

**SOCIAL AND DEMOGRAPHIC DETERMINANTS  
OF FERTILITY IN KAKAMEGA DISTRICT,  
KENYA: EXAMPLES FROM KISA CENTRAL LOCATION**

**BY**

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A project submitted to the Population Studies and Research  
Institute, University of Nairobi, in partial fulfilment of  
the requirements for the Postgraduate Diploma in Population  
Studies



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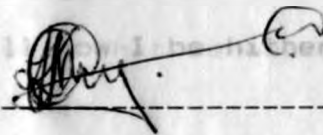
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**September, 1992**

**DECLARATION****DEDICATION**

This project is my original work and to the best of my knowledge, it has not been presented for a degree or a diploma in any other University.

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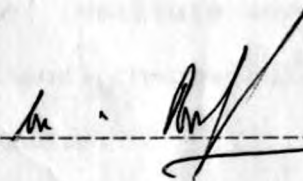


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This project has been submitted for examination with my approval as university supervisor.

Signed-----



PROF. RAFIQ

# ACKNOWLEDGEMENTS

## DEDICATION

To my mother and father

Whom me and others they brought forth

Through much toil and life's weather

Till now I be hither.

—

Especially to his wisdom and patient guidance  
as he assisted me when writing this project.

With the appreciation of my family: Planning, Support,  
Prayer, Encouragement, Family Prayer, Ministry of  
Prayer, the willing to share the burdens of  
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the strength and courage to complete this project.  
and the support of the project.

Thank the staff of the Institute and the library  
for their help and cooperation throughout the  
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Finally, thank the Lord for his love and mercy  
and his grace in this project.

As I have said in the previous pages for the mutual  
benefit of the project and the other who are  
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- a) Education of Women and Adolescent Girls (EAG)
- b) Education and Contraceptive Use

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of the sample women having reported that their husbands were away.

A significant 14.4% of the women were in polygamous unions.

# ABSTRACT

This study investigates the effects of social and demographic determinants of fertility among a cohort of married women aged 25-34 years in Kisa Central location of Kakamega District, a high population density rural area of Kenya. The influence of the social factors viz. education, religion, contraceptive use, marital status (i.e. spousal separation) and marriage pattern (i.e. polygamy vs. monogamy) and the demographic factors viz. age of women, age at first live birth and duration of post-partum amenorrhea in regulating fertility is studied. 377 women, 29-34 years, living in Kisa Central location of Kakamega District, Kenya, were studied.

The data used in the study was obtained from the GTZ FP Support Unit, Division of Family Health, Ministry of Health. It covers a sample of 377 women and was collected between November 1990 and March 1991, using two methods, a simple background questionnaire and a retrospective "fertility diary". The latter produced month-by-month information for presence or absence of spouse, biological status and contraceptive use over the preceeding 46 months.

The main findings of the analysis of the data are as follows:

- Kisa is an area of heavy male outmigration, with 57.8% of the sample women having reported that their husbands were away.
- A significant 16.4% of the women were in polygamous unions.



- Kisa husbands are more educated than their wives; 30.2% of husbands and 21.5% of women had at least secondary education.
- The dominant religion in Kisa is Protestant.
- 20.4% of the sample women were contraceptive users.
- On average, the duration of post-partum amenorrhea was 9.349 months and a 77.7% majority had a duration of 14 months and below.
- The average age at first live birth was 19.077 years, the mean number of live births was 4.377, and the mean age of the sample women was 29.534 years.
- The social factors that have shown most impact on fertility are female education, religion, spousal separation and contraceptive use while age at first live birth is the demographic factor with most effect.
- A strong relationship was revealed between education and the proximate variables viz. contraceptive use and age at first live birth.
- Religion also shows a significant relationship with contraceptive use.
- Contraceptive use increases with age of women.
- The recommendations made concentrate on ways of raising the level of FP acceptance and use and on how to effectively exploit various fertility determinants in order to achieve fertility declines.

## CHAPTER ONE

### 1.1 INTRODUCTION

The study of the determinants of fertility is relatively new, not only in Kenya, but also in other sub-Saharan countries in Africa. It was not until the late 1970's that the subject started receiving its due attention in Kenya, mainly because of the adverse fertility situation in the country. Since then, many studies have been done in the area of fertility determinants, and quite a lot of emphasis has been laid on the social and demographic aspects. This interest has probably been elicited by the fact that while national mortality levels have drastically been reduced, fertility levels seem not to be changing, or if changing, the change has only been very recent and minimal.

By the late 1970's, Kenya was experiencing one of the highest population growth rates in the world (3.8% per annum - 1978 KFS), and this rate was still rising. Contrary to all expectations, fertility rates had risen (TFR standing at 8.1 according to the 1978 KFS) inspite of falling mortality (14% in 1979). Though the practice of family planning /contraception had increased this had little effect on national fertility levels. It seemed like there were factors that continued to sanction high fertility, especially in some regions, while the absence of these allowed for fertility reductions in some other regions

within the country. Studies have shown that these regional differentials may be due to factors relating to levels of socio-economic development so that, in the long run, fertility is low in areas of high socio-economic development and very high in areas of little development (CBS, 1989; Sindiga, 1984).

Suggested to account for the dramatic regional differentials in fertility vis-à-vis socio-economic development are such factors as education levels, age at marriage, differences in the incidence of polygamy, proportions married, religion and marriage stability/instability, etc. Take education as an example: Various studies have shown that women with 1 to 5 years of education have higher fertility than women with no education at all. Beyond that, fertility tends to decline as education level increases. The crucial consideration then is that of ensuring higher educational achievement for women in a group and in the country as whole. This has very important policy implications. Suffice to note that education works its way through affecting practice or non-practice of contraception, the incidence of polygamy, length of breastfeeding and hence post-partum amenorrhea, etc. which in turn affect fertility (Kenya CBS 1979).

While the above factors, as well as others, are important in explaining the fertility levels of a group within a population they may not throw light on the overall

and a general fertility situation of that population. However, the importance of the study of these factors centres around the fact that the fertility situations of the various groups combine to form the fertility situation of the whole population. Such studies will enable us to know which factors have most effect on fertility so that they can be worked on to achieve fertility regulation. The findings of the studies will therefore allow for the adoption of appropriate approaches to fertility control in different regions.

Such studies should continue despite evidence of a transition to lower fertility in Kenya, which was reported in a paper entitled "Evidence of a Transition to Lower Fertility in Kenya", by Anne R. Cross, Walter Obungu and Paul Kizito of the NCPD. In the paper, it is reported that fertility declines have been achieved in all provinces of Kenya between 1977 and 1989. However, total fertility rates have remained very high in some provinces, as shown by the 1989 KDHS data: Western-8.1, Nyanza-7.1, Rift Valley-7.0, Central-6.0, Nairobi-4.6, Eastern-7.0, Coast-5.5. Acceptance of contraception has also been on the increase, but is still considerably low in some provinces, according to KDHS: Western-13.7% of married women, Nyanza-13.8%, Rift Valley-29.6%, Central-39.5%, Nairobi-33.5%, Eastern-40.2%, Coast-18.1%. It is in such areas of high fertility and low contraceptive use that such studies should concentrate and

aim at recommending appropriate courses of action. High rate has signified the problems of creating income-earning

## 1.2 STATEMENT OF THE PROBLEM

As is the case with other sub-Saharan African countries Kenya is still characterised by high fertility, mortality and rate of population growth when compared with other countries of the developing region of the world. Further, while growth rates have been rapidly declining in many Asian and Latin American countries, the rate has been rising in Kenya and only started declining marginally very recently.

Kenya has a current population growth rate of about 3.6% per annum and is still quoted as a country with one of the highest growth rates in the world. This high rate has been attributed to rapidly declining mortality and high fertility. Recent Kenya government data show clearly and unequivocally that fertility is high almost all over the country. The current total fertility is around 7.0 for Kenya, but there are some regions with fertility much higher than this. The implication of this high fertility is a rapidly increasing population, especially at the younger ages.

The rapid population growth has adverse implications for social and economic planning and development, especially in the short term (Sindiga, 1984). Population growth rate and the problem of poverty alleviation are closely related. As the government notes in the Development Plan for the

Period 1979-1983, Part 1, the high population growth rate has magnified the problems of creating income-earning opportunities for the larger numbers seeking employment "and postpones the date at which all Kenyans can have primary education, decent housing and adequate health care".

Population pressures have already begun to have grave consequences to natural resources conservation and on economic and social development, especially in high potential lands in the country. Overpopulation is leading to rural decline, out-migration, and degradation of natural resources. Destruction of Kenya's limited catchment areas points to the gravity of the problem as cultivators move to clear mountain slopes and hill summits that were before conserved. There is also much spontaneous movement of cultivators to ecologically fragile low potential areas, and these semi-arid and arid areas are themselves suffering from population pressure leading to over-grazing, soil erosion and low, risky income opportunities.

Another consequence of the rapid population growth is rural to urban migration, which is aggravating the urban unemployment situation. This migration also worsens the urban situation vis a vis the provision of the basic necessities like education, medical services, etc. Even if urbanization went on at a rapid rate, the urban areas could not possibly absorb a significant part of the rural population growth. Rather than decrease, the rural



population will grow rapidly and put more pressure on already strained land resources. Yet, population redistribution in Kenya does not seem to have much effect on population-resources imbalances, thus calling for strong and urgent measures to bring population growth under control.

The availability of agricultural land in Kenya is not only restricted by the demographic factor but also by the low proportion (about 11 per cent) of high potential land with adequate rainfall, good soil and suitable slope for farming. Should the rate of population growth continue at the current level, the available per capita national arable land will decrease from 0.89 ha. in 1970 to 0.29 ha. in the year 2000 (Sindiga, 1984). This is a direct pointer to an unfavourable food situation.

Even though some writers are of the opinion that there is no population pressure in Kenya, or that high population growth rate is not related to the problem of poverty alleviation (Thairu, 1975), it is obvious, as shown in the foregoing, that it has adverse social and economic consequences, especially relating to the provision of socio-economic services. Furthermore, a rapid population increase requires a higher level of necessary investment to achieve a given average output. More capital will be required to support the increased number of people even at subsistence level. (Id. quoted and cited, 1978). In areas of high

High population growth also hinders the expansion of

per capita income and inevitably inhibits savings as most income generated goes to the acquisition of the basic needs like food, clothes, education and shelter. Kenya's high dependency ratio of about 120 definitely stifles capital formation. In some areas with even higher dependency ratios, for example Kakamega where about 65% of the population is dependent on 35% (Kakamega District Development Plan, 1989-1993), the situation will surely be worse. In addition, a youthful age structure has the consequence of "population momentum", that is, even if the total fertility rate was to decline to replacement levels, the existence of a high number of couples arriving together into reproductive years sustains rapid growth far into the future. This puts much strain on the economy to provide basic services like education, health and housing.

Productivity of the population may also be lowered by high fertility especially due to the implications of high fertility for the morbidity situation of the population. Medical surveys have shown that many births and especially many frequent births create a strain on the woman's health. This strain is increased if the nutritional conditions and general health are not very good. It is also quite clear that the better the health of the mother and the longer the lactation period, the greater are the chances of survival of the child (Mosted and Walji, 1978). In areas of high fertility, therefore, there may be higher infant mortality



risk. This also has the consequence that even those children who survive to adulthood may be of poorer health and therefore less productive.

In view of the foregoing and of the dire need to increase food production and raise income levels, and hence the standards of living, a reduction in population growth rate becomes an important component of any social and economic policy. Fertility reduction, therefore, remains a big challenge to all development planners.

### 1.3 OBJECTIVES OF THE STUDY

The population of Kakamega continues to grow at a very high rate of 3.3% per annum (Kakamega District Development Plan: 1989-1993) and this rate of growth remains a major obstacle in the development efforts in the District. As its reduction to manageable levels remains a major challenge to planners, this study, which focuses on Kisa location of Kakamega District, will have the general objective namely: to help explain how social factors influence fertility and to make recommendations as to how social factors can be positively exploited to achieve fertility reduction.

The specific objectives will be:

- (i) to establish the relationships between social factors such as education, religion, contraceptive use, polygamy, etc., and fertility.
- (ii) to establish the relationships between demographic

factors like age at first birth, post-partum amenorrhea, etc. and fertility. study also social, (iii) to investigate how such background social factors fertility, like education and religion act through proximate regulation factors such as contraceptive use to influence fertility levels. This study is to draw conclusions relevant for social and economic planning in Kisumu, Kakamega, and in

#### 1.4 JUSTIFICATION OF THE STUDY

Fertility levels in Kenya are still among the highest in the world. In some regions, however, fertility has been put under control so that the levels compare well with those of some developed countries, while in other regions such as Kakamega, Nyanza, etc., it remains at very high levels. In these high fertility regions, it seems that there are various factors that militate against a reduction of fertility or against acceptance and adoption of contraception. It is important to note that although a national family planning programme has existed in Kenya since the 1960's, it had achieved very little in terms of fertility reduction by the late 1970's. This may be attributed to the fact that the programme was instituted without proper studies having been done on the various fertility factors in the country, especially in the areas of social sanctions in favour of high fertility. Without consideration of what could be done to counter these sanctions, the programme was bound to

become ineffective. For this reason, it became necessary, and continues to be necessary, to study the social, cultural, economic and demographic factors that affect fertility, and develop appropriate approaches to fertility regulation based on the findings of such studies.

This study will endeavour to draw conclusions relevant for social and economic planning in Kisa, Kakamega, and in Kenya, and with a bearing on fertility regulation. Since social and demographic factors are very important in determining fertility, an insight into how they work to determine fertility levels will help in determining what course of action could be taken in order to positively exploit the social characteristics in Kisa, or any other society, with the aim of putting fertility under control. By demonstrating the relationships between social and demographic variables and fertility levels, the study will thus point out the direction of the desired social development that will bring about a change in fertility.

current family planning use and the demographic ones are

### **1.5 DATA TYPE, SCOPE, LIMITATION AND METHODOLOGY OF STUDY**

birth. It is evident, therefore, that all the factors that can affect fertility are not covered. Also,

In this study, secondary data will be used. The data has been obtained from the GTZ-Family Planning Support Unit, Division of Family Health, Ministry of Health. This data was collected with the aim of studying adoption and

discontinuation of family planning in rural Kenya and integrating family planning with other factors which affect fertility.

To establish the fertility and background characteristics of those interviewed, both a questionnaire and a "fertility diary" were used. The questionnaire sought to establish data of birth, marital status, marriage type/polygamy, education (both wife's and husband's), religion, number of live births and number of surviving children, family planning use, among others. The duration of post-partum amenorrhea was established using the "fertility diary", which worked through retrospection. To help in recall, important family events such as death within the family, acquisition of new property, etc, were used, specifically in trying to help the woman recall when she resumed her menstruation after she last gave birth.

The social factors available from this data are marital status, polygamy, religion, wife's and husband's education, current family planning use and the demographic ones are duration of post-partum amenorrhea, age of woman and age at first live birth. It is evident, therefore, that all the factors that can affect fertility are not covered. Also, not all ages of women were interviewed as those interviewed were in the age range 25-34 years. The fertility measure available from the data is number of live births.

This study will cover only one location, the one from

which the data was collected, i.e., Kisa Central location of Kakamega district. The sample size is 377 and Pit was estimated to be a 15-20% sampling proportion. The location was chosen due to the fact that Kakamega is an area of rapid population growth and Kisa is typical of that area. To be exhaustive, a study of the determinants of fertility would require many more factors than are available here and probably a larger sample. It would also require much more time, funds and other resources. Due to these limitations, the study will be restricted to the above variables and will use secondary data only. The findings from the study will therefore not be exhaustive, meaning that more and broader studies still need to be done in the same area. To help in making deductions, statistical methods will be used. Specifically, frequency counts, percentages and means, and cross-tabulations will be employed. Where need be, the statistical testing techniques viz. chi-square and the t-test will be used, for instance, to compare number of live births by illiterate women and others, etc. Also, correlation will be used to establish relationships between such variables as age of woman and number of live births, duration of post-partum amenorrhea and number of live births, and sunflower. Land use in the district is characterised by mixed farming practices.

With rocks in the district belonging to the Kivirondo

## 1.6 BACKGROUND TO THE AREA OF STUDY

Kakamega is one of three districts of Western Province and it is divided into 9 divisions comprising of 31 locations. Intraction work while gold is exploited only at the . The district has a good network of rivers and streams which provide permanent sources of water. Rainfall is high (1250-2000mm per year), it is reliable, and adequately distributed and there is no dry season while temperatures range from moderate to high. the district's population (1990) . Being a star grass zone and being below 1800m altitude, Kakamega is a zone of high agricultural potential, especially suitable for maize, coffee and exotic cattle. The soils are mostly well drained but an estimated 85% of the district's area is covered with infertile agri-soils, much of them having been leached because of their age, high rainfall and intensive cultivation without appropriate measures to maintain soil fertility (Kakamega District Development Plan, 1989-1993). as invest in the provision of . About 88% of land in Kakamega is under cultivation and livestock holding, and the district is mainly composed of small-scale farming growing food crops for household consumption and the local market. However, some 30% of the cultivated land is under the cash crops coffee, tea, sugarcane and sunflower. Land use in the district is characterised by mixed farming practices.

With rocks in the district belonging to the Kavirondo

and Nyanzian systems that are associated with gold bearing quartz, the district has a recognisable mineral potential. Those minerals currently being exploited are only those used for construction work while gold is exploited only at the village level where it is sold to small scale goldsmiths. Other valuable minerals present in the district and which could be developed include pyrite, graphite, molybdenite and quartz crystals.

On the demographic side, the district's population grew from 782,586 to 1.03 million between 1969 and 1979, an annual growth rate of 2.8%. It was estimated at 1.43 million in 1988, thus indicating a 3.3% growth rate between 1979 and 1988. Over half of this population are people aged below 15 years, and together with those in secondary schools and those aged over 60 years, it implies that about 65% of the district's population is dependants under the care of 35% of the population. This poses a great threat to the district's ability to save and invest as the provision of basic facilities (especially food, health and education) threatens to dominate any surpluses available for investment.

The district exhibits some of the most unbalanced sex ratios in the country as shown in the following table of projections, in 1973. This average is one of the highest in the country and it implies, therefore, that land pressure is very great and will be worse in future if measures are not



Projected Sex Ratios: Kakamega District etc. In many parts of the district, the average size of 1993 holding is less than 1988. Primary school ages family, 61:100 household, 60:100 below the national average. 15-59 year olds for subsistence purposes 79:100 1.4 children per woman. Source: Kakamega District Development Plan, 1989-1993 economic survey of available resources.

The imbalanced sex ratio for the age group 15-59, the labour force, is explained to be due to more men than women migrating from the district to seek better opportunities elsewhere. However, that the unbalanced ratio is the same even for the younger age group indicates a continuous trend.

The above figures indicate that productive labour in Kakamega is mainly provided by women, children and the aged and also that majority of the population are net consumers rather than producers. Also reported in the District Development plan is that about 22% of the district's population is women of child bearing age, 15-49 years, thus highlighting the importance of reducing total fertility rate from the 1989 estimated level of 7.0 to 5.6 as nationally targeted in Sessional Paper No.1 of 1986.

Population in the district is distributed such that density increases from North to South but the 1979 average was 302 persons per sq. km. and it was projected at 406 in 1988 and 474 in 1993. This average is one of the highest in the country and it implies, therefore, that land pressure is very great and will be worse in future if measures are not



taken to reduce the population growth rate. In many parts of the district, the average size of land holding is less than 0.5 ha. per family, or household, far below the FAO accepted area for subsistence purposes of 1.4 ha. per family. Such pressure on land inhibits the economic management of available resources.

Many studies have been conducted in this area. Among those factors that have attracted most attention are age at first birth, age at marriage, use or non-use of contraceptives, marital status, education and occupation. The 1965-66 survey conducted by the Government of India (1969) reports that the negative consequences of early childbearing, especially if followed by high subsequent fertility, have been well documented. The study states the inherent effect of early childbearing is to raise completed fertility. This is because early childbearing interrupts schooling and probably terminates it altogether. Thus, early childbearing is closely correlated with early marriage and operates a long potential exposure to pregnancy. Where there are low probabilities of marriage the probability of continued exposure is reduced. Besides, where childbearing occurs so early, the chances of exposure for longer periods are higher. Those who marry early are also exposed to pregnancy during the high fecundity years of the life span, and early twenties, in contrast to those who marry late. Moreover, women who marry early and start a family soon after marriage also have the characteristics usually

## CHAPTER TWO

### 2.1 LITERATURE REVIEW

Socio-economic, socio-cultural and demographic factors play an important role in determining fertility levels in a population. For this reason, many studies have been conducted in this area. Among those factors that have received most attention are age at first birth and age at marriage, use or non-use of contraceptives, marital status, polygamy and education.

Barakrishnan, et al. (1988) report that the negative consequences of early childbearing, especially if followed by high subsequent fertility, have been well documented. They note that the inherent effect of early childbearing is to raise completed fertility. This is because early childbearing interrupts schooling and probably terminates it altogether. Thus, early childbearing is closely correlated with early marriage and therefore a long potential exposure to pregnancy. Where there are low probabilities of marriage dissolution, continuous exposure is ensured. Besides, where contraceptive use is not very efficient, the chance for unwanted births is higher. Those who marry early are also exposed to pregnancy during the high fecundity years of the late teens and early twenties, in contrast to those who marry late. Moreover, women who marry early and start a family soon after may also have the characteristics usually

found to be correlated with a higher family size such as low education, low income and strong religious background.

Using data from the Canadian Fertility Survey of 1984, Barakrishnan, et al., confirmed the relationship between age at first birth and subsequent fertility. They found that those who had a first birth before the age of 18 years had a total lifetime fertility of 4.71 births while those who had their first birth after the age of 25 years had a total lifetime fertility of 2.01 births.

Polygamy is another factor that has received attention. Omran (1984) notes that although the prevalence of polygamy is decreasing with increasing modernisation and development, Africa still has the highest percentage of polygamous marriages of any continent. However, the overall correlation for marital fertility with type of union has been unclear and inconsistent. Several studies have shown a lower fertility among women in polygamous unions. In such unions, a husband would have sexual access to the co-wives, making it easier for a woman to maintain the traditional period of postpartum abstinence (Omran, 1984). Husbands in polygamous unions are also likely to be older than those in monogamous unions, therefore, there may be a tendency for the fertility of the wives to be lowered. On the other hand, infertility or subfecundity of a woman may lead a man to take a second wife. Ohadike (1968) explains this difference to be as a result of monogamous marriages being

more common among modern dwellers who have abandoned traditional child spacing practices without adopting modern contraception.

Commenting on religion, Omran argues that the Catholic arguments regarding procreation strongly influence attitudes against family planning. He notes that Catholics have an inflexible attitude against modern contraception which has evolved over a long period and which does not seem to have softened in modern years. This, he says, is therefore likely to make Catholics have higher fertility. The non-Catholic churches have, on the other hand, been more positive towards family planning.

Ankler and Knowles (1982) conducted a study of a wide variety of fertility determinants in Kenya. They observed that "...it seems that even at the extremely high fertility levels found in Kenya, fertility rates are determined, at least in part, by choice as well as by such involuntary factors as extended lactation, sterility, widowhood and poor health". Children are socially, economically and culturally important to the family. The large number of children Kenyans have, therefore, may not be due solely to ignorance regarding family planning, but may instead be due, at least in part, to a desire for a large family size.

Quoting an ILO/University of Nairobi (1974) study, Anker and Knowles point out that ideal family size is negatively related to wife's education. They proceed to

explain that parents' educational level may affect fertility in a number of different ways. One, by increasing parents' relative preference for consumption items not related to children and thus reducing preference for more traditional lifestyles which include large family size. Another way is that education should increase an individual's willingness to accept new products and to use new procedures more effectively. When this reasoning is applied to modern contraceptive methods, it implies that increases in education may reduce fertility by increasing the acceptability and effectiveness of contraceptives, thereby reducing the number of unwanted births. Yet a third way is that education increases the woman's income earning potential and thereby increases the opportunity cost of her withdrawing from the labour force in order to care for children. These arguments, thus, indicate that female educational attainment and fertility should be negatively correlated. However, Ankler and Knowles note, the relationship between parents' education and fertility may not be linear as there may be thresholds below which formal education has little or no effect on fertility.

On polygamy, Ankler and Knowles (1982) say that the relationship between it and fertility is not very well researched and that the negative relationship generally observed between polygamous unions and fertility for women is usually of a first order nature i.e., a cross-tabulation

of polygamy by fertility showing polygamous women to have lower fertility than monogamous women of the same age. They observe, however, that studies in Tanzania and Nigeria (Kocher, 1979; Farooq, 1979) indicated that the negative relationship between polygamy and fertility remains even after controlling for wife's age and a number of other important determinants of fertility. Their reasoning is that this negative relationship may be due to lower coital frequencies in polygamy; greater ease in polygamy to follow the traditional practice of abstaining from sexual relations, for example during extended periods of lactation; more ease to satisfy husband's demand for children so that there is a lower average number of children per woman in a polygamy; and the possibility of polygamous men and women being less fecund than monogamous ones, in which case the causation effect of the negative relationship would be from fertility to polygamy and not vice versa. They

Ankler and Knowles also recognise the importance of lactation as a fertility determinant and they have that prolonged lactation is known to have a negative effect on fecundity. Thus, the longer a woman lactates, the longer, on average, is the period of post-partum amenorrhea. In Kenya, they say, many societies have often combined lactation with post-partum sexual taboo, and thus the biological relationship between lactation and fertility is further strengthened. However, such traditional practices,

regarding post-partum sexual abstinence have largely disappeared. To support this, they quote the Kenya Fertility Survey (1977/78) findings that 50% of couples resumed sexual intercourse within three months after birth of a child and 80% of couples resumed intercourse within six months after birth of a child. <sup>negative</sup> are systematically related to

Observed also is a very strong relationship between breast feeding and education (Ankler and Knowles, op. cit.). Better educated women breastfeed for a much shorter period of time and this would imply a reduction in post-partum amenorrhea. <sup>may tend to reduce fertility rates, raising health</sup>

Concerning conscious fertility control, Ankler and Knowles indicate that use of modern contraceptives allows couples to control their fertility fairly effectively. As a result, couples using modern contraceptives should have fewer unwanted births, thus causing family planning acceptance and fertility to be negatively related. They further observe that contraceptive use is likely to increase with better education of women and point out that this has been confirmed by various studies, most significant of which is the 1974 ILO/UON Survey. Also, the more educated women were found to be least likely to discontinue contraceptive use. However, they highlight that a rather surprising observation made in the survey was that older women, and therefore higher parity women, were not more likely, on average, to visit a clinic than were younger women.



Male education levels, Ankler and Knowles also observe, also tend to be positively and significantly related to fertility.

Ankler and Knowles concluded that "...fertility rates in Kenya are not at a biologically or socio-culturally determined maximum but instead are systematically related to socio-economic conditions". From their study, they deduced that fertility rates in Kenya were not likely to fall significantly in the near future regardless of the pace of socio-economic development. While rising levels of education may tend to reduce fertility rates, rising health and income levels (making more children affordable) would counterbalance these effects.

Henin and Mwobobia (1981) show concurrence with the above findings about the relationship between education and other factors. Citing a study by Holsinger and Kasarda (1976), they say that education operates jointly with other independent variables such as religion and income to have effective impacts on fertility. In addition, education exerts direct pressure on fertility through changes in attitudes, values and beliefs about family size. They note that the effect of any one factor is a composite function of a variety of other factors.

Reporting on their own study in Kenya, which was based on the 1979 census data, Henin and Mwobobia noted that while not being linear, an inverse relation exists between total



fertility and female levels of education: Primary education is positively correlated with fertility while secondary education and fertility exhibit a decisively significant negative correlation. They observe also that contraception, female employment and urbanisation bear strong inverse relationship with the zero level of female schooling. primary  
 As regards contraception, Henin (1973) argues that illiterate women nurse traditional antagonism toward the use of contraception. Diffusing knowledge about contraceptive practice is also usually hard to achieve among illiterate females who are more often than not characterised by rural background and low levels of employment in the modern sector of economy. This explains the intervening effects of the three variables viz contraception, female employment and urbanisation on the relationship between the education variable and total fertility rate.

To explain the relationship between educational attainment and fertility, Henin and Mwobobia (1981) point out that with primary level schooling, women break away from tradition yet do not adopt modern contraception, thus increasing fertility. On the other hand, those with 8 and more years of schooling are more often than not found in urban areas where most probably they practice contraception. In addition, the same women are found in modern sector employment which is another factor hiding a strong association between the education variable and the total

fertility rate in the country. The relationship between female education and fertility in Kenya is also confirmed by Muinde and Mukras (1979). Comparing the number of children of the women who had completed lower and upper primary school, they noted that those who had continued with education up to upper primary school had given birth to a smaller number of children than the women who had attained lower primary education alone. The percentage of the children ever born declined significantly among those women who reached secondary school level. They gave the probable cause of this relationship as (a) time spent in school and delayed marriages, (b) desire for better education for children which couples with large families cannot afford to provide, and (c) balanced health of the wife which is a fact appreciated by the majority of educated people. Other findings by Muinde and Mukras were that formal employment of women and family income levels had a declining effect on fertility. They also found that polygamous unions increased the number of children ever born by each wife of the head of the household and explained this to be mainly due to competition by the co-wives to have more attention from their husband and get a larger share of his wealth inherited by her children. Summarising their findings, Muinde and Mukras listed the main fertility factors as polygamy, high infant

mortality, education, income, employment, early marriage, death experience among the parents of ever-married women, future social security for elderly parents, lack of proper sex education for youth, and sex preference.

Studying the nuptial determinants of fertility in Western Kenya, Ayiemba (1983 Thesis) observed that universal marriage was a common demographic phenomenon in the western region and that polygamy was an element of marital instability affected approximately one third of all reproductive women. In addition, the high incidence of polygamy affected mostly young and illiterate women. With reference to the regional structure of socio-economic and situational variables, and how such variables affected nuptial variables, he observed that the level of female illiteracy was relatively high, reaching a maximum level among women aged between 25 and 29 years. Yet the rate of female illiteracy was on the decline especially among younger women aged between 15 and 25 years. This he attributed to the Presidential decree on free primary education. But not much increase was observed in the proportion of women with secondary and post-secondary education which he attributed to the cost of secondary education and the high population growth rate in the region that annually expanded the base population eligible for secondary school education.

Ayiemba found that the socio-economic and situational

factors that had a significant effect on fertility were education, proportions of female Catholics and the proportions of females using modern contraceptive methods. He concluded that in the context of socio-economic development of western Kenya, socio-economic and situational variables will continue to be relatively more important determinants of lifetime total fertility rate. In his study, he found that only childhood mortality and contraceptive use exerted direct impact on total fertility rate while other variables influenced fertility strongly but indirectly through impact on age at first marriage, marital stability/instability and frequency of re-marriage.

Other scholars have also confirmed the composite aspect of fertility determinants. Among them is Kpedekpo (1982) who observed that fertility varies with age at marriage, duration of marriage, area of residence (rural/urban), level of educational attainment, occupation, religion and many others. Another is Kalule-Sabiti (1984). He observed that the proportion married among the population, level of contraceptive use and post-partum lactational infecundability account for much of the observed marital fertility differentials but that modernisation through education and urbanisation have offsetting effects on fertility by reducing lactation and increasing contraception. Thus show that anywhere in Africa, particularly as Caldwell (1984) probably sums best, the fertility

situation in Africa. He opens his paper by commenting that "<sup>S</sup>ub-Saharan Africa may well differ from other regions of the world in the nature and timing of its demographic transition". He further says that sub-Saharan Africa now exhibits the world's most rapid population growth inspite of having the highest levels of mortality.

Persistent high fertility, Caldwell observes, cannot be explained by poverty or limited mortality decline. Nor can it be explained by a failure to experiment with national family planning programmes, although the limited number of such programmes is one of the causes and also one of the problems to be explained.

Referring to a report by Thomas Dow and Linda Werner, Caldwell observes that though a decade after the inauguration of the Kenya National Family Planning Programme both knowledge and use of modern contraception had increased dramatically, this change had not been accompanied by any fall in desired family size, while fertility had actually risen inspite of postponement by nearly a year in the female age at marriage. Another observation was that the level of approval of family planning was not associated with smaller families but only with levels of knowledge and use as well as education and, in the case of women, with the belief that their husbands approved of family planning. Caldwell's observations thus show that anywhere in Africa, particularly where the use of modern methods of contraception is limited

to a very small percentage of the population, other factors become dominant in determining fertility.

Schematic Presentation of Factors Affecting Fertility

## 2.2 CONCEPTUAL FRAMEWORK AND HYPOTHESES

The relationship between social and demographic factors, intermediate or proximate variables, and fertility is schematically described in the diagram below. This has been built up from Davis and Blake, 1958 and Bongaarts, 1978 frameworks on fertility. As can be seen, fertility is determined by a set of intermediate variables such as marriage patterns, post-partum amenorrhea, use of contraception, etc. In this study, information is available for the variables marriage type i.e. polygamy, post-partum amenorrhea, contraceptive use, and age at first live birth.

The effect of background factors is mitigated by these intermediate factors. Those background factors that will be looked at in this study are both wife's and husband's education, and religion. Information on community characteristics such as place of residence and availability of social services is not available. Any effects of these

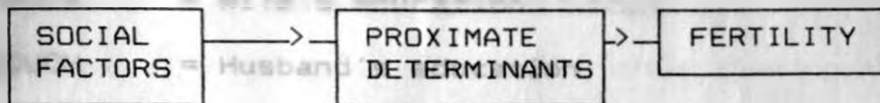
is assumed to be mitigated through various social and/or intermediate variables. This study will show the effects of background social factors on intermediate factors and the effects of the social and intermediate factors on fertility.

Following is an inventory of all the variables to be used in this study showing their names and definitions.

MS = Marital status

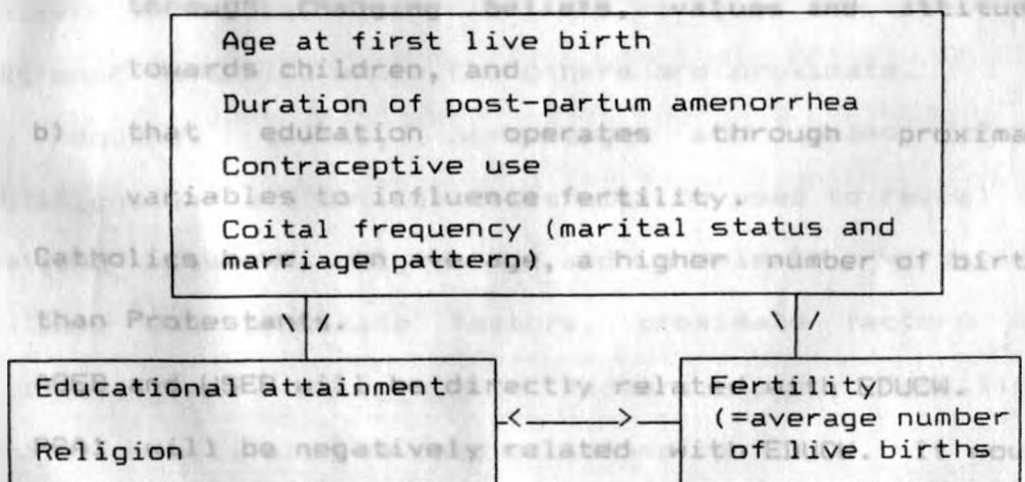
DOWIFE = Polygamy





Schematic Presentation of Factors Affecting Fertility

In the operational framework below, classification of the available intermediate variables is done in accordance with Bongaarts' (1978) reformulation of the Davis and Blake (1958) model. An arrow leading from one group of variables to another indicates that at least one variable in the first group is related to one or more variables in the second group. Though directional interrelations among the variables in any one box may exist, this is not shown in the figure. Lack of the necessary data made inclusion of the missing intermediate variables impossible.



#### Operational Model for the analysis

Following is an inventory of all the variables to be used in this study showing their names and definitions.

MS = Marital status

COWIFE = Polygamy

EDUCW = Wife's education

EDUCH = Husband's education

RELIG = Religion

LB = Number of live births

USER = Current family planning user

PPA1 = Duration of post-partum amenorrhea

AGE = Age of woman

AGED = Age of woman at first live birth

The hypotheses to be tested in this study are based on the conceptual framework. It is postulated that:

1. EDUCW and EDUCH will both be negatively related with LB. Two possibilities are envisaged;
  - a) that education directly influences fertility through changing beliefs, values and attitudes towards children, and
  - b) that education operates through proximate variables to influence fertility.
2. Catholics have, on average, a higher number of births than Protestants.
3. AGEB and USER will be directly related with EDUCW.
4. PPA1 will be negatively related with EDUCW. It would be expected that EDUCW would reduce PPA1 through shortening of the period of breastfeeding due to increased use of breast milk substitutes by the more educated mothers.
5. AGEB, PPA1, USER determine LB. the following table shows



their current (1990) **CHAPTER THREE** note that for 57.8% of the women, the husbands were away, thus showing that size

### 3.0 ANALYSIS OF DATA

This chapter deals with the analysis, presentation and interpretation of the data, showing how social and demographic factors relate to fertility. The social factors being studied here are education, religion, marital status, polygamy and contraceptive use while the demographic factors studied are age of woman, age at first live birth, and duration of post-partum amenorrhea.

In analyzing the relationship between these factors and fertility (measured in terms of average number of live births), the factors are regrouped into background and proximate variables. Education and religion constitute the background variables while the others are proximate.

Frequency counts, percentages and means, cross-tabulations and statistical tests will be used to reveal the relations between background and proximate variables, proximate and proximate factors, proximate factors and

fertility, and background factors and fertility. Correlation will also be used occasionally.

### 3.1 SAMPLE CHARACTERISTICS

The sample consists of 377 women with ages ranging from 25 years through 34 years and a mean of 29.534 years. All of them are ever-married women and the following table shows

their current (1990) marital status. We note that for 57.8% of the women, the husbands were away, thus showing that Kisa is an area of heavy male out-migration. 4.5% of the women were

**Table 1: Marital Status**

	Frequency	Percent
Husbands present	156	41.4
Widowed	2	0.5
Husband away	218	57.8
Divorced	1	0.3
Total	377	100.0

Table 2 shows the extent of polygamy among the women in the sample. We see that 83.6% of the women are in monogamous unions while 16.4% are in polygamous unions. The one divorced and two widowed women are also included, meaning that they viewed their marital status in the traditional sense that they still continue to belong to their late or ex-husbands even after these events occurred.

**Table 2: Extent of Polygamy**

No. of Co-wives	Frequency	Percent
0	315	83.6
1	24	6.4
2	36	9.5
3	1	0.3
4	1	0.3
Total	377	100.0

The educational attainment of the women and their

husbands is shown in table 3. Evident from the table is that 77 or 20.4% of the women and 35 or 9.3% of the husbands have zero level of education. Also 21.5% of the women and 30.2% of the husbands have secondary education and above. This shows that the husbands are generally more educated than their wives.

Table 3: Educational Attainment

Educational Level	Women Frequency	Percent	Husbands Frequency	Percent
None	77	20.4	35	9.3
Std 1-6	119	31.6	103	27.3
Std 7-8	100	26.5	123	32.6
Secondary+	81	21.5	114	30.2
Missing			2	0.5
Total	377	100.0	377	100.0

The Protestant religion dominates in Kisa Central location, taking 362 or 96.0% of the sample women. Catholics were 12 or 3.2% while only 3 or 0.8% were Muslims.

Of the 377 sample women, 77 used a contraceptive method, which is equivalent to a contraceptive prevalence rate of 20.4%. This compares poorly with the 1990 National Contraceptive prevalence rate of 27%.

The duration of post-partum amenorrhea was 9.349 on average with a standard deviation of 7.19 months. However, 20 women reported zero month duration, one reported 31 months and 99 did not specify. The others' durations ranged

from 1 to 30 months so that the median duration was 9 months and the mode was 11 months. A 77.7% majority had a duration of post-partum amenorrhea of 14 months and below.

The age at first live birth averaged 19.077 years but ranged from 12 years through 30 years. The median and modal ages were 18.00 and 17.00 respectively. Six of the women did not indicate their age at first live birth.

On average, the number of live births was 4.377 per woman and the median and mode were both 4.000 live births.

### 3.2 RELATIONSHIP BETWEEN BACKGROUND AND PROXIMATE VARIABLES

#### a) Education of Woman and Age at First Live Birth

Cross-tabulation of AGEB by EDUCW yields a chi-square value of 30.047 at a 0.0000 probability level (table 4).

This is indicative of a very significant relationship between the two variables. Thus, the more educated a woman is, the more delayed is the first live birth.

**Table 4: Cross-tabulation of Age of Woman at First Live Birth by Education of Woman**

AGEB		Wife's Education				Row Total
		None	Std1-6	Std7-8	Sec.+	
12-19 Years	No %	56 72.7	90 77.6	62 63.3	33 41.3	241 65.0
20-30 Years	No %	21 27.3	26 22.4	36 36.7	47 58.7	130 35.0
Column Total		77 20.8	116 31.3	98 26.4	80 21.6	371 100.0

Chi-square  
30.04681

D.F.  
3

Significance  
0.000

b) Education and Contraceptive Use

In Kisa, woman's education has little effect on the level of contraceptive use. A chi-square test gives a value of 3.35042, significant at the  $p < 0.3407$  level (table 5). On the other hand, husband's education shows greater effect on contraceptive practice since a chi-square test yields a value of 6.13629 at the  $p < 0.1052$  level. This indicates that husband's approval is an important determining factor on whether a woman practices contraception or not and from the chi-square test (table 6), it is evident that husband's educational attainment significantly raises the level of approval.

Table 5: Cross-tabulation of FP use by Wife's Education

User		Wife's Education				Row Total
		None	Std1-6	Std7-8	Sec.+	
Yes	No.	16	20	19	22	77
	%	20.8	16.8	19.0	27.2	20.4
No	No.	61	99	81	59	300
	%	79.2	83.2	81.0	72.8	79.6
Column Total		77	119	100	81	377
		20.4	31.6	26.5	21.5	100.0

Chi-square  
3.35045

D.F.  
3

Significance  
0.3407

Table 6: Cross-tabulation of FP use by Husband's Education

		Husband's Education				Row Total
		None				
Yes	No.	3	24	21	29	77
	%	8.6	23.3	17.1	25.4	20.5
No	No.	32	79	102	85	298
	%	91.4	76.7	82.9	74.6	79.5
Column Total		35	103	123	114	375
		9.3	27.5	32.8	30.4	100.0

Chi-square  
6.13629

D.F.  
3

Significance  
0.1052

From table 5, we also see that the level of contraception is lower for women with primary level education than for those with zero level. This can be explained by the fact that primary level education makes women break away from traditional practices and yet not adopt modern methods. From primary level onwards, there is a noticeable increase of FP use with educational attainment.

### c) Education and Polygamy

The cross-tabulation in table 7 reveals that there is little or no variation in prevalence of polygamy from zero level of education through primary level for woman. A remarkable drop occurs only at the secondary level where the incidence of polygamy falls to 11.1% from a level of 17.0% for those with std. 7-8 level of education. A chi-square value of 2.22978 is obtained at the  $p < 0.5261$  level, thus showing that there is no significant difference in the



incidence of polygamy between the various educational levels of women.

**Table 7: Cross-tabulation of Polygamy by Wife's Education**

Co-wife No.	Wife's Education				Row Total
	None	Std.1-6	Std.7-8	Sec.+	
No Co-wife No.	63	97	83	72	315
%	81.8	81.5	83.0	88.9	83.6
With Co-wife No.	14	22	17	9	62
%	18.2	18.5	17.0	11.1	16.4
Column Total	77	119	100	81	377
	20.4	31.6	26.5	21.5	100.0

Chi-square  
2.22978

D.F.  
3

Significance  
0.5261

d) Husband's education on the other hand, reveals a different picture. There is a definite decline in the incidence of polygamy with increasing level of husband's education (table 8). A chi-square test gives a value of 13.79247 at the  $p < 0.00320$  level, thus confirming significance in the differences in the incidence of polygamy between the various educational levels of husband's education. One thing that is interesting, however, is that the incidence of polygamy at the std. 1-6 level (11.7%) is much lower than the two on either side of it. It is not possible at this point to give a feasible explanation as to why this is so.



**Table 8: Cross-tabulation of Polygamy by Husband's Education by Wife's Education**

Co-wife PPH	Husband's Education				Row Total
	None	Std1-6	Std7-8	Sec.+	
No Co-wife					
No.	25	91	94	103	313
%	71.4	88.3	76.4	90.4	83.5
With Co-wife					
No.	10	12	29	11	62
%	28.6	11.7	23.6	9.6	16.5
Column Total	35	103	123	114	375
	9.3	27.5	32.8	30.4	100.0
Chi-square					
13.79247					
D.F.					
3					
Significance					
0.0032					

**d) Education of Woman and Post-partum Amenorrhea**

Only slight variation in the duration of post-partum amenorrhea by level of woman's education is revealed by the cross-tabulation in table 9. The chi-square test value of 1.83252, significant at the 0.6079 probability level, indicates that this variation is not significant. Thus, in the Kisa sample, woman's education has only minimal reducing effect on the duration of post-partum amenorrhea.

**Table 9: Cross-tabulation of Duration of Post-partum Amenorrhea by Wife's Education**

PPA	Wife's Education				Row Total
	None	Std1-6	Std7-8	Sec.+	
Average	9.820	10.036	9.224	8.034	1 77
0-15 Months	46	64	63	48	221
No.	46	64	63	48	221
%	75.4	77.1	82.9	82.8	79.5
16-31 Months	15	19	13	10	57
No.	15	19	13	10	57
%	24.6	22.9	17.1	17.2	20.5
Column Total	61	83	76	58	278
Total	21.9	29.9	27.3	20.9	100.0

Chi-square  
1.83252

D.F.  
3

Significance  
0.6079

Since PPA is strongly correlated with breastfeeding, the above observations may also imply that education of woman has minimal effect on length of breastfeeding period.

#### e) Religion and Contraceptive Use

Out of 362 Protestants, 75 i.e., 20.7% are contraceptive users while one out of 12 Catholics i.e. 8.3% are users (table 10). This shows that Protestants practice contraception more than Catholics, although the number of Catholics is too small to provide any definite conclusion.

The case of Muslim religion may not be decisively inferred owing to the small number (only 3) of Muslims in the Kisa sample. However, one or 33.3% of the Muslims uses contraception.

Table 10: Cross-tabulation of FP Use by Religion

User	Religion	Protestant	Catholic	Muslim	Row Total
Yes	No.	75	1	108	77
	%	20.7	8.3	33.3	20.4
NO	No.	287	11	269	300
	%	79.3	91.7	66.7	79.6
Column Total		362	12	377	377
		96.0	3.2	100.0	100.0

## 3.4 RELATIONSHIP BETWEEN PROXIMATE VARIABLES AND FERTILITY

## 3.3 RELATIONSHIP BETWEEN PROXIMATE AND PROXIMATE FACTORS

## 3.1 Contraceptive Use and Fertility

The only proximate variables that show a significant relationship are age of woman and contraceptive use. The average number of live births by contraceptive users is 4.594 and that by non-users is 4.243. A 2-tail t-test shows that users have a mean age of 30.448 years while the non-users have a mean age of 29.300 years. A 2-tail t-test for FP use probability level implies that the two means are significantly different. This, therefore, means that the significance level, thus showing that FP users are significantly older than non-users.

This relationship is further confirmed by the results of a cross-tabulation of age of woman by contraceptive use (see table 11). A chi-square value of 5.32453 at  $p < 0.0210$

The variation in the average number of live births with marital status is shown in table 12.

relationship that FP use increases with age of woman.

## 3.2 Marital Status and Average Number of Live Births

	Married	Widowed	Divorced
Average	4.519	4.290	4.000

The possible reason to explain the variation seen in

Table 11: Cross-tabulation of Age of Woman by FP Use

AGE		USER		Row Total
		Yes	No	
25-29	No.	33	175	208
	%	15.9	84.1	55.2
30-34	No.	44	125	169
	%	26.0	74.0	44.8
Column Total		77	300	377
		20.4	79.6	100.0

### 3.4 RELATIONSHIP BETWEEN PROXIMATE VARIABLES AND FERTILITY

#### a) Contraceptive Use and Fertility

The average number of live births by contraceptive users is 4.896 and that by non-users is 4.243. A 2-tail t-test value of 2.76 which is significant at the 0.006 probability level implies that the two means are significantly different. This, therefore, means that the causal affect is from fertility to contraception and not vice versa. Alternatively, users could just have recently adopted contraception.

#### b) Marital Status and Fertility

The variation in the average number of live births with marital status is shown in table 12. This indicated

Table 12: Marital Status and Average Number of Live Births

Average number	MARITAL STATUS			
	Husband present	Husband away	Widowed	Divorced
Av. LB	4.519	4.280	4.000	4.000

are 4 possible reasons to explain the variation seen in

table 12 may be the differences in coital frequency. However, the cases of divorce and widowhood are too few (1 divorced and 2 widowed) so that not much can be inferred. All the same, the average of 4.000 live births is not much lower than the other two and one may therefore argue that divorce or widowhood occurred when parity was already high or that these women continued their fertility even after the events had occurred.

#### **c) Polygamy and Fertility**

The average number of live births by women in monogamous unions is 4.368 while that by women in polygamies is 4.419. A t-test shows that the difference between the two means is not significant. Polygamy, therefore, has little or no effect on fertility in Kisa. It appears from these means that fertility is marginally higher in polygamies than in monogamies.

#### **d) Age at First Live Birth and Fertility**

A t-test for the variables AGE1 and LB yields a value of 8.13 at a 0.000 2-tail probability level. This indicates that there is a very significant difference between the average number of live births by women who had a first live birth when aged below 20 years and by those who had a first live birth after age 20. The mean numbers of live births are 4.9502 for those who had a first live birth before age

20 and 3.4615 for those who had a first live birth after age 20. Correlation between the two variables is -0.4665. Those who had a first live birth below age 20 have a higher fertility than the others due to a longer reproduction span. With their education probably having been interrupted by early pregnancy or marriage, their educational level is likely to be lower. This would mean, therefore, that they are more attached to the traditional view towards children.

significant difference between the mean numbers of live

e) **Age of Woman and Fertility** and by Catholics (81833).

For those women whose age is 25-29 years, the mean number of live births is 3.5817 while it is 5.3550 for those aged 30-34 years. The difference between the two means is very significant as shown by a t-test value of -10.40 which is significant at 0.000 2-tail probability level. A correlation coefficient of 0.6490 was obtained for the two variables.

It would be reasonable to argue that the older women have a higher number of live births than the younger ones because they already have had a longer reproductive period. The older women are also likely to show less acceptance of contraception as they are likely to be less educated and to have stronger attachment to traditional attitudes and values.

f) **Duration of Post-partum Amenorrhea and Fertility** in this

The correlation coefficient between PPA1 and LB is

0.0587, thus showing that there is no strong correlation between the two. Post-partum amenorrhea therefore is not an important determinant of the level of fertility in Kisa.

### 3.5 RELATIONSHIP BETWEEN BACKGROUND FACTORS AND FERTILITY

#### a) Religion and Fertility

A 2-tail t-test for religion and LB results in a value of -2.78 at  $p < 0.006$  level. This reveals that there is a significant difference between the mean numbers of live births by Protestants (4.323) and by Catholics (5.833). Muslims were not included in the t-test due to their small number. However, their average number of live births is 5.000, lower than that for Catholics and higher than the one for Protestants.

These findings show that Protestants may be more ardent to practice contraception than Catholics are (c.f. table 10), tallying well with the fact that Catholics are more rigid than Protestants in their attitudes towards FP use and family formation.

#### b) Education and Fertility

Woman's education has a definite decreasing effect on fertility and this becomes evident when we compare the two means of number of live births by illiterate women (5.1299) and by the literate (4.1833). A 2-tail t-test confirms this significant difference by yielding a value of 4.05 at  $p <$



0.000 level.

Table 13 shows the variations in fertility with different educational levels of women in Kisa.

**Table 13: Mean LB by Education of Woman**

	Education of Woman			
	None	Std1-6	Std7-8	Sec.+
Mean LB	5.130	4.639	4.230	3.457

It is evident that fertility declines at every level of educational attainment. This probably is a result of education directly changing the woman's values and attitudes towards children.

On the other hand, husbands education shows a less dramatic effect with the mean number of live births by women whose husbands are illiterate being 4.7714 and that for women whose husbands are literate being 4.3441. A t-test value of 1.29 at  $p < 0.198$  level shows that the difference between the two means is less significant.

Table 14 also shows that the variation of average numbers of live births by husband's education level is less than in the case of woman's education.

**Table 14: Mean LB by Husband's Education**

	Husband's Education			
	None	Std1-6	Std7-8	Sec.+
Mean LB	4.771	4.699	4.512	3.842

The above findings show that woman's education is a

more important fertility determinant in Kisa than husband's contraceptive use, and polygamy emerged as the more important channels. In the case of religion, contraceptive use was the major channel. It was seen that the level of

### 3.6 SUMMARY

In this chapter, we have seen that three major proximate determinants of fertility operate in Kisa. These are contraceptive use, spousal separation (i.e marital status), and age at first live birth. Fertility was seen to be higher among contraceptive users than among non-users so that contraception may be seen as a response to high parity rather than the other way round. It has been seen that spousal separation lowers fertility while a low age at first live birth raises the level of fertility.

The other proximate variables viz. polygamy and post-partum amenorrhea have shown only insignificant effects on fertility. However, it has been shown that polygamy marginally raises the level of fertility.

The background factors examined here were education and religion. It was found that education of woman is an important fertility determinant in Kisa, as it is everywhere else, while husband's education played a less significant part. Different religious affiliations also cause differences in fertility with Catholics having higher fertility than Protestants.

Channels through which the background factors operate were also examined. For education, age at first live birth,

contraceptive use, and polygamy emerged as the more important channels. In the case of religion, contraceptive use was the major channel. It was seen that the level of contraceptive use increases with education, especially husbands education. This shows that husband's approval of FP use is of considerable importance.

Among a cohort of women aged 25-34 years, has revealed what variables are more important in determining fertility and which are less important. These findings have important implications for the course of action that can or should be taken towards achieving fertility control in Kenya, a country which, in the recent past, has had the highest population growth-rates in the world.

The main objectives of this study have been to establish how social and demographic factors influence fertility and to make recommendations as to how the various variables can be effectively exploited to achieve fertility reduction. For the most part, it has been possible to fulfil the objectives of the study. Most of the hypotheses postulated in chapter 2 have been confirmed while a few have been refuted and in this chapter the main findings are brought together and some recommendations made for enhancing the positive effects of the factors.

While the study area and the sample taken were relatively small, they are typical of the area and population of the district. Kisa District location is

## CHAPTER FOUR

### 4.0 CONCLUSIONS AND RECOMMENDATIONS

#### 4.1 CONCLUSIONS

An examination of the fertility determinants in Kisa Central location of Kakamega district, among a cohort of women aged 25-34 years, has revealed what variables are more important in determining fertility and which are less important. These findings have important implications for the course of action that can or should be taken towards achieving fertility control in Kenya, a country which, in the recent past, has had the highest population growth rates in the world.

The main objectives of this study have been to establish how social and demographic factors influence fertility and to make recommendations as to how the various variables can be effectively exploited to achieve fertility reduction. For the most part, it has been possible to fulfil the objectives of the study. Most of the hypotheses postulated in chapter 2 have been confirmed while a few have been refuted and in this chapter the main findings are brought together and some recommendations made for enhancing the positive effects of the factors.

While the study area and the sample taken were relatively small, they are typical of the area and population of the district. Kisa Central location is

typical of the high population density rural district that Kakamega is. The intense land pressure has forced massive out-migration in recent years and FP has only recently been adopted to a significant level. Social and economic development in this district is relatively low. Though Kisa is not representative of the whole of the Kenyan environment, it certainly represents areas where a large portion of Kenyan rural population live. In the study, an attempt has been made to establish relationships between various factors and fertility and to establish the various channels through which background factors act in determining fertility. The recommendations hereafter will be made on the bases of the established relationships.

The study has found that the prevailing fertility level is not entirely attributable to social factors alone. Rather, these social factors work in conjunction with demographic variables. For example, education works through delaying age at first live birth, religion operates through influencing use or non-use of contraception, etc. The role of men in determining the fertility of their wives also emerges from looking at the effect of education on FP use. Social factors, be they background or proximate, have emerged as the more important fertility determinants in Kisa. The demographic factor viz. duration of post-partum amenorrhea showed no significance as a fertility determinant

in this location, while the other two i.e., age of woman and age at first live birth, showed strong relationships with fertility. Age at first live birth is strongly influenced by the educational attainment of the woman and it is therefore a major channel through which education exerts influence on fertility. Husband's educational attainment, Age of woman is an independent variable and its strong relationship with fertility just goes to confirm the expected result that the older the woman, the more children she is likely to have. However, in its relationship with contraceptive use, we see that it acts as one of the strong determinants of use or non-use. As seen in the analysis, contraception is significantly more among the older women than among the younger. For those women whose fertility is high, the effect of social factors, we note that education of woman has a definitely more profound effect on fertility. This effect may either be direct or indirect. In the case where the effect may either be direct, education would be working by changing the woman's attitudes and values towards children and family size. In the alternative case, i.e., that of indirect influence, the effect of education would be through proximate variables. The study has revealed that this is indeed the case and that the major proximate factor through which woman's education acts is age at first live birth. Husband's education on the other hand, exerts its

influence on fertility by working through contraception and incidence of polygamy. It has been shown that husband's education increases the level of contraception, thus suggesting that husband's approval to FP use increases with educational attainment. Also revealed is the fact that polygamy decreases with husband's educational attainment. As has been seen, polygamy marginally increases fertility, probably due to competition among the co-wives. This, together with the revealed relationships between husband's education and polygamy and contraception, would therefore mean that higher levels of male education would lead to some fertility decline.

Spousal separation (c.f. marital status) also emerged as an important determinant of fertility. For those women whose husbands were away, fertility was lower than for those whose husbands were present. This is so due to the difference in coital frequency.

Also coming out clearly is the case of religion and fertility. It has been seen that Catholics have higher average fertility than Protestants. This finding is given more credibility by the finding that Protestants practice contraception on a larger scale than Catholics.

#### 4.2 RECOMMENDATIONS

For recommendations made in this and any other study to have any value, they need to be implementable within the short or medium term. In Kenya, the IEC effort has been



responsible for most of the adoption of contraception. However, in spite of widespread awareness, levels of contraception are still low while fertility levels continue to be very high. To achieve fertility regulation, therefore, a double sided approach needs to be applied. On the one hand, efforts should be made to raise the level of FP use and continuation and on the other hand, various fertility determinants other than contraception should be positively exploited. It is in this view, and on the bases of the findings of this study, that the following recommendations are made.

1. The IEC programmes should continue and especially be intensified in areas like Kisa where acceptance of contraception is low. There should be a deliberate move away from the macro to the micro (family) level when disseminating FP information and education. Emphasis ought to be specially laid on the positive aspects, like improved family welfare, of a smaller family. FP services to cater for the young, unmarried people. As seen in this study, conversion to FP use seems to be influenced by high parity and older age of woman. IEC programmes should therefore give increased focus on low parity and younger women in order to effect this conversion at earlier stages. In this study, between Kisa IEC programmes should also endeavour to raise the level of male participation in family planning.

2. Accessibility of FP services should be enhanced by increasing the number of service delivery points. However, more important should be the intensification of the CBD programmes and ensuring of an efficient and reliable referral system.
3. Female education emerged as an important fertility determinant. This means that there is need to enhance female education, at least to secondary level. Age at first delivery was seen to be a key factor in predicting fertility and delaying this, through more female education and later marriage, would lead to a fertility decline. The desire to have many children just More female education would also raise the levels of FP acceptance since it is easier to disseminate information among the more educated people. The educated also accept and adopt new innovations more easily.
4. Coming up with this point is the ever increasing need for FP services to cater for the young, unmarried people. It is recommended that appropriate modes of service delivery to young people be explored and that there be a change of attitude and policy towards contraception for youth.
4. The relationship that emerged, in this study, between husband's education and FP use suggested that husband's approval plays a significant role in determining

whether or not a woman uses contraception. It is therefore imperative that male education continue to be enhanced hand in hand with female education. Increased male education would also lead to a decline in polygamy thus raising family welfare as well as reducing fertility: it has been seen that polygamy marginally raises the level of fertility.

5. In Kisa, and other areas of low contraception level, programmes that encourage intensive and longer breastfeeding should be put in place. This would lead to improved infant/child health and thus reduce infant and child mortality. The desire to have many children just in case some die would then be reduced. In the absence of contraception, intensive and longer breastfeeding would make post-partum amenorrhea become a more effective alternative than it is currently.
6. Some special categories of women also need to be focused on. These are those whose husbands are present and those who are Catholics. As has been revealed, these categories of women exhibit higher fertility levels than their opposites. There is need for some concerted effort geared towards raising contraception levels in these categories.

This study has revealed interesting aspects that may need further research. The following appear to be particularly important.

1. Proximate determinants of fertility showed considerable variations in their effects on fertility. It is therefore necessary to investigate how the less important variables, like post-partum amenorrhea, can be made to have more effect on fertility.
2. It has been suggested in this study that spousal separation lowers fertility through lowering coital frequency. But this may as well not be the case. It may be hypothesized that lower fertility in areas of high male out-migration is due to untreated STD and this needs to be researched.
3. Since social and demographic factors are not the only determinants of fertility, and the variables studied here are not the only ones in this area, continuous research needs to be done on other factors and appropriate recommendations be made.
4. This study was based on a high population density rural environment and its findings and recommendations may therefore apply only to such environments. Further study of fertility determinants in urban and low density rural areas and in areas of a different level of socio-economic development would be necessary to give information about fertility regulation from other types of environments.

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