraceptive Use and Female Labor Force Status

Since contraceptive use and duration of breast-feeding are expected to affect fertility of women engaged in different categories of work status, in this section effort is made to examine the relationship of these predictors and female labor force status.

In the interrelationship between duration of breast-feeding and fertility, it is customarily believed that female labor force participation status affects the duration as well as the intensity of breast-feeding (see Chapter I). The results of the present study show that the median duration of lactation for working women in the formal sector was 30 minutes a day. Women who were participating in the informal sector, on the contrary, reported that their median duration of actual lactational period was 75 minutes in a day suggesting that participating in different categories of work (i.e. traditional and modern sectors) does not only bring about variation in the duration of breast-feeding but also in the intensity of feeding a child. The main reason for such

a difference may be due to the fact that women in the informal and no-work categories may take their children with them whenever they go to the market, place of work, etc., and breast-feed their children whenever the necessity arises. Women in the other category of work, however, are deprived of such opportunities.

Table 16 presents the unadjusted and adjusted duration of breast-feeding (in months) by status of work and age group of women.

Table 16 Unadjusted and Adjusted Duration of Breast-feeding (in months) by Age Group and Status of Work, Akaki:1993.

Status of Work	UNADJUSTED MEAN					ADJUSTED MEAN			
	15-24	25-34	35-49	All		15-24	25-34	35-49	ALL
Formal	12.7	16.0	17.7	16.5		12.1	17.6	17.5	17.0
Informal	14.6	19.8	21.5	19.8		16.0	18.9	21.8	19.8
No-Work	18.4	21.6	22.6	21.3		18.1	20.8	22.4	21.3
Eta	.22	.19	.17	.17	**Beta**	.21	.11	.18	.14
Grand Mean	16.3	19.1	20.6	19.4					
N	111	548	451	1110					
R Squared	.171	.096	.071	.071					

N.B. Adjusted (net) effect of female labor force status on duration of breast-feeding is found after making allowances for the effects of the following variables (1) Education (2) Status of Current Use of contraception (3) Family type (4) Childhood type of place of residence (5) Husband's income (6) Husband's occupation (7) Age at first marriage (8) Duration of breast-feeding and (9) Age (in the case of all women).

As expected, women working in the formal sector seem to breast-feed for the shortest duration, followed by those in the informal sector. Housewives appear to breast-feed their children for the longest duration. This pattern holds true both before and after making allowances for the effects of age and other predictors.(See Table 16).

Looking across different age cohorts, it may be observed that duration of breast-feeding appears to be declining over time. Women in the youngest (15-24) age

cohort breast-fed their children for the shortest period, followed by the midst (25-34) and lastly by the oldest (35-49) age cohorts. Similar pattern of duration of breast-feeding was also observed among women in different age cohorts by status of work. The pattern did not change even after controlling for the effects of some other intervening variables, except for women in the oldest (35-49) and the midst (25-34) age cohorts in the formal sector where average duration of lactation remained almost the same.

In order to evaluate the association between female labor force status and current status of contraceptive use, a log linear model was applied to the data. The model was used for this particular analysis because it tests the significance of all effects specified in the model and estimates parameters by maximum likelihood [Norusis, 1985 :319-340]. The results obtained indicate that active participation in the formal sector would promote contraceptive use by about 14 per cent while working in the informal sector and never working at all appeared to depress use of contraception by about 7 per cent each.

On the basis of the results indicated above, perhaps it is possible to say that use of contraception and participating in the modern sector of the economy do have direct linkage while there is inverse relationship between use of contraception and working in the traditional sector and no-work category. As already indicated, the majority (about three fourth) of the women in the formal sector are factory employees. They have better access to contraceptive use than others. This is true, since major industrial settings in the town have their own clinics that provide basic health care as well as modern birth control services. About 95 per cent of contraceptive users from the

formal sector responded that they visit clinics or health stations to obtain contraceptive.

In addition, women in the formal sector were better educated than those in the informal and no-work categories. Differences in educational attainment is expected to bring about variations in the degree of exposure to modernity. High exposure to the new world, on its part, is supposed to promote use of contraceptive more often and frequently than those who have little exposure.

On the other hand, modern contraceptives such as pills, IUD, Diaphragm, etc., are not yet commercially available on open markets. The availability of these methods is still confined to government clinics and hospitals. Visiting these institutions to obtain family planning services may not be an easy task for housewives and those who are engaged in the informal sector. This difficulty arises either from fear or other social and psychological conflict. On the contrary, women working in the formal sector are believed to be free of these challenges because of their wider exposure to new ideas, economic self sufficiency, better access to health services, etc.

As discussed in Chapter I, analysis of employment-fertility relationship is based upon two basic theoretical frameworks - sociological and economic perspectives. The former is based upon the role incompatibility hypothesis that puts special emphasis on the diverse roles a woman plays (:he role of child rearing and working). The latter deals with the micro-economic theories of household decision making that focuses on the opportunity cost of children [see UN,1987; Kasarda et al, 1986].

Women are socially and biologically expected to bear and rear children. Females are more responsible for children than males. They are expected to look after

them when they are young. As a matter of fact, women who are participating in the labor force are obliged to deal with two major important roles: the role of a mother and a worker.

Participating in the labor force is expected to exert its influence on fertility when the two roles are incompatible. That means, because of the difficulties a woman is obliged to choose between working and rearing children. Giving up work or using some other mechanism that delays her pregnancy are the two possible options readily available for her.

Explaining the relationship between fertility and labor force participation through role incompatibility hypothesis is of course not an easy task. It is quite difficult and complex, because a woman is committed to a number of roles in her social life besides work and child care.

In spite of such difficulties, attempts were made to explain the interplay between conflict of roles as a mother and a worker among currently working respondents in the formal and informal sectors. In order to measure the extent of role conflict three questions[19] that measure women's attitude towards work-fertility relationship were imposed and the responses were given a value of '0' if it was affirmative but '1' otherwise.(see Appendix). A scale was then made to measure the extent of role conflict between working and rearing of children. The values range from

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[19] The questions were focused upon whether respondents were taking their kids to their place of work; whether rearing and participating in the labor force bear some difficulties on their daily life and respondent's feeling about working away from home. The internal consistency (expressed in simple correlation between item and test) of responses for these index was also tested. (r_{1x} = .0146 r_{2x} = .2188* r_{3x} =.057).

0 (where there is no conflict at all) and 3 (where the conflict is assumed to be maximum). Intermediate values of 1 and 2 were taken as indicators of moderate conflict between the two roles.

Percentage distribution of the index shows that 55 per cent of the respondents in the formal sector have reported to face difficulties in combining both roles of working outside home and child rearing. Such complaints, on the other hand, have been raised only by about 26 per cent of the women engaged in the informal sector. The result indicates a higher likelihood of role conflict between child care and working away from home.

Attempt was also made to measure the extent of association between role conflict and number of children ever born to a woman. A simple correlation test indicates that there was a positive (r=.1132) relationship between them in the formal sector. A very weak negative association (r= -0.0166) appears to exist between role conflict and number of children ever born in the case of women in the informal sector. The result could be interpreted in such a way that as women working in the formal sector gave more birth, they are likely to face more difficulties in managing both household duties and work outside home. Increased fertility, on the other hand, seems to have insignificant effect on the roles of women in the informal sector.

However, it is still difficult to arrive at firm conclusions on the basis of such finding. As indicated earlier (Chapter I), the presence of young children who need close attention in the household is one of the constraints to retard mothers from working outside home by imposing role conflict. In the Ethiopian context, this phenomenon does not seem to cause a very serious problem to affect women's participation in the labor force. Working mothers are found to use different ways to

avoid this conflict. Some of these are: (1) asking one of the family members to look after children; (2) leaving children with neighbors, and (3) hiring baby-sitters.

Table 17 Percentage Distribution of Persons who were Looking after Children (aged 0-6) of Currently Working Women by Status of Work, Akaki 1993.

Person looking after children	Status of work	
	Formal	Informal
Children's siblings	30.6	15.0
Relatives	22.9	6.5
Baby-Sitters(includes domestic servant)	15.9	3.3
Neighbors	8.1	6.1
Respondents herself	2.7	49.1
Child-care centers	4.7	3.1
others (combinations of two or more)	15.1	16.3
Total	100.0	100.0

As Table 17 shows, siblings play significant roles in taking care of working women's young children when they leave for work. Relatives come next to ease the burden of working mothers in the formal sector. The proportion of women in the formal sector who reported to take their kids to their work places were 2.7 per cent; and they were elementary school and kindergarten teachers whose major task was related to child care activities. As expected half of the women in the informal sector were found to combine their task of child rearing and working.

The role of older female children in reducing the working mother's role conflict is not limited to baby sitting alone, but extends to managing household activities. About 80 per cent of the respondents working in the formal sector have also reported to get their daughters' assistance in household activities. Mother substitutes of older

children seem high in Akaki perhaps due to (1) larger number of high school dropouts (2) low employment opportunity of adolescent and (3) increasing age at first marriage. Older female children living at home are, therefore, customarily expected to manage household duties if mothers are out to work. Apart from this, the existing half-day schooling system plays important role in letting female children to take active part in domestic activities.

The concept of opportunity cost of children arises from the Economic Theory of Time Allocation through which the value or cost of time allocated to a particular activity is determined by the value of its best alternative use [UN, 1987: 256]. In the current study opportunity cost of child bearing and rearing is, therefore, measured by the **wife's average hourly potential rate multiplied by average child care time per day per woman.** In order to manipulate this index, information on monthly income, average number of working days in a week and working hours in a day were collected. Accordingly the results are summarized and presented in Table 18.

Table 18 Average Monthly Income, Working Days in a week and Working Hours in a Day of currently working Women,Akaki:1993.

	Status of Work			
	Formal		Informal	
	Mean	Median	Mean	Median
Average daily working hours	7.8	8.0	8.7	10.0
Average Weekly working days	5.9	6.0	4.8	6.0
Average monthly income	191.8	180.0	42.1	22.5
Total Number of Observations	(424)		(295)	

In addition to this, during the time of interview respondents were also asked to report on whether they had children under age of six[20] that were living with them. About 73 and 74 percent of the respondents from the formal and informal sectors have respectively reported that they had children under the age of six. Average number of these children per woman was 1.6 in the formal sector and 1.7 in the other group.

Women who were participating in the labor force during the time of the survey were also asked about the average time they spent on feeding, washing, refreshing, recreating, breast-feeding, etc. The result was about 2 hours among women working in the formal sector while it was about 3 hours for others. This is, of course, a crude measure but would indicate average time spent on child care activities by status of work.

The calculated opportunity cost of child-rearing for currently working women was 1.90 Birr for the formal sector while it is 0.30 Birr for the informal sector. Theoretically, working woman in the formal sector are potentially loose about one-fourth of their monthly income by virtue of paying attention to child care activities. However, in Akaki, child care practice is not an obstacle for mothers to work away from home. Child care substitutes such as domestic servants, older siblings, relatives and others are easily available. Median monthly wage paid to a domestic surrogate that could handle both child care and household activities is about 20 Birr. This

[20] Attention is paid to those youngsters under school age (approximately six). Children beyond this age, under normal conditions are expected to go to school or stay outside home and relatively need little attention of mothers.

amount is about 10 per cent of the average monthly income of women participating in the formal sector.

Existing laws in the country, moreover, allow women in the formal sector to easily rejoin their jobs after delivery. According to the latest labor law of Ethiopia a woman worker is entitled for 30 consecutive days of pre-natal and 60 consecutive days of post-natal leave with pay. In addition, a pregnant woman is entitled for leave by a recommendation of a medical doctor [see Negarit Gazeta, 1993:244].

To sum up, time and income constraints have no or very little effect on the labor force participation - fertility relationship in the study area. A working woman has ample opportunities to have substitute mothers so that her roles as a mother and a worker are compatible. Domestic servants are available at a relatively low cost; Kinship support is still active in sharing the burden of working mothers with regard to household and child care activities; and older children in the household (if available) play active roles in looking after young children and also managing household duties.

5.1.5 Desired Family Size and Female Labor Force Status

Desired family size in this study is treated in such a way that it can indicate fertility preference of a woman. It refers to the total number of children a woman wishes to have by the end of her reproductive age including those she has already given birth to. It is simply obtained by adding actual fertility to the total additional number of children the woman wants to have. Such type of measurement of desired family size might be biased for one reason or another [see also Lasthagne et al.,

1981:170]. It is, however, believed to indicate the level of fertility preference of respondents in each categories of labor force status.

While collecting information on the number of additional children desired by respondents only 2.2, 4.1 and 2.6 per cent of women in the formal, informal and no-work categories, respectively, have reported that they "haven't decided yet". Answers like "As many as possible" or "It is Up to God" were probed, that is, respondents were further asked how many children they would like to have if God allows them make such a decision. These responses constitute 2.1, 2.4 and 1.8 per cent of the total answers for the question representing three categories of labor force status respectively.

Table 19 Unadjusted and Adjusted Deviations of Desired Family Size from the Grand Mean by Age Group and Status of Work, Akaki:1993.

Status of Work	UNADJUSTED DEVIATION					ADJUSTED DEVIATION			
	15-24	25-34	35-49	All		15-24	25-34	35-49	ALL
Formal	.65	-.46	-.42	-.34		.83	-.15	-.06	-.10
Informal	-.31	.58	.36	.57		-.27	.34	.13	.22
No-Work	-.14	-.04	.00	-.22		-.23	-.15	-.09	-.11
Eta	.21	.20	.14	.17	Beta	.26	.11	.04	.06
Grand Mean	4.31	5.47	7.25	6.08					
N	111	548	450	1109					
R Squared	.123	.156	.164	.318					

Adjusted (net) effect of work status on desired family size is found after making allowances for the effects of the following variables (1) Education (2) Status of Current Use of contraception (3) Family type (4) Childhood type of place of residence (5) Husband's income (6) Husband's occupation (7) Age at first marriage (8) Duration of breast-feeding and (9) Age (in the case of all women).

As indicated in Table 19 the mean desired family size is 6.8 children per woman in the entire reproductive age. The results of multiple classification analysis presented in Table 19 show that desired fertility is negatively related with working in the formal sector both before and after controlling for the effects of age and other variables. It is positively associated with working in the informal sector. Those who have never worked desired less number of children like those in the formal sector both before and after controlling for the effects of other variables. This indicates that contrary to expectation housewives are not in favor of having larger families.Separate analysis for each of the three age groups (15-24, 25-34 and 35-49), also gives similar results with the exception of women in the youngest (15-24) age cohort: women in this age cohort were found to desire large families.

Possible explanation for desiring small family size could be attributed to the need to escape economic and social burden that large number of children would impose on low income parents who live in urban center, especially if the woman doesn't generate or contribute any financial income to the household economy.

The reason why respondents in the formal sector have desired less family size may partly be attributed to the influence of modern role orientation that provides satisfaction and serves as an alternative to child bearing.

5.2 THE BONGAARTS MODEL

In section 4.1 it was shown that women participating in the formal sector had the lowest fertility level. Mean number of children ever born by five year age group of mother in the informal sector appeared to exceed that of mean values for women in the formal sector. There was no difference in the mean number of children ever born among women participating in the informal sector and never worked at all. This section is intended to examine whether this variation was due to difference in use of contraceptive or in pattern of breast-feeding using the model proposed by Bongaarts.

The model was applied on the assumption that total marital fertility rates vary among women belonging to different categories of labor force status due to variation in the proximate determinants of fertility. Using Bongaarts and Potter's approach and assuming that the effects of induced abortion is negligible, index of contraception[21] (C_c) and index of postpartum infecundability[22] (C_i) were computed for women belonging to each status of work separately and for the total. The change in fertility

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[21] Index of contraception is computed using the formula $C_c = 1-[1.08 \times U \times E]$ where U = the proportion of all married women of reproductive age that currently use contraception, E = the average use-effectiveness of contraception (assumed to be 0.85 for developing countries [Bongaarts, 1978:111) and 1.08 is an adjustment factor for non-fecundability. [see also Bongaarts and Potter, 1983:78-102].

[22] Index of postpartum infecundability, on the other hand, is calculated using a formula $C_i = 20/18+i$ where i = duration of postpartum amenorrhoea, in months. It is computed from median duration of breast-feeding utilizing a formula $i = 1.75 \text{Exp}(0.1369B-0.001872B^2)$ where B = median duration of breast-feeding in months [see Bongaarts and Potter, 1983:21-25]. Median duration of breast-feeding is preferred to a mean value for the mere reason that the latter is affected by extreme cases.

rates, in this study, were, therefore, decomposed into two components of the proximate variables: use of contraception and postpartum infecundability.

Table 20 The Values of the Indices C_c and C_i, by Status of Work: Akaki, 1993.

Status of Work	C_c	C_i	TF*
Formal	0.54	0.75	15.3
Informal	0.81	0.54	15.3
No-work	0.82	0.54	15.3
All women	0.72	0.66	15.3

* Total Fecundity Rate (TF) is assumed to be 15.3 as given by the model itself [see Bongaarts and Potter, 1983:87-102].

As shown in Table 20, the importance of each indices appeared to vary from formal to other sectors but seem to be identical for those in the informal and no-work categories. In the formal sector, the index of contraceptive (C_c = 0.54) appears to be more important. Assuming other things remain constant, around 46 per cent (1-0.54) of the reduction in total marital fertility rate in this sector was due to use of contraception. The effect of contraceptive use on the change in total marital fertility rate of women in the informal and no-work sector is comparatively low: respectively accounts for about 19 and 18 per cent.

As opposed to the impact of contraceptive use, postpartum amenorrhoea is found to have the highest contribution (about 46 per cent) to the reduction of total marital fertility rate in the informal and no work categories while its effect on the fertility of women in the modern sector of the economy is the least - only about 25 per cent (see Table 20).

In Table 20, the contribution of each proximate variable to the reduction of the total marital fertility rate (TMFR) has been indicated by subtracting the value of each index from a unit. This is, however, sensitive to the effect of change in one index due to change in another. The safest way for evaluating the relative importance of each proximate determinant is to consider its percentage contribution to the difference between the total fertility rate and the estimated total fecundity rate derived from the model. Table 21 presents the relative contribution of each index as computed using the formula:

$[\log C_x / (\log C_c + \log C_i)] \times 100$

where C_x is successive values of C_c and C_i [see UN, 1987:173].

Table 21 Relative Percentage contribution of each of the Indices to the Differences between the Total Fecundity and Total Marital Fertility Rates by Status of Work: Akaki, 1993.

Status of Work	contraception C_c	Postpartum Infecundability C_i	Total
Formal	68	32	100
Informal	26	74	100
No-work	24	76	100
All women	44	56	100

According to Table 21, 68 per cent of the differences between the total marital fertility and total fecundity rates in the formal sector is due to use of contraception while such variation was found to be small in the informal (26 per cent) and no-work categories (24 per cent). Postpartum infecundability, appeared to have notable contribution in causing the differences between total marital fertility and total

fecundity rates among women reported to participate in the traditional sector of the economy as well as those who have never participated in any activity since their initial marriage. The relative change due to postpartum infecundability in these categories of labor force status is 74 and 76 per cent in the traditional sector and non-working group, respectively. The benefits of postpartum amenorrhea in generating change between total marital fertility and total fecundity rates among women in the formal sector is relatively small accounting only for about 32 per cent of the relative change.

From the results indicated above, it may be concluded that the change in total marital fertility rate due to use of contraception and postpartum amenorrhea were remarkable. Use of contraception appeared to be the most important proximate variable determining the fertility performance of women in the formal sector while such importance goes to postpartum infecundability in the case of women belonging to the other two groups: informal and no-work categories. However, to what degree and magnitude do these proximate variables affect the fertility of women grouped under different categories of work status? Table 22 indicates the magnitude of the effect of each of these proximate variable on the fertility of respondents by status of work.

As shown in Table 22, estimated total marital fertility rate in the formal sector (6.2) is less than that of the total fecundity rate by about 9 children per woman. Such difference also existed in the case of women in the other two categories. When the variation in TMFR is taken separately, use of contraception is found to have reduced it by 5.3 children per woman in the formal sector and by about one and half children per woman in the other two categories of work status (see column 5 of Table 22). The

calculation is done in such a way that total marital fertility rate would have risen to total natural marital fertility rate if the effects of contraceptive were absent.

Table 22 Total Marital Fertility, Natural Marital Fertility and Total Fecundity Rates by Status of Work: Akaki, 1993.

Status of Work	TMFR	TNMFR	TF	Effects due to CU 2-3	Effects due to PPI 3-4
Formal	6.2	11.5	15.3	-5.3	-3.8
Informal	6.7	8.3	15.3	-1.6	-7.0
No-work	6.8	8.3	15.3	-1.5	-7.0
All women	7.3	10.1	15.3	-2.8	-5.2

Source: Computed using the Bongaarts' Model.
CU = Contraceptive Use
PPI = Postpartum Infecundability
TMFR (Total Marital Fertility Rate) = $15.3 \times C_c \times C_i$.
TNMFR (Total Natural Marital Fertility Rate) = $15.3 \times C_i$.
TF (Total Fecundity Rate) is assumed to be 15.3 as defined earlier.

Controlling for the effect of contraceptive use, one can, of course, estimate total natural marital fertility rate that is solely affected by duration of postpartum amenorrhoea. It is basically determined by length of breast-feeding. According to Table 22, the effect of this proximate variable on the total marital fertility rate is substantial among housewives and those who engaged in traditional type of work. It seems to reduce TMFR by about seven children per woman in these categories of labor force status and by only 3.8 children per woman for those in the formal sector (see column 6 of Table 22).

Analysis of results obtained through the application of the Bongaarts' Model, in general, indicates that use of contraception is the most important proximate determinant of fertility among women engaged in the formal sector of the economy. Moreover, it validates the general idea that states that women engaged in domestic

CHAPTER SIX

SUMMARY AND CONCLUSION

In this study efforts were made to examine the relationship between fertility and female labor force status. Fertility was treated as the dependent variable while female labor force status as independent variable. Data were obtained from a retrospective survey of 1475 currently married women of childbearing ages (15-49) who were permanent residents of Akaki town. Three categories of female labor force status (formal, informal and no-work) were employed in the analysis. There were 495, 483, and 497 women in the formal, informal and no-work categories respectively.

Before making in-depth analysis, the quality of data was assessed. Although it was observed that the data contained errors of age misreporting and omission of children ever born, the data were classified in broad age groups so as to minimize the effect of these errors. Broad age groups (15-24, 25-34 and 35-49) are also believed to overcome the problems of small samples.

In the analysis, variables that are expected to affect fertility and female labor force status such as age at first marriage, current status of contraceptive use, duration of breast-feeding (in months), education, family type, childhood place of residence, husband's income and occupation were controlled.

Cross-tabulation of female labor force status with other predictors indicate that higher proportion of the respondents in the formal sector were found to be brought up in urban areas, contraceptors, late marrier, had pre-marital work experience and

had attained junior or higher level education compared to those in the informal and no-work categories.

Husband's occupation and income appeared to have some association with female labor force status. The absolute majority (97 per cent) of women in the formal sector were found to be married to men who worked in the same sector while one out of four in the informal sector reported to be married to men who worked in the same sector. Monthly income of husbands of women in the formal sector was found to be the highest while that for women in the informal sector was found to be the lowest. This may imply that there was some relationship between female labor force status and mate selection.

Occupational classification of respondents, on the other hand, revealed that the majority of the respondents in the formal sector were factory employees while those in the informal sector were petty traders. Thus, it may be stated that the present study is a comparative fertility analysis of currently married women engaged in manufacturing, selling and household activities.

Unlike occupation, other variables such as religious affiliation, ethnic group, family type and migration status appeared to have no or little influence on labor force status of women under consideration.

The results of the analyses on the fertility behavior of women indicate that most of the variables considered (age at first marriage, Status of current use of contraception, education, childhood place of residence and family type) appear to significantly affect the reproductive behavior of women in the entire childbearing age (i.e. 15-49). However, factors that affect fertility varied from one age cohort to

another. All of these variables including husband's income were found to have statistically significant effect on the fertility of women in the age cohort 25-34 while results obtained for the oldest age cohort (35-49) were inconsistent. Such inconsistency may partly be attributed to under-reporting of children ever born (see chapter II).

No statistically significant fertility differentials were observed among respondents of the youngest age group (15-24) by all socio-demographic characteristics except for age at first marriage. The insignificant of differential fertility among women in this age group may be due to the early stage of reproduction.

In general, age at first marriage, was found to be the strongest variable to cause fertility differentials in the study population while the second most important variable was education. Use of contraception, childhood place of residence and family type were also other variables that appeared to cause fertility differentials. Husband's income and occupation were found to have minimum effect in bringing about variations in fertility among women in different categories of labor force status.

The relationship between female labor force status and fertility was examined by considering information on the number of children ever born to a woman. Pictorial representation of mean number of children ever born to women by convectional age group of mothers in different categories of work status reveal that women working in the formal sector have the lowest life-time fertility rate while those in the informal sector had the highest fertility rate. Here participation in the formal sector is found to be a factor contributing to lower life-time fertility of women.

Application of Scheffe's test to the data, moreover, reveals that statistically significant differences in average parities is observed between women working in the

in the informal and no-work categories may also lead to a substantial reduction in infant/child mortality rate besides fertility regulation.

In this study, it was also found that exposure to modernity among women in the formal sector appears to reduce fertility. Women in the formal sector were more likely to listen to radio and/or television; read magazines, pamphlets, newspapers, etc. more often than those in the informal and no-work categories[23]. Besides, some of the women in the formal sector who have high status jobs are supposed to have better opportunities of participating in development oriented seminars, workshops, symposiums and the like. Women in the informal as well as no-work categories, however, appear to have very little or no chance of participating in any kind of experts' meeting where population issues and the like are discussed. Thus, in line with the objectives of the Population Policy of Ethiopia promoting and supporting population information, education and communication (IEC) that pays special attention to

(a) the consequences of high fertility on maternal and child health,

(b) the importance of relatively prolonged duration of breast-feeding on promoting infant/child health as well as child spacing,

(c) the propagation about usefulness of modern family planning methods to avoid unwanted pregnancies, and

(d) the addressing of issues pertaining to small family size and its relationship with human welfare

[23] Higher proportion (90 per cent) of women in the formal sector were reported to listen to radio/television while only about 75 per cent of women in the informal and no-work categories were found to listen to mass medias. Similarly, more than two-third of women in the formal sector were reported to read magazines, newspapers and the like whereas the proportions of women who reported to do so were less than 50 per cent in the case of informal and no-work categories, respectively.

by all possible means that could reach housewives and women in the informal sector is likely to be useful in increasing the awareness of the general public on population issues. These conditions are also believed to result in a sustained fertility decline over time.

It has been shown that use of birth control has significant effect on the reduction of fertility. Women in the formal sector are found to use contraceptive more often than those in the informal and no-work categories. Promoting contraceptive use as a possible alternative to the gradual declining duration of breast-feeding may lead to accelerated decline in fertility. Family planning services given by governmental and non-governmental organizations should, therefore, be further strengthened. In other words, the existing limited family planning service delivery to formal health institutions must be expanded by increasing the involvement of private and non-governmental organizations in family planning service delivery.

In this study, age at first marriage and educational attainment were identified as the two most important determinants of fertility[24] in urban Ethiopia. Mean parities were shown to be substantially lower for women married at latter ages than those married at younger. Average births were also found to be lower for those who have attained junior secondary and higher level of education.

Educational attainment and the timing of first marriage were also shown to have direct linkage with labor force participation in the formal sector. Thus, encouraging girls to gain more education and creating favorable employment

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[24] From the values of the coefficients of the MCA model (Eta and Beta) it appears that these variables explain most of the variations in fertility of the study population.

opportunities for females may encourage them to work before marriage for a substantially longer period of time and may elongate their age at first marriage, age at first birth and then reduce life time fertility. These, of course, may take a long time and may depend on the socio-economic development. However, efforts should be made to increase female employment opportunities and educational achievements, which are desirable goals on their own right.

Taking measures that would increase age at first marriage and females' participation in the formal sector which help them to achieve economic independence may motivate increased premarital sexual activities and undesired illegitimate births. This risk, nevertheless, could be minimized by making available effective methods of birth control.

The role of education in dealing with fertility is not only limited to enhancing the chance of employment opportunities and rising age at first marriage. It is rather assumed to lead to fertility decline through time so long as it affects traditional beliefs and attitudes towards large family size, increasing cost of child rearing as well as reducing their contribution as source of household labor and old age security.

Creating mechanisms that would increase educational attainment and female labor force participation in the formal sector is supposed to enhance their social status as a whole. If that is so, the social status being measured by motherhood, early marriage, early childbearing and aggregate fertility would diminish. In addition, improved social status of women is hoped to result in increased females' active participation in family decision making that is believed to lead to lower desired family

size and subsequently higher motivation to avoid pregnancies by using effective methods of family planning.

Economic security in old ages and fear of death of child at young age are the two common reasons why people in developing countries want to bear more children. Increasing female labor force participation in the formal sector is believed to reduce the dependency on offsprings for economic security during old ages. Achieving this goal by itself may bring about tremendous decline in desired and actual fertility over time.

It is, moreover, interesting to point out that the present study is based on a relatively small but reasonable sample size. The study may not fully indicate the fertility - work relationship in the country as whole. In order to have a broad and more representative picture of the female labor force status and fertility relationship in the country, it may be essential to carry out similar studies but with large sample size taken from different industrial centers located in different regions of the country. Had the sample size been large, it would have been possible to separately analyze the causal relationship between fertility and female labor force status in each categories of labor force status. That is, it would have been possible to examine the mutual effect of fertility and female labor force participation in the formal as well as informal sectors. Further detailed research may, therefore, be needed in this area.

Finally, it is important to underline the need for (i) a deeper investigation into the effects of education on fertility and the mechanism through which it affects reproductive behavior, (ii) studying the determinants of age at first marriage and its typical features in influencing the rate of birth, and (iii) examining the determinants

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APPENDIX

ADDIS ABABA UNIVERSITY
INSTITUTE OF DEVELOPMENT RESEARCH
DEMOGRAPHIC TRAINING AND RESEARCH CENTER
AKAKI FEMALE LABOR FORCE STATUS AND FERTILITY SURVEY

Pre-Selection Questionnaire
Questionnaire No. ____

Household Address

Wereda___ Kebele___ Ketena ___ House Number_____

I. Household Questionnaire

S. No	Name of usual members of the household	Relationship to the head of the household 1. Head 2. Wife/husband 3. Son/Daughter 4. Relative 5. Non-relative 6. Servant	Sex 1.M 2.F	Age (In completed year)	Marital status 1. Married 2. Divorced 3. Widowed 4. Single 5. Separated	Eligibility **(Woman to be considered)**
	1	2	3	4	5	6
01						
02						
03						
04						
05						
06						
07						
08						

For Married Women aged 15-49 Years Only.

7. Have you ever given any live birth? 1. Yes 2. No
8. Some women are unable to have an additional child even if they want to because they have physical or medical problem. Do you think you can give birth for a child if you wish to do so?
   1. Yes 2. No
9. INTERVIEWER : The woman is 1. Currently married
   2. Currently not married (Skip to A)
10. Have you been divorced of your first marriage? 1. Yes 2 No
11. How many years have you been in your last marriage?
    1. 0-3 years 2. 3 years and more.
12. Are you currently (at least during the last three months) living with your husband?
    1. Yes 2. No

A. INTERVIEWER : The woman is 1.Eligible 2. Not Eligible

For Eligible Woman Only

13. Are you currently engaged in some kind of work whether working for someone else or for yourself or in a family business?
    1. Yes 2. No (skip to 15)
14. What type of work are you doing? _____(skip to 19)
    (**INTERVIEWER:** For those who have engaged in more than one type of work consider work done for a longer period of time.)
15. Just to be sure, are you doing any kind of work like selling something, making something to sell, sewing or washing clothes for people outside your family etc. even if this work is at home, or even if it is only for a few hours in a week?
    1. Yes (skip to 18) 2. No.
16. Have you done any work like this for at least a few hours per week during the last 12 months? 1. Yes (skip to 18) 2. No
17. Have you done any work like this for at least a few hours per a week since your marriage? 1. Yes 2. No (skip to B).
18. What type of work are you doing? _____
    (**INTERVIEWER**: For those who have engaged in more than one type of work consider work done for a longer period of time.)
19. Are you doing/ did you do this work at home or away from home?
    1. At home (skip to 21) 2. Away from home
20. How far is your job? ____k.m.
    How long does it take to go there? ____ minutes.
21. Are you working / have you worked 1. for self (skip to B)
    2. in family business(skip to B) 3. for someone else
22. Are you working / have you worked
    1. in privately owned institution (name_____)
    2. in governmental, international, NGO's (name_____)

B. **ENUMERATOR**: Work status of the woman is
    1. Formal sector 2. Informal sector 3. Non-working
23. Is there any household(s) co-dwelling with you?
    1. Yes(continue) 2. No (end)

Name of Interviewer_____

Date of Interview_____/_____/19_____

ADDIS ABABA UNIVERSITY
INSTITUTE OF DEVELOPMENT RESEARCH
DEMOGRAPHIC TRAINING AND RESEARCH CENTER

AKAKI FEMALE LABOR FORCE STATUS AND FERTILITY SURVEY
(For Eligible Women Only)

Questionnaire No. ___

I. Identification

1. Wereda_____
2. kebele_____
3. Ketena_____
4. House Number____
5. Name of Eligible Woman_____

Date of Interview	1. __/__/93	2. __/__/93	3. __/__/93
Results*	1._____	2._____	3._____

Result Code:
1. Completed
2. Partly completed
3. No competent R at home
4. Refused
5. Dwelling Vacant
6. Others_____

Name of Interviewer _____ Signature____ Date____
Name of Supervisor _____ Signature____ Date____

1. WOMAN'S BACKGROUND

101. How old are you? (in completed years)_____
102. when were you born? Month:_____, Year: 19_____
103. Have you always lived in Akaki since birth? 1. Yes (skip to 109) 2. No
104. For how many years have you been in Akaki? _____ Years _____ Months
105. What kind of community were you living in before you came here?
1. Rural area/village 2. Town / Name of the town/_____
106. How old were you when you left your place of birth? ____ years old
107. Interviewer: Age at leaving place of birth
1. Less than 12 years old 2. 12 years and above (skip to 109)
108. How would you describe the area you were living in when you were growing up, say when you were about 12 years old?
1. Rural area/ Village 2. Town /Name of town/_____
109. Have you ever been attended any school (formal, adult literacy, religious or other non-formal education)? 1. Ever attended
2. Never attended (skip to 112)
110. What is the highest level of school ever attended?
1. None
2. Read and write (informal)
3. Primary (1-6)
4. Junior (7-8)
5. Secondary (9 -12)
6. Vocational
7. college/university (-- yrs)
8. Diploma
9. Degree
10. Other /_____/
111. How often do you read Newspaper/Magazine?
1. Usually 2.Sometimes 3. None
112. How often do you listen to radio/ TV?
1. Usually 2.Sometimes 3. None
113. Ethnic group
1. Oromo 2. Amhara 3. Guraghe
4. Tigre 5. Wolayita 6. Kambata
7. Hadiya 8. Other (identify)_____ 9. Mixed ____ and _____
114. What is your religion
1. Orthodox 2. Catholic 3. Protestant
4. Muslim 5.other(identify)_____
115. Whom are you living with?
1. Husband only
2. Husband and children only
3. Husband, children and parents-in-law
4. Husband, children and parents
5. Husband, children and other relatives
6. Husband, children and non relatives
7. Others /identify_____/

16. How many brothers and sisters do you have? Brothers___ Sisters ____

2. FERTILITY AND MARRIAGE HISTORY

201. You have told one of the interview group members that you are currently married. How old were you when you first got married? _____ years old

202. In what year did you marry for the first time? Yr: 19___ Month____

203. Who arranged your first marriage?
   1. Parents/relatives 4. Friends
   2. My self 5. Others /identify_____/
   3. Parents and myself together

204. Have you seen menstrual cycle at first marriage?
   1. Yes 2. No

205. How old were you when you saw menstrual cycle for the first time?
   _____ years old.

206. You have told one of the interview group members that you have had birth(s). How many children were ever born alive to you?
   Sons_____ Daughters____

207. How many of these are living with you?
   Sons_____ Daughters_____

208. How many of these are living elsewhere?
   Sons_____ Daughters_____

209. Are all of them alive?
   1. All alive (skip to 211) 2. Partly alive 3. All died

210. How many of these died later (even if the child was born alive but died immediately after birth)?
   Sons_____ Daughters_____

211. Interviewer:
   a. Total number of sons in 207, 208 & 210 = ___
   b. Total number of daughters in 207, 208 & 210 = ___
   c. Compare 'TOTAL' in a & b and the response in 206. Are they equal?
      1. Yes (continue)
      2. No (probe and correct responses as necessary.

212. Have you given birth to any children during the last 12 months?
   1. Yes 2. No (skip to 215)

213. What was the sex of the child?
   1. Male 2. Female

214. Is the child living or dead?
   1. living 2. Dead

BIRTH HISTORY

215. Now I want to ask you about your birth starting from the oldest to the most recent child.

216	217	218	220	221	222	223	224		225	226
Birth order	What was the name of this child?	Was that a male or female? 1. Male 2. Female	In what month was (x) born? If not sure in what season was(x) born? 1. Winter 2. Summer	In what year was (x) born? If not sure before how many years was(x) born?	How old were you when (x) was born	Did you have any pregnancies before this child and the previous one that did not result in a live birth?	If yes, How many times?	If yes, How long did it last?	Is he/she still alive?	(If dead:) How long was the child alive?
01		1 2	Month____ Season___	Year: 19__ Yrs ago___	___ Years	1. Yes 2. No (skip to 225)	__ Times	___ Days ___ Months	1. Yes (skip to next birth) 2. No	Years___ Months___ Days___
02		1 2	Month____ Season___	Year: 19__ Yrs ago___	___ Years	1. Yes 2. No (skip to 225)	__ Times	___ Days ___ Months	1. Yes (skip to next birth) 2. No	Years___ Months___ Days___
03		1 2	Month____ Season___	Year: 19__ Yrs ago___	___ Years	1. Yes 2. No (skip to 225)	__ Times	___ Days ___ Months	1. Yes (skip to next birth) 2. No	Years___ Months___ Days___
04		1 2	Month____ Season___	Year: 19__ Yrs ago___	___ Years	1. Yes 2. No (skip to 225)	__ Times	___ Days ___ Months	1. Yes (skip to next birth) 2. No	Years___ Months___ Days___
05		1 2	Month____ Season___	Year: 19__ Yrs ago___	___ Years	1. Yes 2. No (skip to 225)	__ Times	___ Days ___ Months	1. Yes (skip to next birth) 2. No	Years___ Months___ Days___
06		1 2	Month____ Season___	Year: 19__ Yrs ago___	___ Years	1. Yes 2. No (skip to 225)	__ Times	___ Days ___ Months	1. Yes (skip to next birth) 2. No	Years___ Months___ Days___
07		1 2	Month____ Season___	Year: 19__ Yrs ago___	___ Years	1. Yes 2. No (skip to 225)	__ Times	___ Days ___ Months	1. Yes (skip to next birth) 2. No	Years___ Months___ Days___
08		1 2	Month____ Season___	Year: 19__ Yrs ago___	___ Years	1. Yes 2. No (skip to 225)	__ Times	___ Days ___ Months	1. Yes (skip to next birth) 2. No	Years___ Months___ Days___
09		1 2	Month____ Season___	Year: 19__ Yrs ago___	___ Years	1. Yes 2. No (skip to 225)	__ Times	___ Days ___ Months	1. Yes (skip to next birth) 2. No	Years___ Months___ Days___
10		1 2	Month____ Season___	Year: 19__ Yrs ago___	___ Years	1. Yes 2. No (skip to 225)	__ Times	___ Days ___ Months	1. Yes (skip to next birth) 2. No	Years___ Months___ Days___

219. INTERVIEWER: Just to make sure, is the TOTAL in 217 equal with the response for 206?
1. Yes (Continue)
2. No (Probe and correct responses as necessary).

BREAST-FEEDING

227. Interviewer: If a woman has given birth only for a child ask about it, if she has given only two ask about both, if she has given more than two ask only about the last two births.

228. Interviewer: Write the name of the last two births (in the next columns)	Name of the last child	Name of the next to last child
229. Did you breast-feed (name)?	1. Yes (skip to 232) 2. No	1. Yes (skip to 232) 2. No
230. Why didn't you breast-feed (name)?	1. Due to inconvenience 2. Lack of breast-milk 3. Child refused 4. Child got sick 5. Child died 6. Other (specify)_____	1. Due to inconvenience 2. Lack of breast-milk 3. Child refused 4. Child got sick 5. Child died 6. Other (specify)_____
231. Interviewer:	(skip to 237)	(skip to 237)
232. Are you currently breast-feeding (name)?	1. Yes (skip to 235) 2. No	1. Yes (skip to 235) 2. No
233. How old was (name) when you stopped breast-feeding altogether?	___ Months 96. Till death	___ Months 96. Till death
234. Why did you stop breast-feeding (name)?	1. Weaning age of child 2. Due to inconvenience 3. Lack of breast-milk 4. Child refused 5. Child died 6. I got pregnant 7. I got sick 8. Other (specify)_____	1. Weaning age of child 2. Due to inconvenience 3. Lack of breast-milk 4. Child refused 5. Child died 6. I got pregnant 7. I got sick 8. Other (specify)_____
235. Did you give him/her any kind of food besides breast milk?	1. Yes 2. No (skip to 237)	1. Yes 2. No (skip to 237)
236. How old was (name) when you first started giving him/her any kind of food besides breast milk?	___ Months	___ Months

237. Do you want to have additional children?
1. Yes
2. No (skip to 239)
3. Up to God
4. Not yet decided (skip to 239)

238. How many additional children do you want to have?
Sons_____ Daughters_____

239. If you could have as many children as you wished, how many children would you like to have when you have finished having children?
Sons _____ Daughters _____

3. Contraceptive Knowledge, Attitude and Use

There are various ways and methods that a couple can use to avoid or delay a pregnancy. Have you ever heard about any of these methods?.

Interviewer : Read out the methods given in the table below to the woman. If the woman has ever heard about a particular method, circle code '1'; otherwise circle code '2'. After completion of this question, for those who have ever heard of a particular method ask if the woman or her husband have ever used it.

		301	302
	METHOD	Have you ever heard about (name of method)	Have you or your husband ever used (name of method)
01	PILL (a woman can take a pill every day)	1. Yes -> 2. No	1. Yes 2. No
02	IUD (A woman can have a loop or coil placed in her by a physician)	1. Yes -> 2. No	1. Yes 2. No
03	INJECTION (A woman can have injection by a doctor or a nurse which stops her from getting pregnant for several months)	1. Yes -> 2. No	1. Yes 2. No
04	DIAPHRAGM/ FOAM/ JELLY (A Woman can place a sponge, suppository, cream etc. in her before intercourse)	1. Yes -> 2. No	1. Yes 2. No
05	CONDOM (Men can use a rubber sheath during sexual intercourse)	1. Yes -> 2. No	1. Yes 2. No
06	FEMALE STERILIZATION (A woman can have an operation to avoid having any more children)	1. Yes -> 2. No	1. Yes 2. No
07	MALE STERILIZATION (A man can have an operation to avoid having any more children)	1. Yes -> 2. No	1. Yes 2. No
08	PROLONGED ABSTINENCE (Couples can avoid having sexual intercourse for several months to avoid pregnancy)	1. Yes -> 2. No	1. Yes 2. No
09	SAFE METHOD(couples can avoid having sexual intercourse on certain days of a month when the woman is most likely to become pregnant)	1. Yes -> 2. No	1. Yes 2. No
10	WITHDRAWAL (Pull out before climax)	1. Yes -> 2. No	1. Yes 2. No
11	TRADITIONAL METHODS (Using any oral methods or herbs to avoid pregnancy)	1. Yes -> 2. No	1. Yes 2. No
12	OTHER (specify)----------	1. Yes -> 2. No	1. Yes 2. No

303. INTERVIEWER:

A. The woman 1. EVER heard of a contraceptive
2. NEVER heard a contraceptive (skip to 401)

B. The woman 1. EVER used a contraceptive
2. NEVER used a contraceptive (skip to 313)

304. How old were you when you used contraceptive for the first time?
_____ years old.

305. In what year were you using contraceptive for the first time? Year: 19__

306. Are you pregnant now?
1. Yes (skip to 314) 2. No

307. Are you or your husband currently using any method to limit the number of children or delay pregnancy?
1. Yes 2. No (skip to 311)

308. What method are you using?_____

309. From where do you get this method?
1. Pharmacy 4. Shop
2. Clinic/Heath station/Hospital 5. Other _____
3. Private physician/individual

310. For how long have you used continuously? _____ (314)

311. What was the main reason for you or your spouse to stop using birth control method?
1. Wanted to get pregnant 2. Don't know where to get it
3. Do not support FP 4. FP has side effect
5. Husband was against 6. Problem of access
7. Relatives' disapprove 8. Breast-feeding/postpartum
9. Religion doesn't allow 10. costly, too expensive
11. other (specify)_____

312. INTERVIEWER : Now skip to 314

313. Up to now you have never used a birth control method, what is the most important reason for not using one?
1. Desire for more children 2.Don't approve FP
3. Health concern 4. Religious reason
5. Problem of access 6. Relatives do not approve
7. Don't know where to get it 8. Husband's disapproval
9. costly, too expensive 10. other (specify)_____

314. Do you think you and your husband may use a method in the future to keep you from getting pregnant?
1. Yes 2. No (skip to 316)

315. Do you know where to get the method you wish to use in the future?
1. Yes 2. No

316. From where did you hear for the first time about birth control method?
1. Friend/Relative 2. Newspaper/Magazine/Poster
3. Health institution 4. School/ Literacy campaign
5. Radio/ TV 6. Others (Specify)_____

4. HOUSEHOLD AND CHILD CARE ARRANGEMENT

401. Do you have domestic servant to look after household work?
1. Yes 2. No (skip to 404)

402. How many domestic servants do you have in your house? _____.

403. Do you pay her (them) a salary?
1. Yes; How much do you pay her(them) in a month?____Birr.
2. No

404. Does your husband give you some help in managing household work such as looking after a child and the like while he is not on duty? 1. Yes
2. No

405. Do you get some assistance from your child(ren) in carrying out household work?
1. Yes 2. No (skip to 407)
3. Doesn't have any child (skip to 407)

406. How many of your children are assisting you in such activity? Male ___ Female_____

407. Apart from your husband and children, is there anybody else who looks after household work?
1. Yes 2. No (skip to 409)

408. How many in number? ____

409. What is the age of last child?_____years.

410. INTERVIEWER: The age of the last child is
1. Less than 6 years 2. 6 years & above (skip to 501)

411. Of those aged less than 6 years, how many of them are living with you?
____ child(ren)
8. No child is living with me (skip to 501)

412. Who usually looks after your child(ren) under age of 6 (while working if she is currently working.)?

1. No one (skip to 415)
2. Myself(skip to 415)
3. Children's sibling (skip to 415)
4. Relatives (aunt, grandmother...) (skip to 415)
5. Neighbors
6. Servants
7. Baby-sitter
8. Child care center
9. Other (identify)_____

413. Do you pay some amount of money for those who look after your child(ren)?

1. Yes 2. No (skip to 415)

414. How much do you pay per month? _____ Birr.

415. (a) Who feed your child(ren) under age of 6 — Average time spend

1. Myself -> ___hours__minutes.
2. Somebody else

(b) who wash your child(ren) under age of 6

1. Myself -> ___hours__minutes.
2. Somebody else

(c) Who refresh your child(ren) under age of 6

1. Myself -> ___hours__minutes.
2. Somebody else

(d) Who take your child(ren) under age of 6 to school

1. Myself -> ___hours__minutes.
2. Somebody else

(e) Are you currently breast-feeding?

1. Yes -> ___hours__minute
2. No

5. WORK BEFORE MARRIAGE

501. Have you worked, that is, done any thing like selling some thing, making something to sell, sewing or washing clothes for people outside your family etc whether at home or away from home, even it was only for a few hour per week before you get married? 1. Yes 2. No (skip to 601)

502. What work did you do? _____

503. Whom are you working for

1. self employed
2. in family business
3. for someone else
4. Government/NGO's

504. Was that work at home or away from home?

1. At home 2. Away from home

505. How old were you when you first worked? _____years old.

506. In what year were you start working for the first time? Year:19 __

507. Did you get some payment for your work?

1. Yes 2. No (skip to 509)

508. How much did you get

1. per day? _____ Birr
2. per week? _____ Birr
3. per month? _____ Birr

509. How long altogether did you work before marriage?

Year(s)___ Months:____

6. WORK DURING BIRTH INTERVAL

601. You have already told one of the interview group members that you were participating in _____ sector since your first marriage. Now I am going to ask you about you work in each birth interval.

216	217	602	603	604	605	606
Birth order	What was the name of this child?	Was there any time in this interval when you were engaged in any kind of work, whether full-time or part-time?	How soon after the birth of (name) did you begin working? (Probe: How old was (name) when you went back to work?	I would like to ask you about the work. Was that job at home or away from home? 1. At home 2. Away from home	How long altogether did you work during this interval?	were you being paid for your work? (If yes, write the amount. If payment is in kind write the estimated value.)
01		1. Yes 2. No (Skip to next birth)	___ Months	1 2	___ Months Years	1. Yes ___ Birr per month 2. No
02		1. Yes 2. No (Skip to next birth)	___ Months	1 2	___ Months Years	1. Yes ___ Birr per month 2. No
03		1. Yes 2. No (Skip to next birth)	___ Months	1 2	___ Months Years	1. Yes ___ Birr per month 2. No
04		1. Yes 2. No (Skip to next birth)	___ Months	1 2	___ Months Years	1. Yes ___ Birr per month 2. No
05		1. Yes 2. No (Skip to next birth)	___ Months	1 2	___ Months Years	1. Yes ___ Birr per month 2. No
06		1. Yes 2. No (Skip to next birth)	___ Months	1 2	___ Months Years	1. Yes ___ Birr per month 2. No
07		1. Yes 2. No (Skip to next birth)	___ Months	1 2	___ Months Years	1. Yes ___ Birr per month 2. No
08		1. Yes 2. No (Skip to next birth)	___ Months	1 2	___ Months Years	1. Yes ___ Birr per month 2. No
09		1. Yes 2. No (Skip to next birth)	___ Months	1 2	___ Months Years	1. Yes ___ Birr per month 2. No
10		1. Yes 2. No (Skip to next birth)	___ Months	1 2	___ Months Years	1. Yes ___ Birr per month 2. No
(00)		Was there any time you were engaged in any kind of work in the interval between first child & first birth?	1. Yes 2. No (Skip to 607)	1 2	___ Months ___ Years	1. Yes ___ Birr per month 2. No

607. INTERVIEWER : Have you asked the last question in the above table (i.e. Question No. (00))?

1. Yes (Continue)
2. No (Go back and ask)

608. Are you currently engaged in some kind of work whether working for someone else or for yourself or in a family business?

1. Yes 2. No (skip to 616)

609. Do you receive any pay for your work?

1. Yes 2. No. (skip to 613)

610. How much do you earn per month?

In cash _____ Birr.

In kind _____ Birr.

TOTAL _____ Birr.

611. You said that you earn about Birr_____ per month from your work. Suppose the income or pay of your husband is raised by this amount, would you still like to continue your work or would you prefer to give it up and look after your home? 1. like to continue 2. prefer to look after home.

612. Would you like to work same hours per week even if you earned less money?

1. Yes 2. No

613. Do you think some day you will stop working?

1. yes 2. No (skip to 616)

614. When will you stop working?_____.

615. Why will you stop working?_____.

616. How many hours per day do/did you usually work on average? ____hours.

617. How many days a week do/ did you usually work on average? ____days.

618. How many months did you work last year/ in that year? ____months.

619. What is/was your working session?

1. Shifting season 3. As I Wish

2. Normal working hours 4. Other/Specify/_____

620. Do/did you normally take any of your younger child to your place of work?

1. Yes 2. No

621. Do you agree it is alright for a mother to work away from home, if she is married and has children?

1. Agree 2. Disagree.

622. Some women find that having children makes it difficult for them to work, i.e., to earn some living as much as they want, whether on family business, at home or else where. In your case, do/did you find that having children prevents/prevented you from doing things you would like to do?

1. Yes 2. No

623. How does your husband feel about your (current/previous) working?
1. Like it 2. Dislike it.

624. What is your main reason behind such a work?
1. Like the work
2. Wish to earn some money
3. Need to spend extra time
4. Forced by parents/husband
5. Other/specify/_____

7. RESPONDENT'S CURRENT (FIRST) HUSBAND BACKGROUND

701. How old was your husband at your first marriage? ____ years old.

702. How old is your husband now? ____ years old.

703. Have your husband ever attended any school?
1. Yes 2. No (skip to 705)

704. What is the level of education of your husband?
1. None
2. Read and write (informal)
3. Primary (1-6)
4. Junior (7-8)
5. Secondary (9-12)
6. Vocational
7. College/Univ.(__ yrs)
8. Diploma
9. Degree
10. Other_____

705. what (is /was) his occupation, that is, what kind of work (does/did) he do? (If unemployed or retired, ask about latest occupation)_____

706. Is he working/has he worked
1. for himself 2. in family business
3. for someone else (skip to 708) 4. in government/ NGO's (skip to 708)

707. Planning to assist your husband, have you ever worked with him?
1. Yes 2. No

708. Is your husband earn some amount of money from his work?
1. Yes 2. No (skip to 710)

709. What is his earning per month?
In cash ____ Birr
In kind ____ Birr
TOTAL ____ Birr (skip to 810)

710. If not employed, what is the source of family income?

_____

8 . HOUSEHOLD CHARACTERISTICS.

801. Apart from your husband, do other members of the family earn some income?
   1. Yes; How much _____ Birr.
   2. No

802. Does you family have any other source of income?
   1. Yes 2. No (skip to 804)

803. If yes, how much does it earn from
   a. Rental service? ____ Birr
   b. Remittance? ____ Birr
   c. Other /_____/ ____ Birr
   d. TOTAL ____ Birr

804. Is this housing unit owned or rented?
   1. Owned (skip to 806)
   2. Rented
   3. Other /_____/ (skip to 806)

805. How much do you pay per month? ____ birr

806. Of what material is the WALL of this housing unit made?
   1. Wood and mud 2. Stone/bricks
   3. Wood and mud/stone/bricks 4. Other /specify/_____

807. Of what material is the ROOF of this housing unit made?
   1. Thatched
   2. Corrugated iron sheet
   3. Thatched and corrugated iron sheet
   4. Other /specify/ _____

808. Of what material is the FLOOR of this housing unit made?
   1. None 3. Partly from bricks/wood and partly none
   2. Bricks/wood 4. Other /Specify/ _____

809. How many rooms are there in the housing unit (excluding kitchen and bath rooms? Number of rooms_____

810. Does this household possess any of the following commodities?

a. Radio/tape recorder	1. Yes	2. No
b. TV set	1. Yes	2. No
c. Electric cooker	1. Yes	2. No
d. Refrigerator	1. Yes	2. No
e. Sofa set	1. Yes	2. No
f. Telephone set	1. Yes	2. No

811. What is the main source of drinking water for members of the household during WINTER?

1. Spring/River 2. Well
3. pond/dam 4. Tap
5. Other /_____/

812. What is the main source of drinking water for members of the household during SUMMER? 1. Spring/River 2. Well
3. pond/dam 4. Tap
5. Other /_____/

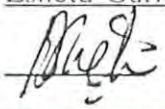
813. What is the type of toilet facilities used in the household?

1. Flash 2. Pit system
3. Open air 4. Other(specify)_____

DECLARATION

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

Name: Eshetu Gurmu

Signature: 

Place and Date of Submission: A.A.U.

June, 1994.