AN ANALYSIS OF CONTRACEPTIVE CONTINUATION IN KENYA.

BY

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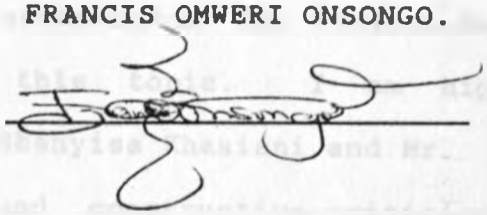
DEDICATION.

THIS THESIS IS DEDICATED TO MY DEAR PARENTS PASTOR STENIO ONSONGO OENDO AND MRS. PERIS BIYAKI ONSONGO TO WHOM I AM HIGHLY INDEBTED.

DECLARATION

This is my original work and has not been submitted for award of a degree in any university.

FRANCIS OMWERI ONSONGO.



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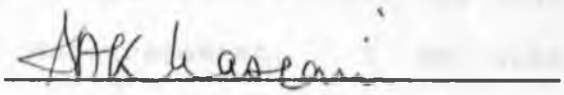

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This study was set out to determine factors responsible for the regional differentials in the level of contraceptive continuation in Kenya. The data utilized in this study was the 1986 N.C.P.D and C.B.S Contraceptive Discontinuation Survey. Literature reviewed showed that there are regional differentials in the level of contraceptive continuation and that these differentials are attributed to demographic, socio-economic, socio-cultural and programme related factors.

Life table analysis was the main method of analysis using basically 2100 acceptors of 1983.

Life-table analysis revealed that there are wide variations in the level of continuation by demographic, socio-economic and family planning related variables. Injection method was found to have the longest period of continuation followed by IUD whereas condom had the lowest length of continuation followed by spermicide with pill rates being in between. As far as age is concerned, it showed that continuation increased gradually until it reached a peak at age 35-39 after which it drastically declined. Age at first marriage also showed the same trend. Those who married at young ages had low levels of continuation and those who married at higher ages had high continuation. Married women were found to have high continuation as opposed to singles,divorced or separated. Women with primary education had the longest continuation and those with above form four level of

education had the lowest continuation. Former users of contraceptives had higher continuation levels than non-users. Finally, breast-feeding women had longer continuation than women not breast-feeding.

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CHAPTER ONE

INTRODUCTION

1.1 GENERAL INTRODUCTION

Kenya's population is among the fastest growing in the world. Its annual growth rate, estimated at 3.8 per cent per annum in 1979 places considerable strains on social and economic development goals (KCPS, 1984). Continued high fertility and decline in mortality have been responsible for this high growth. According to the censuses and surveys conducted since 1948, Kenya's population increased from 5.4 million to 15.3 million in 1979. The population was projected to have increased to 20.6 million in 1985. During the same period mortality declined from 25 deaths per thousand persons to 14 deaths per thousand persons, while total fertility rate (TFR) increased from about 5 live births in 1948 to about 8 live births in 1979.

It was in realization of the adverse consequences of a rapidly growing population that in 1967 Kenya became the first country in Sub-Saharan Africa to adopt the family planning programme. Family planning activities had however been started earlier in the 1950s. Inspite of this, however, the 1969 population census confirmed earlier findings regarding the high fertility in Kenya. Based on this, the Government launched a

5-year family planning programme (1975-79) which served as the foundation for the expansion and integration of services, and set the targets against which to measure achievement. The target of the programme was to help reduce the annual rate of natural increase of the population from 3.3 per cent per annum in 1975 to 3.0 per cent annum in 1979 and to improve the health of both the mothers and children under age 5. The programme made quite some progress in information and educational activities. Between 1975-79, the MCH performance was very encouraging in that the programme covered about 72 per cent of the pregnant women and 19 per cent of the children between 0-5 years. By 1979, an infrastructure for effective delivery of services had been developed. On the other hand, however, the family planning programme had limited success in the contraceptive use levels and consequently in the impact on fertility (Government of Kenya, Sessional Paper No. 4, 1984). Between 1975 and 1979, the population growth increased from 3.3 per cent to 3.8 per cent per annum thus indicating that the target of reducing population growth from 3.3 per cent per annum in 1975 to 3.0 per cent per annum in 1979 was not attained. This trend is partly attributed to the fact that at the time of preparation of the plan, Government's commitment to the strengthening of family planning was overestimated and that the plan concentrated heavily on the supply side of family planning services with little emphasis on programmes aimed at creating the demand for these services. Finally the plan depended heavily on the Ministry of Health as a

vehicle to achieve its objectives thus foregoing the opportunity to tap the resources of other Government agencies and non-government organizations. As a result of this, the level of contraceptive use remained low throughout the programme period.

This study focuses on the estimation of the lengths of continuation of contraceptive use which is one of the factors determining the level of use. The estimation will be undertaken using the life table technique and data collected by the National Council for Population and Development (NCPD) in 1986.

1.2 STATEMENT OF THE PROBLEM.

According to the Kenya Fertility Survey of 1978, contraceptive adoption is slow, prevalence low and rate of drop out very high (KFS, 1978). This survey revealed for instance that only about 7 per cent of currently married women in Kenya were using modern methods of contraception. While this level had increased to 17 per cent in 1984 and 27 per cent in 1989, it still remains low when compared to other countries. Several studies on the other hand suggest that the rate of continuation of contraceptive use in Kenya is low (Bondestein 1972, Livingstone 1975, World Bank 1980). According to this World Bank study, for instance, 65 per cent of the women who visited family planning clinics run by the government in 1973 continued use after the first year while only 30 per cent continued use after

the second year. Other studies on continuation of contraceptive use in Kenya focus on the factors which determine the length of use (Ojakaa, 1986). However, so far there has been less attention on the extent to which the low rates of continuation of contraceptive use discussed above affect the length of use. In addition, the variations of the length of use by socio-economic, demographic and other factors has not been examined hence the need for the present study.

1.3 OBJECTIVES OF THE STUDY.

The main objectives of this study are as follows:

1. To estimate the contraceptive continuation rates in Kenya by regions, socio-economic and demographic factors.
2. To analyze factors influencing contraceptive continuation in Kenya.

1.4 JUSTIFICATION OF THE STUDY.

The findings of this study can be utilized for purposes of population policy implementation in Kenya as well as for further research on contraceptive continuation. The results of the study are expected to reveal areas where contraceptive continuation is low and among which groups. This, for instance, can be utilized to develop strategies which can be applied to increase the level

of contraceptive use in Kenya by focusing on those areas and groups where continuation is low. The identification of areas and groups with low continuation rates of contraceptives can be further utilized to suggest areas of contraceptive continuation which future research in Kenya can focus on.

1.5 SCOPE AND LIMITATIONS OF THE STUDY

As mentioned earlier the data utilized in this study was obtained from a survey conducted by the National Council for Population and Development (NCPD) and analyzed using the life table technique. One of the limitations of this method of analysis is that it is not possible to construct life tables when the cases involved are few. In certain districts and categories the number of cases available were too few to allow the construction of life tables. Thus analysis could only be undertaken for 13 districts. It was also not possible to undertake analysis by some important background variables such as residence as this information was not available in family planning first visit and revisit from which the data was extracted.In estimating the length of continuation of use, the date of dropping out was estimated on the information obtained from the family planning card. Since some acceptors may have continued to use family planning method even without honoring their appointments,the exact date of discontinuation could not be ascertained. This study was done at a macro level with

districts as the units of analysis.

CHAPTER TWO:

LITERATURE REVIEW AND THEORETICAL FRAMEWORK.

2.1 INTRODUCTION

The literature reviewed in this chapter covers two broad areas. The first section reviews existing methods for estimating contraceptive continuation. The second section examines literature on the relationship between contraceptive use on one hand and demographic and socio-economic factors on the other. The reviewed literature was utilized in the study to develop a theoretical framework, formulate hypotheses and select methods of analysis.

2.2 METHODS OF ESTIMATING CONTRACEPTIVE CONTINUATION.

There are two main methods of estimating contraceptive continuation: Life-table technique and extrapolation technique.

a. Life-table technique

In using the Life-table technique, data is analyzed at different points to obtain period and cumulative rates of pregnancy, those due to medical and other termination as well as of continuation of use among acceptors at specific calendar dates

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a. Life-table technique

In using the Life-table technique, data is analyzed at different points to obtain period and cumulative rates of pregnancy, those due to medical and other termination as well as of continuation of use among acceptors at specific calender dates

called cut-off dates.

The life-table analysis is based on the following basic assumptions:

i. That studied population is homogeneous in that there are only minor differences between cohorts of acceptors.

ii. That the greater bulk of observations are carried through to the study or cut-off dates so that incomplete observations occur only to a limited extent.

iii. That there are no essential differences between those individuals with incomplete observations, including those lost to follow-up, and those available for the study.

This technique has been applied by several researchers in studying continuation of contraceptive use. The approaches adopted in each of the applications are discussed below. One of these approaches was developed by Potter. In this method the relative intensities of the several causes of interrupting practice of the method and overall continuation are assessed. The later is calculated as the proportion continuing use between the month x and x + 1 and is denoted by P_x. This proportion is

given by:

$P_x = 1 - Q_x$

where Q_x is the proportion discontinuing use between the month x and x +1; and is given by:

$Q_x = T_x / N^*_x$

where N^*_x is equal to the number of women retaining the device on the month at the start of the interval x, x+1; T_x is the total number of those who discontinue use in the month (x, x+1), and is given by:

$T_x = PE_x + E_x + R_x$.

where PE_x = number of expulsions in the monthly interval (x, x+1).
E_x = corresponding number of expulsions.
R_x = corresponding number of removals.

In order to obtain termination proportions we divide T_x by N^*_x. N^*_x is the number of women retaining the device at the start of monthly interval (x, x+1) when allowance has been given for those withdrawn from observation.

Continuation is given by the formula

$P_x = 1-Q_x$

where

Q_x is the termination proportion.

In using the Potter technique monthly rates of losing the device to a specific cause are computed. This method has a number of advantages. First, the cumulative proportions meet the

need for detailed information about continuation. Secondly, the length of follow up dictates the maximum duration for which useful rates can be computed but does not affect the value rates obtained during this duration. In this way study results are independent of length of observation. Similarly the method recognizes multiple causes of discontinuation of which pregnancy is only one. Finally, the conditional monthly rates of terminating by cause are free to vary from month to month so that no simplifying assumptions about their being constant has to be made.

In dealing with the incomplete observations, the Potter method appears to be straight forward and empirical. If the last observation of use preceded the cut-off dates the woman is credited with use up to the last observed date. But if the acceptor was not observed after acceptance, no credit is given for use after acceptance. If the last observation was after the cut-off dates use is credited to the cut-off date. Termination occurring after cut-off date are not considered; such women are classified as users as of cut-off date and the length of use is taken from insertion to cut-off date.

An extension of Potter's method was undertaken by Tietze and Lewit in 1973. In this approach the basic procedures of computation of termination rates are the same as those of potter. In dealing with incomplete observations, a relatively

complex system of determining length of use for women with incomplete observations has been devised by treating them as a selected group. One group of acceptors with incomplete observations are those released from study or dropped from observation. This consists of primarily patients who have been transferred to other clinics or physicians. For this group they credit women with use of IUD from insertion to the last observation. Acceptors who were not overdue for revisit for more than three months are considered as continuing users and are credited with use from insertion up-to the cut-off date of observation. Those acceptors who are overdue for revisit for three or more months are considered as loss to follow up and are credited with use through the ordinal month corresponding to their last observation. Women acceptors who were observed only after insertion are credited with one and half month of use. In reviewing the results obtained by applying Tietze and Potter's methods, Sivin and Jain (1977) noted that the two methods yielded substantially different results. In order to overcome the limitations identified in these two methods, the researchers proposed the anniversary method.

This approach is meant to calculate rates only for durations of experience that corresponds to the schedule of follow up visits - 1, 3, 6, 12, 24, 36 etc months. If at cut-off date, an acceptor had 9 months, after insertion and was last seen using the devise in the 8th month, the life-table calculations could

recognize use only to the time of the last anniversary, the visit scheduled at the end of 6 months. If an acceptor had 9 months of exposure between insertion and cut-off date and was observed to have terminated use in the 8th ordinal month, the acceptor could be considered as a continuing user at her last anniversary date before cut-off ie the 6th month. The termination in the 8th month could not enter the life-table at this cut-off date. This method guards against premature or non-random observation of continuing users between the scheduled 6th month and 12th month visits.

In most applications the Anniversary method should produce continuation and termination rates that are in between Tietze and Potter rates. These rates should, however be close to those calculated by Tietze method if many terminations are observed prematurely.

However, this method is not free from artificiality and possible bias. The clinicians are not uniformly distributed following the schedule of visits recommended by the protocol. Thus the protocol's Anniversary dates were not necessarily the ones the acceptors were to return to the clinic. Thus the Anniversary method did not fulfil its function of minimizing bias from prematurely observed terminations.[1]

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[1] A. K. Jain and I. Sivin, Studies in Family Planning, Vol. 8 No. 2, 1977, p. 36.

In conclusion the researchers noted that even the proposed approach above could not effectively minimize biases due to incomplete observations. In order to minimize such biases the following recommendations were provided:

i. That envisioned enrolment should not be spread over many years.

ii. Follow up visits should be scheduled at 1, 3, 6, and 12 months after insertion. Subsequent visits should be scheduled after 6 months.

iii. Acceptors who are overdue for a scheduled visit be actively followed by telephone, mail or personal visit in order to limit incomplete observations.

iv. To ensure adequate sample size the cut-off date for an analysis should be set so that at least 100 individuals could have reached the end of the ordinal month 12, 24 or 36 by the cut-off date had they not terminated prior to that time.

v. Three months after cut-off the clinical staff should attempt to contact by telephone, mail or personal visit all acceptors who fail to make a visit or contact

scheduled in 6 months preceding the cut-off dates. The status of those contacted should be recorded.

vi. Six full months should elapse from cut-off dates to the updating of the files using the analysis concerned with that of cut-off date to permit time to complete active follow up of acceptors.

The above recommendations will only help in reducing the duration of unobserved segments and the number of incompletely observed acceptors but will not eliminate them. It has been observed from the above review on methodology that none of the methods of life-table are free of bias unless active follow up is used to complement a method.

In the case of my study given the nature of the data I utilized it was not possible to use any of these methods because data was not classified according to the cause by termination. Similarly follow ups were impossible due to the scarcity of financial resources given the large sample size and its distribution all over the country. Again the keeping of these records in the family planning clinics is poor thus making a fruitful follow up could be impossible.

b. Extrapolation Method.

This is another technique used in the study of contraceptive continuation. According to the Extrapolation method, P_0x, the proportion retaining, and R_0x, the expected months of retention per acceptor are extrapolated beyond the observation period. Here either a model defining the conditional risks of termination as a function of duration since acceptance, or a mathematical function giving the direct relationship between proportions retaining and time elapsed are utilized (Robert G. Potter, and Roger C. Very, 1973).

The most known and widely used is a continuous function based on the negative exponential proposed by Mauldin, Nortman and Stephen, (1967) namely

$$P^m_{0x} = ae^{-rx}$$

Where a is a constant denoting the proportion who avoid very early terminations.

r is a constant reflecting the annual rate of termination.

e is the natural log base 2.718

Integrating this decay function over duration, one has

$$R^m_{0x} = \int_0^x ae^{-rt}dt$$

$$= \frac{a}{r}\left(1-e^{rx}\right) \quad \text{As } x \longrightarrow \infty$$

$$R^m_{0x} \longrightarrow \frac{a}{r}$$

This method has provided good fits for IUD experiences with an initial rapid decline of conditional monthly termination rates

followed by plateuing of risk.

Liu et. al. (1972) presented a model which formalizes the situation just described. In their three parameter model the high risk group has a constant conditional risk of termination r_1 (per year), the low risk group has a conditional risk r_2, while a proportion p of the initial cohort belong to the high risk group, and 1-p belong to the low risk group. These two negative exponentials operate in continuous time

$$P^L{}_{0x} = Pe^{-r_1 x} + (1-p)e^{-r_2 x}$$

$$R^L{}_{0x} = \frac{P}{r_1}[1-e^{-r_1 x}] + \frac{(P-1)}{r^2}[1 - e - r^2 x]$$

It is noted that both are conventionally fitted by a least square procedure. Liu model gives slightly better fits than those of Mauldin in the case for contraceptive experiences for which both are designed. The slower the decline the greater the improvement that the Liu fitting can be expected to produce over the Mauldin fitting. The disadvantage of these two models is that they intend to underestimate the mean retention time.

This study therefore utilized the e_{x0} function of the life-table to refer to the mean length of stay in use of contraceptives. This acted as an estimate of the mean length of

continuation of use of contraceptives in Kenya.

2.3 CONTINUATION AND REGIONAL DIFFERENTIALS.

Available literature indicate that there are regional differentials in the rate of continuation of contraceptive use. Continuation rates are generally higher in developed compared to developing countries. Robert E. Lightbourne (1980) conducted a cross sectional study using World Fertility Survey data and worked out contraceptive continuation ratios by dividing the percentage of currently married fecund women using any method of contraception by percentage of currently married fecund women ever using any method. The results showed that in principal cities, continuation ratios averaged 0.705 across all countries, meaning that for every 100 ever users there are 70.5 current users. This ratio varied comparatively little between the countries with 0.592 in Guyana as the lowest and 0.827 in Costa Rica as the highest. The average rural continuation ratios for all countries which was 0.613 was somewhat lower than the principal city ratio. The rural ratio varied more than did the principal city ratio, the exceptions being Indonesia, Nepal and Guyana. For most countries the principal city ratio was not more than 20% more than the rural ratio except for Bangladesh (33% higher), Jordan (56%), Pakistan (79%), Mexico (23%) and Peru (22%).

This study found that among rural currently married fecund women at all parities, substantial proportions of ever-users were persistently in contraception. The study revealed that Latin America and the Caribbean group of countries had higher continuation ratios at most parities than the Asian and Pacific group of countries.

2.4 CONTINUATION AND METHODS.

Contraceptive continuation has also been found to vary with the method adopted. Ojakaa (1986) using multiple regression analysis of data of a systematic sample of 512 collected from National Family Welfare centre found out that the length of continuation is influenced by method of contraception among other variables.

In Calabar State, Nigeria, Weiss and Udo (1981) found out that after a year 73% of IUD acceptors retained the device while only 26% of the pill users continued using the method. James Phillips (1974) found out that adopters of IUD had substantially higher continuation rates than adopters of any other method, a finding that is attributed to the nature of the device rather than to socio-demographic characteristics of the users.

Murungaru (1982) estimated the proportion of original acceptors still in the programme at two times after acceptance

using Chogoria data for pill and IUD. He found that continuation rates are higher for IUD than for pill at younger age groups and higher for pill for older age groups.

Ross (1974) found that the continuation rates for the pill range between 55% and 62% at 12 months for most countries. These rates were generally higher than for IUD while those for the other methods such as condom were comparable to that of the pill.

James Phillips (1974) using data collected by University of Philippine Population Institute - The National Acceptor Survey of 1974 employed a multi-variate analysis and found out that there were three variables that the multi-variate analysis of 18 months all continuation rates had. These variables were method, age and husband's attitude. When multiple classification analysis were conducted for acceptors of each method, there was no evidence of any important correlant of IUD continuation. Rhythm continuation was predicted by variables that almost explain pregnancy rates among non-users: age, parity, marriage duration and open birth intervals. This study found out that husband's support was an important predictor of continuation among pill, condom and rhythm acceptors over age 25. The study revealed that the desire for children at the time of acceptance does not appear to have an important influence on continuation. Rhythm continuation was found to be strongly correlated with demographic

factors.

2.5 CONTINUATION AND DEMOGRAPHIC FACTORS.

Ojakaa (1986), found that the length of continuation was influenced by marital status among other variables. As pertains to duration of marriage, Weiss and Udo (1981) using data collected from Calabar State Nigeria found out that Nigerian women who had married for five or more years had higher continuation rates as opposed to their colleagues who had married for four years or less.

As far as age is concerned, West-off and Ryders' study showed that younger women aged less than 30 years had lowest discontinuation rates than older women (Panker and Jones, 1967). In contrast, Kanitkar's study showed that women aged over 35 years had the lowest discontinuation rates for 6 months (Panker and Jones,1967).

2.6 CONTINUATION AND SOCIO-ECONOMIC AND CULTURAL FACTORS

Available literature shows that socio-economic and cultural factors do influence contraceptive continuation. Ojakaa (1986) found that education was one of the major determinants of contraceptive continuation in Kenya.

Gachuhi (1975) studied 160 women selected at random among

those who dropped out of the family planning programme in Kisii District - using a questionnaire. The study established the fact that drop out rates were high and continuation rates low due to medical factors, transportation problems and socio-cultural factors. As far as transport is concerned, Gachuhi came to the conclusion that transportation problems led many rural women to drop-out of family planning programmes. Such problems would be due to lack of reliable transportation to and from the family planning clinics, high transportation costs and bad weather. Furthermore during planting, weeding and harvesting times most rural women are unwilling to leave their farms and go to a family planning clinic unless it is within a few minutes' walk from their homes.

Gachuhi (1975) also found out that socio-cultural variables were important in determining contraceptive continuation in Kenya. The study found that the majority of women in Kenya were not willing to use contraceptives for long periods of time if those people they consider important do not support the idea and if it goes against the accepted community norms. He found that when the lineage disapproval was correlated with age, 70% of the respondents between 20 and 34 years indicated that disapproval was very strong. This therefore indicated that women in the peak child bearing years experience the greatest social pressure to have children and this is certainly an important factor in influencing these women's decision to drop out of the

family planning programme.

Baily et al (1982) found that in Mexico less educated women were likely to continue using oral contraceptives if they got them from a pharmacy rather than from a private physician or trained field worker.

James Phillips (1974) found that although age and husband's attitude influenced pill continuation, administrative variables were on the whole more important predictors of continuation among pill acceptors than social, economic and demographic characteristics. Husband's support was found to be an important predictor of continuation among pill, condom and rhythm acceptors over age 25. This implied therefore that community support was paramount in determining continuation.

The literature reviewed in this chapter both on methodology and variations in continuation of contraceptive use indicate that appropriate data and framework would be needed to estimate continuation of contraceptive use and to explain variations in such continuations. The section below discusses a theoretical framework for this purpose. Data used in this study is discussed in chapter three.

2.7. THEORETICAL FRAMEWORK

As discussed in section 3.2 above continuation of contraceptive use varies by socio-economic, demographic and family planning service related factors. Thus a framework for analyzing such variations must incorporate all these factors. Since the objective of this study is to examine the variations by socio-economic and demographic factors, a framework incorporating these factors and continuation would be sufficient. A framework in which these factors can be linked with the continuation is the Bongaart's framework of analyzing fertility.

This framework which has been used widely in studying the fertility phenomena is based on the Davis and Blake framework which was developed in 1956. The Davis and Blake framework which identified eleven variables which influence fertility directly has not been widely used because it could not be easily incorporated into reproductive models because of these large number of variables (Bongaarts, 1978).

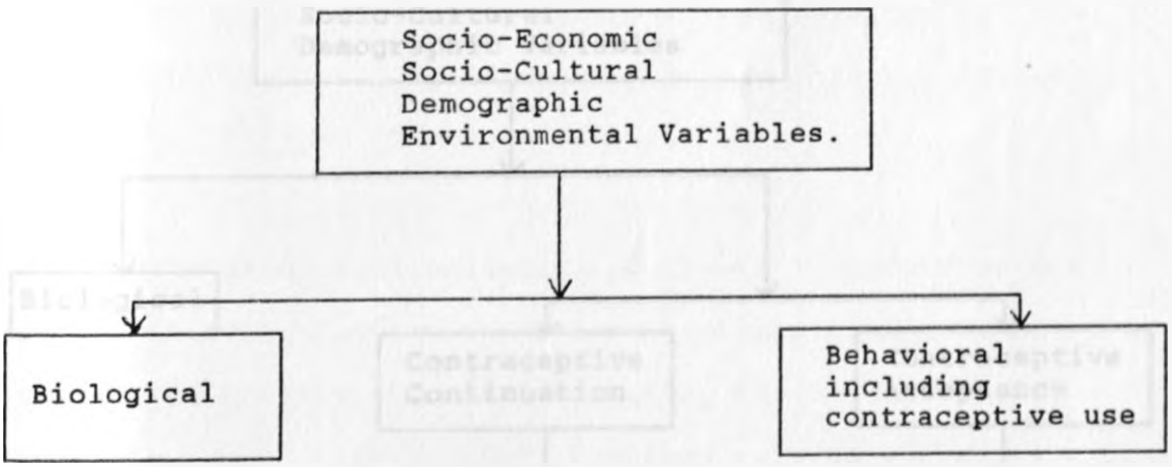
In Bongaart's framework which was developed in 1978, a small set of eight intermediate or proximate determinant factors of fertility were identified. These factors were reclassified into the broad categories of biological and behavioral variables. These eight proximate determinant factors identified include:

proportion of reproductive time spent in marriage, contraception, post-partum infecundability, frequency of intercourse, sterility, spontaneous inter-uterine mortality and duration of viability of ova and sperm. Variations in any of them causes changes in fertility.

According to the framework the influence of socio-economic, socio-cultural, demographic and environmental factors only affects fertility through the proximate determinant factors as shown in figure 2.1 below.

THE CONCEPTUAL MODEL

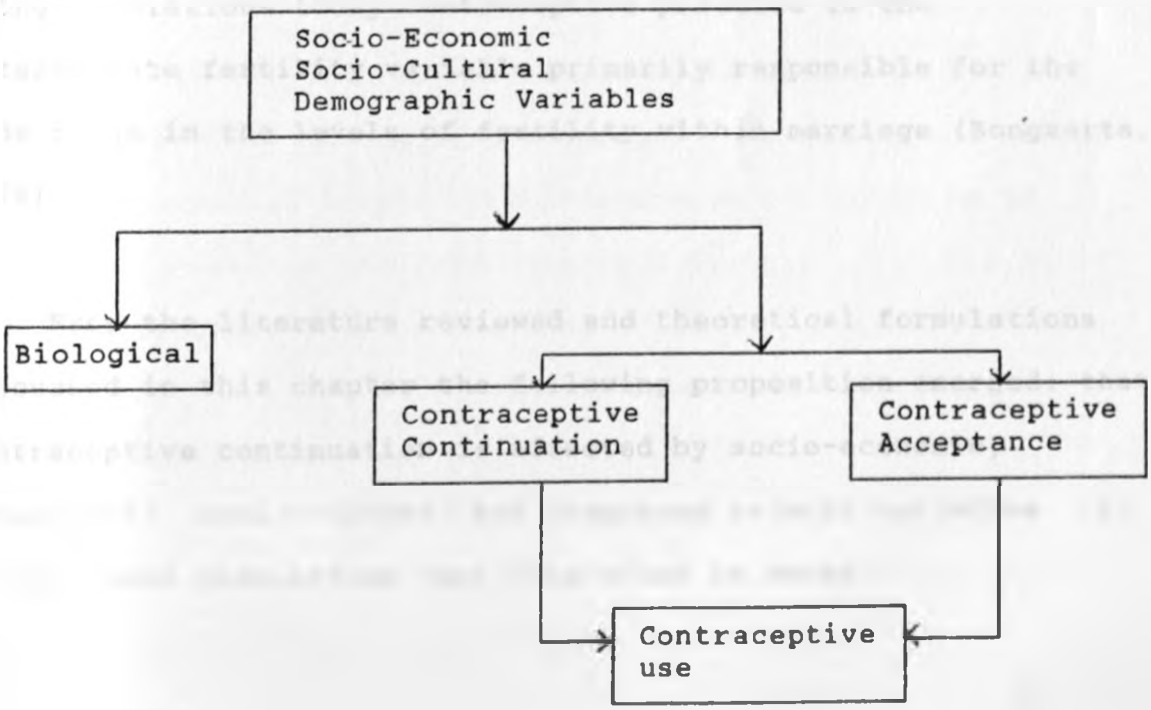
Figure 2.1 ADOPTED JOHN BONGAART'S MODEL



Of all the eight, only four are the most important variables according to Bongaarts viz:- proportion married, contraception, induced abortion and post partum infecundability.

As shown in this framework, contraceptive use is one of the proximate determinants which influence fertility. The level of contraceptive use of a society is determined by the rate of acceptance and continuation of use among the acceptors. Thus it can be argued that socio-economic, demographic, socio-cultural and environmental factors affect the level of use through either the acceptance level or the length of continuation of use. The continuation of use can therefore be conceptualized as shown in figure 2.2 below.

Figure 2.2 SPECIFIC ADOPTED BONGAARTS MODEL



The Bongaarts framework has for instance been used to assess the relative contributions of the proximate determinant factors on fertility in Kenya using the Kenya Fertility Survey of 1977-78. In this study it was found that contraceptive use is an important intermediate determinant only for those with secondary education and above and in metropolitan cities. In the rest of the population, post-partum ammenoreah and proportion married are the only important intermediate determinants of marital fertility (Sabiti K., 1984).

This model is appropriate for this study as it is the only widely accepted model explaining fertility behaviour of which contraceptive acceptance, use and continuation are party to. Among populations today contraceptive practice is the intermediate fertility variable primarily responsible for the wide range in the levels of fertility within marriage (Bongaarts, 1978).

From the literature reviewed and theoretical formulations discussed in this chapter the following proposition emerged: that contraceptive continuation is affected by socio-economic, demographic, socio-cultural and programme related variables. It is upon this proposition that this study is based.

2.7 HYPOTHESES.

It can be conceptualized from the above literature review and theoretical framework that contraceptive continuation in Kenya is influenced by socio-economic, socio-cultural, demographic, and programme related variables. The study was conducted at a macro level in order to have an overall picture of the regional variations in the levels of contraceptive continuation in Kenya.

Operational Hypotheses. From the above conceptual hypothesis, a number of operational hypotheses are derived as below:

1. That the more developed districts with high socio-economic levels of development like Kiambu and Nairobi have high levels of contraceptive continuation as opposed to the less developed district with low socio-economic development like South Nyanza, Siaya and Kilifi which have very low levels of contraceptive continuation.

2. That contraceptive continuation rate for women aged 15-24 is lower than those over 25 years.

3. That women who married before age 25 have low levels

of continuation than those who married after age 25.

4. That women who had been using contraceptives have high levels of continuation as opposed to those who had not used contraceptives.

5. That injection method has the longest length of continuation.

6. That women with formal employment have higher levels of continuation than house-wives.

7. That women with no education have the lowest levels of continuation followed by those with primary education, and that the ones with secondary education or more have the highest level of contraceptive continuation.

2.8 DEFINITION OF VARIABLES.

Dependent Variable:-

Contraceptive continuation: This refers to the average length of time of use of contraceptives.

Independent Variables:-

1. Current users of contraception: This is the proportion of

fecund women of child-bearing age not pregnant at the time of interview who are still using one form or the other of contraceptives.

2. Socio-economic variables: These are the indices of economic status: Education, Occupation, and Income. Education is defined as percentage of women who have been in school for certain specified number of years in formal learning situation. Occupation refers to the work status. There are many categories: professional, technical, housewife, etc. In this study occupation is defined in terms of percentage of women who are in each category.

3. Demographic variables: These variables encompass age, parity, duration of marriage, open birth interval, and age at first marriage and marital status. The definitions of these variables are given below:-

   (a) Age:- is defined as percentage of women who have lived a given number of complete years since birth to time of interview. The women in question were divided into a number of age groups having a five-year interval from age group 10-14 to age group 45-49. So we refer to proportions in each age group.

   (b) Parity:- is defined as the percentage of women with a

given number of births at the time of the interview.

(c) Duration of marriage:-Refers to the percentage of women who have stayed in marriage for a given number of years.

(d) Open birth interval:-May be defined as the percentage of women with a given length of time in years or months since the last live birth to the time of interview.

(e) Age at first marriage:- This is the percentage of women who married at a certain given age. In this case it refers to categories of women married at different age groups in proportions.

(f) Marital status:- Defines the nature of nuptiality. It refers to women being in one of the states of marriage defined as: (i) Divorced women form the proportion of those who have ceased to permanently cohabit with their spouses. (ii) Widowed women form the proportion of those whose husbands have passed away. (iii) Married women form the proportion of those currently married to their spouses and are still cohabiting. (iv) Single category is the proportion of those who have not entered into any marriage bond.

2.9 CONCLUSION

The literature reviewed show that regional differentials in contraceptive continuation exist and that such differentials can be attributed to demographic, socio-economic and cultural and programme factors.

Arising from the literature it is therefore important to find the extent of regional differentials in Kenya by estimating continuation. Secondly it becomes important in the light of the reviewed literature to find the demographic, socio-economic, cultural and programme factors to which such differentials can be attributed. This is in light of the fact that no studies tell us this and hence the rationale for this study.

CHAPTER THREE

SOURCES OF DATA AND METHODS OF ANALYSIS

3.1 INTRODUCTION:

This chapter examines the data used in the study and methods utilized for analysis. The examination of the data includes background to the survey, the sampling and data collection methods and its processing. The quality of this data will also be assessed. In the discussion on the method of analysis an analogy between the ordinary life table and how it is applied in this study is drawn.

3.2 STUDY AREA AND STUDY POPULATION.

The contraceptive discontinuation survey was a national survey which was undertaken by the National Council for Population and Development (NCPD) in 1986, with the technical assistance of the Central Bureau of Statistics (CBS). The purpose of this survey was to collect data on contraceptive discontinuation in Kenya in order to asses the overall effectiveness of the family planning programme. It is important to note that the discontinuation data could be easily used for studying continuation. This is so because continuation and discontinuation are complementary. For instance, as acceptors of

use drop out others remain continuing with use at various points in time.

All provinces except the North Eastern Province were covered in the Survey. The omission of the latter was due to the limited number of people who had accepted contraceptives in the province.

The survey was targeted to women acceptors of family planning in January 1982 and January 1983. From this population of acceptors, data was collected for a total of 5,045 acceptors in the 7 provinces. Of these 2,945 were acceptors of January 1982 while the rest were acceptors of January 1983. The data was collected through extraction from the family planning clinic cards in the clinics using a questionnaire which was designed by the National Council for Population and Development staff. The sampling was undertaken with the assistance of the Central Bureau of Statistics staff while National Council for Population and Development was responsible of the implementation and coordination of the survey.

3.3 SAMPLING PROCEDURES.

The sample of the survey was obtained through a multi- stage sampling design. In this design, the family planning clinics were taken as the Primary Sampling Units (PSUs) and the number of acceptors in each of the clinics as its Measure Of Size (MOS).

Clinics were next stratified on the basis of their type (Government or Private) using their codes and names. Once this was done, the next stratification was at the district level. At this level districts with limited number of acceptors were omitted or combined resulting into 26 strata for January 1982 and 20 strata for January 1983. Within each, a sample of clinics were selected using probability proportionate to measure of size. In each of the selected clinics all the records were examined.

This method was advantageous and facilitated field work by providing appropriate equal workloads between clinics and also simplified estimation of sampling errors. By use of this method 5,043 acceptors were selected in the strata for January, 1982 acceptors thus the expected sample size for one primary selection is about 2.25. Therefore for a sample of 2400 acceptors about 1,066 PSU's should be selected.

Clinics in each strata were put on an ordered list giving an implicit geographical stratification. Measures of six were then assigned to each clinic or group of clinics which were cumulated, and by use of intervals, a predetermined number of clinics were systematically selected.

In order to minimize random errors the information for each District was weighted using the selection probabilities.

$$Y = \sum\sum x_{hij} (1/p_{ij}).$$

Where xhij gives the value of the jth acceptor for the ith clinic and pij is the selection probability for the ith clinic and Y by implication is the individual acceptors.

Standard errors for selected variables are expected to be calculated by the formula (NCPD, 1986):

$$j = \sum_{j=1}^{j} (Xhi - Xhi)^2/(nh - 1)$$

3.4 DATA COLLECTION AND PROCESSING.

Prior to the commencement of data collection, a pretesting of the questionnaire was undertaken in selected clinics in Nairobi and the Family Planning Association of Kenya (FPAK) clinic in Thika. The purpose of the pretest was to find out whether the questionnaire could be applied easily and also to find out whether all important questions had been included in the questionnaire.

The collection of data was undertaken between June and August 1986 by the NCPD staff who were organized in three teams.

This exercise was implemented in two phases. The First phase was done in June 1986 while the second phase was done in July and August 1986.

During the collection of data, the sampled clinics were visited and all family planning clinic cards for acceptors of January 1982 and January 1983 were obtained. The information obtained in these cards was then entered into the questionnaire.

After the completion of the field work exercise, the completed questionnaires were brought to the NCPD secretariat where the data was coded and then entered into the computer at Chiromo - University of Nairobi under the supervision and guidance of the NCPD staff.

3.5 QUALITY OF DATA.

As discussed earlier, the discontinuation survey data was extracted from the family planning cards using a questionnaire. Overall the design and the implementation of the survey which was done by the National Council for Population and Development and Central Bureau of Statistics staff can be said to have been done well. However the discontinuation survey data is secondary in nature since it was extracted from existing records and its quality would therefore depend on the quality of the data in the family planning clinic cards. Before one looks at the

limitations of the data utilized, it is important to note that this is secondary data which could be ideal for the hospital and clinic administrators but may not suit the need of this study. Since this aspect of the survey was not assessed, it is not possible to gauge the quality of the discontinuation survey.

In addition to the limitation which may arise from the above, the survey data has several other limitations for the present study: One of this is the possible bias on the estimation of continuation rates. Continuation in this data is defined as upto when the client stops attending a family planning clinic within a certain specified length of time. Since there are many situations when an acceptor may still be continuing use even after failing to attend a certain clinic, the continuation rates using this data may be underestimated.

Another limitation in using this data in the present study is lack of information on certain key variables since this data was not contained in the family planning cards. Such variables which were not available in the data include: length of breast feeding, parity before and after contraception, sterilization method, whether an individual dropped out due problems with the method or due to desire for pregnancy, and whether the individual used contraceptives to delay or terminate child bearing.

Finally limitations are caused due to sample size. There are cases in this study where it was not possible to construct life-

tables because of the limited number of cases.

3.6. METHODS OF DATA ANALYSIS.

a. Life-table Technique.

The estimation of length of contraceptive continuation in this study was undertaken using the life-table technique. This technique which was initially developed to study the mortality process is now being used to study other demographic processes which can be modelled as mortality phenomena. Such processes include child bearing, migration, and marriage among others.

A life-table is a life history of a hypothetical group or cohort of people as it is diminished gradually by death - and this summarizes its mortality experience. This summary is provided in a table where the date may be provided for every single year of age from the age of birth to the last applicable date. This type of table is referred to as a complete or unabridged life table. When the data is presented in five or ten years the life-table is referred to as abridged. The various columns of the life-table represent its functions. In representing these functions different notations are used to distinguish between the unabridged and the abridged life tables. In the case of the unabridged life-table, the following notations are used to represent the functions:

l_x, nd_x, nq_x, nL_x, T_x and e_x.

Where;

l_x is the number of persons in the cohort who survive to age x.

nd_x is the persons who die between age x and x+n.

nq_x is the probability of dying between age interval x to x+n.

nL_x is the number of persons years lived within the indicated age interval (x to x+n).

T_x is the total number of persons years lived after the beginning of the indicated age interval by the assumed cohort of 100,000.

e_x is the average remaining life time in years for a person who survives to the beginning of the indicated age interval. This is the expectation of life or life expectancy at age x.

In the case of abridged life-table this interval is reduced to one year and these functions are represented by d_x, L_x and q_x. The first step in the construction of a life-table is to convert the nd_x into age specific death rates nM_x.

$$\text{Where } nM_x = nd_x / np_x . l_x$$

From nM_x, nq_x is next obtained using the equation below:

$$nq_x = 2n.nM_x / 2+nM_x \quad \text{(for interval > 2)}$$

$$q_x = M_x / 1+1/2M_x \quad \text{(for unit intervals)}$$

$$nL_x = n/2[l_x + (l_x + n)]$$

$$T_x = nL_x$$

$$e_x = T_x / l_x$$

The life table construction is based on the following assumptions: First, that the cohort is closed to migration and that death is the only source through which members are lost. Second, that people die according to a schedule fixed in advance which does not change. Third, that deaths are evenly distributed at each age. Finally, the cohort originates from a standard number of births.

The main advantage of life tables as a measure of mortality is that they do not reflect the effect of age distribution of an actual population and do not require the adoption of a standard population for acceptable comparisons of levels of mortality in different populations.

Life table technique has another advantage in the sense that it permits making mortality allowances for age cohorts, eliminating the burdensome task of compiling death statistics by age even when death statistics are available.

However, in the use of life-tables, the following difficulties are encountered:

a. How the values of the life-table can be related to the actual recorded experience.
b. How to represent the history of a complete life-table

when the available data particularly in the study of mortality pertains to short durations.

In this study life table was applied to estimate the length of continuation. In this case complete (unabridged) life tables were constructed using NCPD data for every single month from the time of acceptance to the last applicable month. This construction was based on the assumption that a woman continuing contraceptive use between one month and the other is faced with the risk of discontinuing. In order to use this data in the construction of the life-table, the first step was to obtain the number of continuing users l_x upto month x. This was obtained by cross tabulating the duration against the number of continuing users for each of the months upto the last month, that is, the month of the survey. Using these frequencies the various functions of the life-table were obtained as illustrated below.

$$
\begin{aligned}
{}_nl_x &= {}_nd_x / l_x \\
{}_np_x &= l_x / l_{x+n} \\
{}_nq_x &= 1 - {}_np_x \\
{}_nd_x &= l_x - (l_{x+n}) \\
{}_nL_x &= [l_x + (l_{x+n})n]/2 \\
T_x &= \sum_{\infty}^{0} {}_nL_x \\
e_x &= T_x / l_x
\end{aligned}
$$

These life table functions for studying contraceptive

continuation are briefly discussed below:

(1) lo. This is the radix. In this study it refers to the total number of women who had accepted use of contraceptives in January 1982 and January 1983.

(2) nqx - In this study this refers to the proportion of contraceptive acceptors dropping out between month x and x+n. In other words it is the probability that an acceptor at month x will drop out before reaching month x + n.

(3) npx - This is the proportion of contraceptive acceptors continuing between month x and x+n. It is the probability of continuing with use of contraceptives between month x and x+n.

(4) ndx - This refers to the absolute number of contraceptive acceptors of January 1983 who drop out between month x and x+n.

(5) lx - This refers to the number of contraceptive acceptors continuing at exact month x.

(6) nLx - This is the total number of months of

contraceptive use by all contraceptive acceptors between month x and x + n.

(7) Tx - This refers to the total number of months continued by the contraceptive acceptors after month x.

(8) e(xo) - This is the mean length of contraceptive continuation.

The e(xo) function which represents the average length of use of contraceptives in months was used to study the variations in the level of contraceptive continuation by socio-economic, demographic and family planning related variables. In doing this various life tables were constructed by socio-economic and other variables of interest using the approach above. An example of this life table is shown in appendix I.

CHAPTER FOUR

FINDINGS OF LIFE TABLE ANALYSIS ON CONTRACEPTIVE CONTINUATION

4.1 INTRODUCTION.

This chapter discusses the findings on the estimated continuation of contraceptive use obtained using life-table technique discussed in the previous chapter. In this discussion the life-table function ex_0 which in this case is used as the mean length of use is presented.

According to the results of this study, there exists wide variations in the length of continuation of contraceptive use by demographic and socio-economic variables. The injection method was estimated to have the longest continuation of use followed by IUD whereas condom had the shortest duration of continuation followed by spermicides with pill being in between. The analysis by age, indicates that continuation increases gradually until the peak at age 35-39 after which there is a decline.

Age at first marriage also shows the same trend. Those who marry at young ages have low continuation rates while those who marry at late ages have long continuation.

Women who are married had high continuation as opposed to those who are single, divorced or separated.

Women with primary education had longest continuation and those with form 4 and above level of education had the shortest mean duration of use. Finally former users of contraceptives had longer continuation rates as opposed to those who had not accepted contraception previously. Breast-feeding women had longer continuation than those not breast-feeding. The details of these findings are discussed below.

4.2 CONTRACEPTIVE CONTINUATION FOR ALL ACCEPTORS OF 1983

The length of contraceptive continuation for acceptors in 1983 was estimated to be 17.1 months or about one and half years. This implies that the length of use is short which is reflective of the low continuation of use. The low continuation can be explained by examining the acceptance distribution of all methods accepted and corresponding length of stay. The findings show that the pill is the most popular method accepted by over 63 per cent of the acceptors and which also has the shortest average length of use. The injection method, with over twice the length of stay was only accepted by 2.34%. While reason for low continuation of the pill are not analyzed in this study, it could be attributed to its management daily intake and widespread rumours of side effects associated with the method. The length

of use by methods is summarized in table 4.1 below.

TABLE 4.1

LENGTH OF CONTRACEPTIVE CONTINUATION BY METHOD

Method	Length of continuation ($e_x o$ in months).
Injection	35.54
IUD	22.11
Pill	16.36
Spermicides	11.32
Condom	7.695

The table shows that the injection method has the highest rate of continuation of (35.54) months whereas the condom has the lowest level of continuation (7.7 months) with pill and spermicides being in between the two. Laing E.J (1978) using the 1974 Philippine National Acceptor Survey found out that method continuation vary considerably by months. He found that IUD had the highest length of continuation and condom the lowest length of continuation. Rhythm and pill were in between the two. This is consistent with Ojakaa's study which showed that of all methods, injection had the greatest influence on contraceptive continuation followed by IUD and the pill in that order.

Analysis of each of these methods will help us to account

for the pattern shown in Table 4.1 above.

4.2.1 INJECTION: (INTERJECTABLE CONTRACEPTIVES).

This method had the longest duration of continuation (35.54 months). They are highly popular despite irregular supplies and continued controversy over safety. The method involves an injection which interferes with the fecundity of a woman for some specific length of time. There are two types of the method - Depo-Provera (depot - medroxyprogesterone acetate or DMPA) and Nori Sterat (norethisterone ananthate or NET-EN). Interjectables have a number of advantages in that they have a higher use effectiveness than the pills which have a daily in-take requirement management. However the interjectables are disadvantaged in the sense that they are not free of side effects though the new ones have longer action and fewer side effects. Interjectables often cause irregular mid-cycle bleeding, light or irregular menstrual flow after extended use.

In the findings of this study, it can be said that continuation level is highest due to the fact that they are more convenient to the users because after an injection the client will stay for sometime before she goes for another. Therefore it eliminates the possibility of one dropping out between the two time lags i.e the time of one injection and the other. Injection has the greatest effect on contraceptive continuation

of all methods (Ojakaa, 1986).

4.2.2 INTER-UTERINE DEVICE (IUD)

This study show that the mean length of stay for those acceptors who choose the IUD is 22.1 months which is the second longest after the injectables. The devices are of various types but they all involve fitting of some device in the pelvis which essentially is meant to prevent egg fertilization by the sperm. They are useful in the sense that they represent a very effective, long-acting non-stop method of contraception. The modifications in IUD designs over the years have significantly reduced failure rates and side effects. However the IUD users complain of painful menstrual cycle and irregularity or heavy bleeding, pelvic infections, excessive menstrual bleeding and involuntary expulsion.

The fact that IUD for the 1983 acceptors has the second highest continuation rate can be attributed to the nature of the device. After the insertion of the device, it takes sometime before it is removed probably at the time when the woman wants to get pregnant.

This research finding is in conformity with many researches conducted in many parts of the world where the IUD is found to have longer length of continuation compared with other methods.

For instance James F. Phillips (1974) using data collected by University of Philippines Population Institute - Acceptor Survey of 1974 found that adopters of the IUD had substantially higher continuation rates than adopters of any other method. In Kenya, Ojakaa (1986) found IUD to have the second highest influence on contraceptive continuation.

4.2.3 THE PILL.

The results in Table 4.1 suggest that the continuation rate for the pill is low (16.36) months. The pill is the most common contraceptive used and the most readily available. The usefulness of this method of contraception involves its high levels of effectiveness, overall safety and accessibility. However the pill is associated with a number of minor side effects such as dizziness and blurred vision, nausea, palpitations, vomiting, stomach upsets and gas.

Low continuation rates of the pill is probably due to the side effects and the fact that the pill itself has to be taken on a daily basis, a practice which is quite cumbersome (Sanghvi,1984). Again most of the pill users are young women of low parity who have higher chances of discontinuing use so as to get pregnant.

4.2.4 SPERMICIDES.

The Spermicides have the second lowest mean length of continuation (11.32 months). This low length of continuation may be attributed to the fact that they are cumbersome to use and have high failure rate therefore women who have started using them may tend to drop out of them quickly in order to adopt other different methods. However the method is advantageous in that it is easy to use, does not seem to be have any side effects and is used only when needed.

4.2.5 CONDOM.

The condom mean length of continuation is estimated as 7.7 months, which is the lowest of all the methods included in the 1986 Contraceptive Discontinuation Survey. The low mean length of continuation for this method could be due to the fact that the condoms are cumbersome to use, and most people do not seem to enjoy sex with them and their failure rates are also high. Men are in particular very negative about this method thus they disapprove its use (KDHS, 1989). Therefore most women who may have initially adopted them seem to shift to other methods or drop out of the family planning programme. In any case condom had the least number of acceptors.

The findings of this study are very much in line with

research findings elsewhere where condom method has been found to have very low continuation rates. A study conducted by Ross (1974), for instance found that the continuation rates for the pill was the lowest with that of condom being very close to it.

Further analysis reveal wide variations in the length of use by demographic and socio-economic variables as discussed below.

4.2.6 CONTRACEPTIVE CONTINUATION BY AGE:-

The contraceptive continuation by age are reflected in Table 4.2 below.

TABLE 4.2

CONTRACEPTIVE CONTINUATION BY AGE

Age-group	Mean length of continuation ($e_x o$ in months)
15-19	13.24
20-24	14.92
25-29	18.65
30-34	23.87
35-39	25.77
40-44	18.41

This table shows that the mean length of stay in contraceptive use increased gradually from 13.24 months for age group 15-19 reaching a peak at age group 35-39 with 25.77 months after which there was a drastic decline to 18.41 months for age

group 40-44.

The possible explanation for this trend is the fact that women in younger age groups have low parities and therefore tend to discontinue use of contraceptives so as to get pregnant or because they think that these contraceptive, may interfere with their fecundity (KDHS, 1989). Women in older age groups on the other hand have attained their required parities and may therefore not want to have additional children and thus the high continuation. The drastic fall in contraceptive continuation at age 40-44 may be due to the fact that these women have also reached menopause and therefore may not need for contraceptives. Again their coital frequency may have reduced greatly (Bongaarts, 1983).

The above finding could be explained in view of the fact younger women prefer using traditional methods like the rhythm, douche, abstinence and withdrawal whereas the older women use the modern methods like the pill, injection, and IUD (KCPS, 1984). So there is a high tendency for the younger people to continue for very short durations and resort to traditional methods of birth control.

This finding is consistent with findings from other studies. A study conducted by Robert E. Lightbourne (1980) using World Fertility Survey for instance showed that current

use increases with age until it reaches a peak at ages 30-34, remains high between 35 and 44 and then declines. This therefore implies that this trend may be closely associated with contraceptive continuation. Similarly Kanitkaer's Study showed that women aged over 35 years had the highest continuation rates for 6 months (Panker and Jones, 1967). On the other hand Westoff Rayder's Study showed that younger women (aged less than 30 years) had lower discontinuation rates than older women (Panker and Jones, 1967).

4.2.7 CONTINUATION BY AGE AT FIRST MARRIAGE.

Table 4.3 below gives the estimates of the mean length of continuation obtained from a life table analysis of contraceptives by age at first marriage for three age groups for which life table could be constructed.

TABLE 4.3

CONTRACEPTIVE CONTINUATION BY AGE AT FIRST MARRIAGE

Age at first marriage	Length of continuation ($e_x o$ in months)
15-19	16.46
20-24	19.60
25-29	20.84

It was not possible to construct life-tables for age groups 30-34, 35-39 and 40-44 because the numbers were too few to facilitate the construction of life tables. Therefore these three age groups are omitted in this analysis.

The trend shown in the table above is almost similar to that of age. The mean length of stay in contraceptive use increased gradually from 16.46 months at age group 15-19 to 20.84 at age group 25-29. This implied therefore that those women who married at younger age groups tend to have low continuation rates as opposed to those who marry at late age groups. This may be explained in the light of the fact that those women who married at early ages seem to be keen in having large family sizes. Similarly by virtue of their low education, most of them are most likely to be house wives who have already been seen to have low continuation rates. However, those acceptors who married at older ages are likely to have had adequate education and hence desire having smaller families.

4.2.8 CONTRACEPTIVE CONTINUATION BY NUMBER OF CHILDREN DEAD:

The analysis by number of children dead may not be precise because most of the women reported "no child dead". However Table 4.4 below shows the mean length of stay in contraceptive use in months by number of children dead.

TABLE 4.4

CONTRACEPTIVE CONTINUATION BY NUMBER OF CHILDREN DEAD

No. of children dead	Mean length of continuation in months ($e_x o$)
0	17.37
1	19.56
2	18.9

There is no clear trend shown by the above estimates although women who had lost no child seem to have the lowest length of use whereas those who had lost one child had the longest use while those with two children dead had a figure in between the two. The contrary was expected that is, those women with many children dead would have the shortest stay.

Therefore with this kind of result one can say that there appears to be no clear relationship between number of children dead and the length of contraceptive continuation.

4.2.9 CONTRACEPTIVE CONTINUATION BY MARITAL STATUS.

Table 4.5 below summarizes contraceptive continuation rates by marital status.

TABLE 4.5

CONTRACEPTIVE CONTINUATION BY MARITAL STATUS.

Marital status	Mean length of continuation (exo in months)
Single	14.85
Married	18.32
Divorced/separated	14.89

This table shows that women who are married as expected have the longest mean length of contraceptive continuation compared to those who are either divorced, separated or single. Single women had the least mean length of continuation though the difference in their continuation levels with that of the divorced/separated was negligible.

The high continuation rate among married women could be due to the fact that they are the ones who are at the greatest risk of conception given that they are cohabiting with their spouses. Thus in terms of coital frequency there are high chances that it may be high for married women than for either divorced/separated or singles. The low continuation among women who are single and the divorced/separated could be due to the fact that they have less risk of getting pregnant. This is because they do not have their spouses hence there is less need to continue contracepting. Ojakaa (1986) found married status to have a positive correlation with length of contraceptive continuation.

Another explanation for this pattern is the fact that married women tend to use methods like IUD, injection which are, as has been found out earlier and by nature of their devices and their operational mechanisms, having high continuation rates as opposed to the single women and women who have divorced/separated who mostly rely on the pill which as discussed before is a method with low continuation. Furthermore for the single women there is a low tendency of continuation due to the fact that these women have low or no parity attained and therefore cannot risk continuing being in the programme for long for fear of interfering with their fecundity.

4.2.10 CONTINUATION BY CLIENTS' LEVEL OF EDUCATION:

Table 4.6 below gives the mean length of contraceptive continuation in months by client's level of education.

TABLE 4.6

CONTRACEPTIVE CONTINUATION OF CLIENTS OF DIFFERENT EDUCATIONAL LEVELS

Level of education	Mean length of continuation (exo in months)
No education	17.81
Primary education	20.12
Forms 1-4	17.28
Above form 4	9.13

From this table it is noticeable that the length of contraceptive continuation is highest for those with primary level of education (20.12 months) and least for those with above form 4 level of education. This research finding is contrary to other studies. For instance, Ojakaa (1986) found that an increase in the number of years spent in school could increase contraceptive continuation. The Kenya Demographic Health Survey of 1989 and the Kenya Contraceptive Prevalence Survey of 1983-84 found that the percentage of women using modern contraception increases with education. Though these studies do not mention the relationship between education and continuation of contraceptive use, it can be deduced that continuation could be expected to increase with the levels of education. A possible explanation for this trend is perhaps due to the age distribution of the sample used in this study. An examination of a cross tabulation of the age and education showed that women with primary level of education happen to be concentrated in the ages with longest continuation.

Table 4.7 below gives the distribution of clients by level of education and method of contraception.

TABLE 4.7

DISTRIBUTION OF CLIENTS BY LEVEL OF EDUCATION AND METHOD OF CONTRACEPTION

Client's former edu.	Method used				
	Pill	IUD	Inj.	Condom	Spermicide.
None	157	61	14	6	13
Primary	522	227	28	30	30
Forms 1-4	331	199	4	35	29
Above form 4	15	13	0	0	2

4.2.11 CONTINUATION BY CLIENTS' OCCUPATION:

Analysis of contraceptive continuation by clients' occupation was not complete because it was only possible to construct life tables for those clients whose occupations are professionals and technical and house wife. For clients of other occupations, it was not possible to construct meaningful life tables because the cases involved were too few.

However the analysis revealed that continuation is highest for the professional and technical clients (22.13 months) and lowest for house-wife (12.46 months). This trend can be explained in the light of the fact that women who are in the professional and technical category are concentrated in age groups where continuation rates are high. These age groups are 30-34 and 35-39. Ojakaa (1986) found that including the variable

skilled work occupation does not increase the explanatory power of the contraceptive continuation model.

On the contrary the house-wife category has low continuation levels because of the fact that the women in that category have higher proportion of acceptors in the age groups of 15-19, 20-24 and 25-29 which were seen earlier to be having low continuation.

4.2.12 CONTINUATION BY PREVIOUS CONTRACEPTIVE PRACTICE.

The results on length of stay for 1983 acceptors summarized by the previous use showed no difference in use by previous and non-previous contraceptive use i.e 18.96 months and 18.7 respectively for previous users and previous non-users.

The above observation is in conformity with findings from other studies conducted elsewhere in which those who had used contraceptives are likely to be staying longer in the programme than those who had not used contraceptives. Robert E. Lightbourne (1980), for instance, using World Fertility Survey found out that once women have tried contraception, they are likely to go on using it. It is argued that this should be the case because women who had used contraceptives in the past and have come back to the programme seem to be determined to stay in the programme having known what it is all about. The Kenya

Demographic Health Survey of 1989, reveals that previous users of contraceptives are more likely to start using contraceptives than previous non-users. However, Ojakaa (1986) found that no previous use leads to an increase in the level of contraceptive continuation.

4.2.13 CONTINUATION BY BREAST-FEEDING STATUS.

Life table analysis for 1983 contraceptive acceptors by breast-feeding shows that those women who are breast-feeding have a mean length of continuation of 18.12 months whereas those not breast-feeding have a mean length of continuation of 15.98 months. From this result, it can be concluded that there is a significant difference between those breast-feeding and those not breast-feeding with the former having high continuation rates as opposed to the later. This result can be explained by the fact that those women who breast-feed seem to be having some psychological awareness that incase they do not use the contraceptives they may conceive and this may affect the child currently breast-feeding. Whereas on the contrary those who do not breast feed seem not to be aware of this fact and in any event of their getting pregnant, they may still use the normal feeding method for the child who could be breast feeding.

However, studies conducted in many parts of the world show a negative relationship between contraceptive use and the length of

breast-feeding. This could in turn suggest that one could expect a negative relationship between contraceptive continuation and length of breast-feeding. This has been the case in studies conducted by Nemeth (1981) for South Korea, Page et.al (1982) for Pakistan, Lesthaeghe and Page (1982) for Lagos and Knodel and Debavalya (1980) for Thailand.

Another possible explanation for this difference is the fact that majority of the women who do not breast feed seem to be working- professional and technical (employment in the modern sector) and therefore they are the women with some knowledge of the side effects of contraceptives especially those of the pill. These women therefore tend to drop-out of the use of contraceptives much faster than those who breast feed. whether this difference implies underlying reasons why women who are breast-feeding have higher continuation may be difficult to tell from this study.

4.2.14 CONTRACEPTIVE CONTINUATION BY DISTRICT.

The mean length of contraceptive continuation in months is given in Table 4.8 below.

TABLE 4.8

CONTRACEPTIVE CONTINUATION BY DISTRICT

District	Mean length of continuation in months ($e_{x.}$)
1. Nairobi	13.50
2. Kiambu	22.25
3. Murang'a	22.79
4. Kilifi	15.98
5. Mombasa	10.19
6. Embu	24.95
7. Machakos	33.61
8. Meru	15.92
9. Siaya	8.67
10. S. Nyanza	14.03
11. Kericho	15.32
12. Nakuru	13.83
13. Kakamega	15.69

Using these results, the districts can be classified into three categories - low, middle and high rates of continuation as shown in Table 4.9 below.

TABLE 4.9

DISTRICT CLASSIFICATION OF CONTRACEPTIVE CONTINUATION

Low	Mid	High
Siaya (8.67)	Meru (15.92)	Machakos (33.61)
Mombasa (10.19)	Kilifi (15.98)	Embu (24.95)
Nakuru (13.83)	Kakamega (15.69)	Murang'a (22.79)
Nairobi (13.5)	Kericho (15.32)	Kiambu (22.25)
S. Nyanza (14.03)		

This analysis shows that the lowest continuation rates are in Siaya (continuation 8.67 months) and the highest

continuation rates are in Machakos (33.61). The fact that Machakos has the highest continuation rates of contraceptive use could be partly attributed probably to the Machakos project. In this project women who are acceptors of family planning are followed up. The reasons for drop out are found and appropriate remedies taken.

It is noticeable that the main urban areas like Nairobi, Nakuru and Mombasa are surprisingly having low rates of contraceptive continuation. For example, the KDHS of 1989 revealed that current use in Nairobi is 33.5%, a proportion much lower than some rural provinces like Central which had 39.5% and Eastern which had 40.2%. The result in the current study can be explained by the fact that although these areas have high client registration, many of the registered clients tend to move out of these areas. It is possible to find that some women may have gone to the towns to join their spouses temporarily and return to the rural areas after some time. So a possible factor for explaining this is the migration. Another possible reason for the low levels of contraceptive continuation is due to the fact that those regions are the major urban centers in Kenya and they therefore tend to have many clinics both private and public and therefore the women are free to change from one clinic to another depending on where she feels she is given comfortable treatment. This therefore will imply that these clients may have dropped from the clinic where they were initially

registered. Change in the clinic does not imply change in the method but it will be recorded that the client has discontinued and can therefore not be traced.

The rest of the low continuation level districts are Siaya and South Nyanza. These two districts are basically non contracepting districts meaning that the extent to which contraceptive use has been put to practice is too low. This can be supported by the fact that South Nyanza and Siaya Districts had 66 and 29 acceptors respectively for the year 1983. Because of the low knowledge and acceptance of contraceptive use, these districts seem to have low levels of continuation because the clients are not motivated to continue using contraceptives due to lack of community support. In any case these regions are high infant mortality areas which partly explains the low desire to contracept because of fear of death of infants and the already surviving children. Similarly these districts have less facilities in terms of family planning clinics mostly found only at the district hospitals and this alone could account for the low levels of acceptance.

Meru, Kilifi, Kakamega and Kericho are categorized under the middle category. However these districts still seem to be having low levels of continuation i.e. 15.92 months, 15.98 months, 15.69 months and 15.32 months for Meru, Kilifi, Kakamega and Kericho districts respectively. This could be due to low levels of

acceptance and less motivation for continued contraceptive u
Kilifi is an area of high infant mortality and therefore it
expected to have low acceptance and use of contraceptives.

The high contraceptive continuation districts are Macha
(33.61), Embu (24.95), Murang'a (22.79) and Kiambu (22.25)
months. These are basically regions where there are many fa
planning clinics and the knowledge of contraceptives seem to
have attained relatively high levels of socio-economic
development. Similarly these regions are those where the wo
are playing very active role in community development. Ther
a close association between the role played by women in comm
development and the extent to which contraceptives can be
accepted and used. This in turn will influence the continua
upwards because there seems to be adequate community support
motivation.

4.2.15 CONTRACEPTIVE CONTINUATION BY ETHNICITY.

In Kenya, the ethnic groups coincide with the administr
boundaries. However, while the district analysis in the pre
section will probably reflect difference in the socio-econom
factors, ethnicity on the other hand will reflect cultural
differences. Table 4.10 below shows the mean length of
contraceptive continuation in months by Ethnicity:

TABLE 4.10

CONTRACEPTIVE CONTINUATION BY ETHNICITY

Ethnic group	Mean length of continuation ($e_x o$ in month)
Kikuyu	18.93
Meru-Embu	18.82
Kamba	23.64
Luhya	14.60
Kisii	14.99
Mijikenda	14.44
Taita-Taveta	12.23
Luo	16.44
Kalenjin	17.10

This data can be classified into three main categories - low, middle and high continuation levels.

TABLE 4.11

ETHNIC CLASSIFICATION OF CONTRACEPTIVE CONTINUATION.

Low	Mid	High
Taita-taveta (12.2)	Kalenjin (17.1)	Kamba (23.64)
Mijikenda (14.4)	Luo (16.4)	Meru-Embu (18.8)
Luhya (14.6)		Kikuyu (18.93)
Kisii (15.0)		

From this analysis it is observed that the Akamba (23.64), Kikuyu (18.93), and Meru-Embu (18.8) are the ethnic groups with the longest period of contraceptive use whereas the Taita-taveta (12.2)and Mijikenda (14.4) have the lowest length of contraceptive continuation. These wide differentials in contraceptive continuation by ethnic groups are attributed to

socio-economic, demographic and socio-cultural factors.

The differentials indicate that there is a close association between level of use and the length of contraceptive continuation in the sense that those ethnic groups with highest use e.g the Kamba (41% use) and the Kikuyu (41% use) have the longest duration of continuation whereas those ethnic groups with the lowest level of use e.g the Mijikenda (12% use) and Luhya (16% use) were among those having the shortest length of continuation. The above percentages of use by ethnic group are based on the Kenya Contraceptive Prevalence Survey of 1984.

The ethnic groups with longer levels of contraceptive continuation - the Kikuyu, Kamba and Meru-Embu are those where the family planning programmes have been accepted and there are adequate family planning clinics and service delivery points. This can be observed from the sample in question where these ethnic groups seem to be having the large number of acceptors as depicted below Kikuyu - 743, Kamba 269, except for the Meru-Embu 156 which is low. On the other hand the ethnic groups with low levels of continuation like the Taita-Taveta,Mijikenda, Luhya and Kisii have not had the family planning programmes adequately accepted and there is inadequacy of family planning services in these areas occupied by these ethnic groups. The sample shows that these ethnic groups apart from the Luhya 221 have few respondents in this survey viz: Taita-Taveta - 53, Kisii 52,

Mijikenda 36.

The Luos and Kalenjin are categorized as having middle levels of continuation i.e 16.34 and 16.89 months respectively. However these lengths of continuation are still low and could therefore be explained just in the same way as for those with low continuation levels. The areas where these ethnic groups stay have relatively few service delivery points and few clinics. In addition to this, these areas have not fully accepted the family planning devices thus there is little motivation for continuation. In any case the areas with low continuation seem to be those areas with high levels of infant mortality rates thus there is less need to contracept and for those few contracepting, there is less motivation to continue contracepting in the face of high infant and child mortality levels.

4.3 THE TREND OF CONTRACEPTIVE CONTINUATION BETWEEN 1982 AND 1983 ACCEPTORS.

There is a general decline in the length of contraceptive continuation between 1982 and 1983 acceptors. Overall continuation decreased from 18.92 months in 1982 to 17.1 months for 1983. This decline by all demographic and socio-economic variables could be partly attributable to the poor quality data. However, this trend calls for further research in order to

establish cause for this. For all these demographic and socio-economic variables, the pattern is the same apart from the fact that the 1982 values are much higher than those of 1983.

The trend by method of contraception shows that there was decline in continuation level for all the methods though a slight increase was noticeable for the pill from 16.36 months for 1982 to 16.68 for 1983. The injection method declined from 35.54 months for 1982 to 27.43 for 1983 whereas the IUD increased from 22.11 to 24.18 months. For the spermicides and condom, there was decline from 11.32 months for 1982 to 10.50 months for 1982 and 7.7 months for 1982 to 5.89 months for 1983 respectively.

The trend by age shows that for both groups of acceptors there was a gradual decline. The pattern shown by both groups is the same, except that the 1983 acceptors group reached its peak at age group 35-39 whereas the 1982 group reached its peak at age group 30-34. In short there is a general decline in continuation from 1982 to 1983 at all ages except for age groups 35-39 where there was an increase from 19.78 months to 25.77 months. This therefore gives an establishment of the fact that with time, continuation is increasing for the higher age groups but not for the lower age groups.

Taking age at first marriage as a variable the trend shows a decline for all age groups between 1982 and 1983 acceptors. This

implies that for each marriage age, there is a decline in the level of contraceptive continuation.

Looking at marital status, there is a decline for all categories of marital status to 18.32 months and divorced/separated from 17.42 months to 14.89 months.

Client's level of education gives a rather unique finding where there is a decline for all categories of education except for the primary where there was an increase from 19.78 months for 1982 to 20.12 months for 1983. But for all other categories there is a decline - those with no education decreased from 20.30 months to 17.28 months and those with above form four level of education decreased from 16.48 months to 9.13 months. The probable reason for the increase in the continuation level for the clients with primary education is due to the fact that they are not aware of the side effects as opposed to the other categories of users who could be aware of the side effects and therefore discontinue use of the contraceptives. But for those with no education, there is a decline because they are not all that motivated to stay in the family planning programme. What this trend snows is that the more educated acceptors drop out much faster probably due to increased knowledge of side effects.

The trend by client's occupation reveals that there is a

general increase for both professional and technical from 14.25 months for 1982 to 22.13 months for 1983 and house-wife 12.29 months for 1982 to 12.46 months for 1983. The increase is pronounced for those in the professional and technical than for the house-wives. However, this result is a contradiction of the other result finding where the more educated were found to be dropping out faster. So one could expect the professional and technical category to have more educated clients and therefore there should have been a decline instead of an increase in continuation. However, this could be attributed to the poor quality of data.

Table 4.12 below shows the trend on contraceptive continuation by district.

TABLE 4.12

TREND BETWEEN 1982 AND 1983 BY DISTRICT

District	Continuation in months (exo)	
	1982	1983
1. Nairobi	16.75	13.46
2. Kiambu	38.72	22.25
3. Murang'a	39.08	22.79
4. Kilifi	24.04	15.96
5. Mombasa	30.76	10.19
6. Embu	56.64	24.95
7. Machakos	52.91	33.61
8. Meru	41.64	15.92
9. S.Nyanza	27	14.03
10. Kericho	34.62	15.32
11. Nakuru	29.82	13.83
12. Kakamega	28.39	15.69

This decline in the level of contraceptive continuation is most probably explained by the fact that the proportion of acceptors with primary level of education decreased thus lowering continuation. It had been seen earlier that the primary level of education had highest continuation. Similarly the proportion of acceptors in the low continuation age groups of 15-19, 20-24 and 25-29 increased in almost all districts a fact which could have caused a downward trend in the level of contraceptive continuation. For example the proportion of acceptors in the low continuation age groups increased from 59.4% in 1982 to 86.3% in 1983 for Nairobi, 48.9% in 1982 to 99.6% in 1983 for Kiambu, 55.1% in 1982 to 65.5% in 1983 for Muranga and 73.1% in 1982 to 77.6 % in 1983 for Embu; just to mention a few.

This trend shows a decline in the levels of continuation for all districts in this study. Such a decline within such a short time calls for further research.

The same trend is shown when looking at ethnicity as shown in Table 4.13 below.

TABLE 4.13

TREND BETWEEN 1982 AND 1983 BY ETHNICITY.

Ethnic group	Continuation in months (exo)	
	1982	1983
Kikuyu	39.88	18.93
Meru - Embu	45.90	18.82
Kamba	44.01	23.64
Luhya	31.85	14.60
Kisii	37.61	14.99
Mijikenda	25.75	14.44
Taita-taveta	33.76	12.23
Luo	27.88	16.34
Kalenjin	35.24	16.89

CHAPTER FIVE

SUMMARY, CONCLUSION AND POLICY RECOMMENDATIONS

5.1 INTRODUCTION

The main objective of this study was to estimate levels of contraceptive continuation and to determine the factors responsible for regional variations in such level of contraceptive continuation in Kenya. The data utilized was obtained from the 1986 Contraceptive Discontinuation Survey conducted by the National Council for Population and Development and the Central Bureau of Statistics. Estimation was undertaken using the life table technique. The estimation was undertaken for thirteen districts in Kenya which had reasonable number of acceptors and by various socio-economic and demographic factors.

This thesis has five chapters. Chapter one looks at the general introduction. Chapter two looks at the review of literature on contraceptive continuation and the appropriate theoretical framework. Chapter three looks at the methodology of both data collection and analysis. The chapter also had a critical examination of the quality of data. Chapter four discussed the findings of this study. This chapter looks at the summary of the findings and the resulting policy recommendations.

The life table analysis discussed in chapter four showed wide variations in the level of contraceptive continuation by socio-economic, demographic and programme related factors. The summary of these are presented below. Recommendations arising from these findings for both policy and research are also presented.

5.2 SUMMARY:

The findings of this study are contained in Chapter Four of this thesis using the life-table technique. As discussed above these findings showed that there are wide variations in the level of contraceptive continuation by demographic, socio-economic and family planning related factors. The overall length of contraceptive continuation was 17.1 months or one and half years. This means that the continuation level for Kenyan society is low.

As it was stated in chapter one of this study,the objective of this study was to determine the levels of contraceptive continuation in Kenya and account for the regional variations in these levels.

Seven hypotheses emanated from the literature review and theoretical framework. The first hypothesis that the more developed districts with high levels of socio-economic

development like Nairobi and Kiambu have high levels of contraceptive continuation as opposed to the less developed districts of South Nyanza, Siaya and Kilifi was accepted from the estimates of the life-table. Kiambu had one of the highest levels of contraceptive continuation. However Nairobi had low level of continuation a fact which could be attributed to the fact that many clients in Nairobi are migrants and therefore may move to other areas. Similarly there are many clinics for the clients to change from one to another. South Nyanza, Siaya and Kilifi had very low levels of contraceptive continuation as it was hypothesized.

The second hypothesis stated that contraceptive continuation for women aged 15-24 years is lower than those aged over 25 years. The estimates from this study led to the acceptance of this hypothesis. It was found that contraceptive continuation was longest for those women between age 25 and 39. It was lowest for those between 15 and 24.

Regarding the third hypothesis that women who married before age 25 had lower continuation levels than those who married after attaining 25 years was found to be true. It was found that women who married when young had lower levels of continuation than those who married at older ages. So this hypothesis was accepted.

The fourth hypothesis that women who had been using contraceptives had high levels of contraceptive continuation than those who had not used contraceptives was also found to be true. It was noticed that those women who had previously used contraceptives had higher continuation levels than those who had no previous use.

The fifth hypothesis that injection method had the longest length of contraceptive continuation was also accepted as the injection method was found to have the longest length of contraceptive continuation of all the methods.

The sixth hypothesis that women with formal employment have higher levels of contraceptive continuation than house-wives was also accepted as it was found out that the women in the professional and technical category had longer continuation and the house-wives. However this analysis was not complete as it done for only two categories.

Finally the seventh hypothesis that women with no education had the lowest continuation followed with those with primary education and that the ones with secondary education had the longest continuation was rejected. This is because from the estimates women with primary education had higher continuation levels than women with secondary education. This research finding is contrary to other studies carried in many parts of the

world. However, we can attribute this partly to the poor quality of data utilized in this study.

The findings of this study are summarized below: Contraceptive continuation by method showed that injection method had the longest period of continuation - an aspect that was probably attributed to the nature of the method. The IUD had the second longest period of continuation probably because it represents a very effective,long-acting, one step method of contraception. Condom had the shortest period followed by spermicides with pill rates being in between.

Contraceptive continuation by age showed that the mean length of stay increased gradually from 13.24 months for age group 15-19 reaching a peak at age group 35-39 (25.77 months) after which it drastically declined at age group 40-44. This is probably attributable to the fact that younger women have low parities and therefore tend to discontinue because of need to continue with child-bearing.

Continuation by age at marriage showed almost the same pattern as that of age except that here the period of stay in use increased gradually from 16.46 months at marriage age 15-19 to 20.84 months at marriage 25-29.

As far as marital status was concerned, continuation was

longest for the married acceptors (18.32 months) as compared to those who were single (14.85 months) and divorced/separated (14.89 months). The longer period of continuation among the married women acceptors was attributed to the fact that they had the greatest risk of conception as they cohabited with their spouses. The singles and the divorced/separated had low continuation levels because they do not have their spouses thus they had low risk of conception. Continuation by client's level of education revealed that women with primary level of education had the longest continuation of use (20.12 months) while women with above form four level of education had the shortest. This unexpected finding which is contrary to Ojakaa's finding and findings from other parts of the world could be attributed to the poor quality of data.

Continuation by client's occupation revealed that it was longest for the professional and technical category (22.13 months) and shortest for the house-wife category. However, this analysis was not complete as it was not done for all categories of client's occupation because of the small number of acceptors as involved in these categories. Continuation by previous contraceptive practice showed no significant difference in use between previous and non-previous users.

Regarding continuation by breast-feeding status,the result

revealed that there is a significant difference between those breast-feeding and those not breast-feeding. The length for those breast-feeding was 18.12 months and 15.98 months for those not breast-feeding. This finding was contrary to studies done elsewhere and could partly attributed to poor quality of data.

Contraceptive continuation by district revealed wide differentials in the level of contraceptive continuation in Kenya. Machakos had the longest period of continuation (33.61 months) and Siaya had the shortest period of continuation (8.67 months). When classified into three categories; Siaya, Mombasa, Nakuru, Nairobi and South Nyanza fall under the low category. The low continuation amongst the urban districts was probably due to high exit by clients to private clinics and their frequent out-migration to the rural areas. But for the other non-urban districts, it was suggested that they simply lack adequate service delivery.

Meru, Kakamega and Kericho were grouped in the middle category. It was suggested that this was due to low levels of acceptance and less motivation to continue with use. Kilifi for example is an area of high infant mortality thus low acceptance, use and continuation.

The high continuation districts were Machakos, Embu, Murang'a and Kiambu. These districts have many family planning

clinics and the knowledge of family planning and its acceptance was quite high. In these areas women seem to be playing major roles in community development. There is a close association between role played by women in community development and the extent to which contraceptives can be accepted ,used and continued being used.

Contraceptive continuation by Ethnicity showed wide variations with the Taita-Taveta having the lowest continuation and the Kamba having the longest continuation. These wide variations were attributed to socio-economic, demographic and family planning related variables. These differentials showed that there is a close association between the level of use and continuation.

The trend in continuation between 1982 and 1983 acceptors showed a drastic decline. The overall continuation dropped from 18.92 months in 1982 to 17.1 months in 1983. This drastic decline by all demographic, socio-economic and family planning related factors could be attributed to the poor quality of data.

5.3 POLICY RECOMMENDATIONS

A number of policy recommendations emanated from the findings of this study.

First there should be attempts to increase the number of acceptors in the age groups 35-39. This is because the age group 35-39 had the longest duration of use. Therefore if the proportion of acceptors in this age group is increased, there will be assured increase in the length of contraceptive continuation. While regarding those in the the age categories,the programme should focus in raising the continuation of contraceptive use.

It is recommended that there should be an increase in the supply of injection method as it is the method with the largest continuation. This will bring an increase in the overall of contraceptive continuation.

As the study showed that the non-married had the lowest levels of continuation, efforts should be directed to this group so that they may be motivated to continue with use of contraceptives. These efforts should be particularly directed to the singles whose contribution to total fertility in Kenya is quite significant.

Finally, it recommended that the clinical cards should be designed in such a way that all important variables such as length of breast feeding and purpose of contraception - whether for spacing or termination. Clinical cards should be redesigned so that residence is included in view of the fact that analysis

by this variable could not be undertaken.

5.4 RECOMMENDATION FOR FURTHER RESEARCH

This study recommends that a study should be set to find out reasons for low levels of continuation amongst the secondary level of education clients.

It is also recommended that other studies be done using different data sets as well as extending this study to assess the overall effectiveness of the family planning programme in Kenya. Another possible area for further research is to compare the characteristics of the continuers and discontinuers.

A study should also be set up to determine the effect of residential status on contraceptive continuation.

Finally, it is recommended that reason for contraception should be sought to determine whether it is for preventing pregnancy or for termination of child bearing.

SELECT BIBLIOGRAPHY.

1. Anrudh, K Jain and Irving Sivin.Life table analysis of IUDs: Problems and Recommendations. Studies in Family Planning Vol 8,No 2 1977.

2. Bongaarts, J. Implications of fertility trends for contraceptive practice. Population and Development Review Vol. 10. No.2, June 1984.

3. Budi Soedji and Hanijah Hamadji. Contraceptive use in Java Bali: A multivariate analysis of the determinants of contraceptive use. Scientific report: world fertility survey No.5, August, 1979.

4. Caldwell, J. Towards a Re-statement of Demographic Transition Theory. Population and Development Review 2 Nos 3-4, 1976.

5. Chandrasekeran, C and Albert Hermalin. Measuring the effect of Family Planning on Fertility.

6. Cleland, J. G. Illustrative analysis: Socio-economic determinants of contraceptive use in Thailand. Scientific report: world

fertility survey No.5, August 1979.

7. Easterlin, R. A: The effects of "Modernization on Family Reproductive Behaviour", The population debate, Dimensions and perspective, volume 2 United Nations, New York, 1974.

8. Jones,Elise. The availability of contraceptive services. Comparative studies No.37 July, 1984.

9. Ewer, P. A. and Gibbs, J. O. Correlates of oral contraceptive continuation. Hsmha Health Reports 86, 1971.

10.Gachuhi, M. S. "Family Planning in Kenya and the problem of drop-outs".IDS discussion paper No.220, University of Nairobi, 1975.

11.George Immewhir. Contraceptive use in Sri Lanka. Scientific report: world fertility survey No.18 January, 1981.

12.Goldman, Norean, and R. Pebley, Charles F, Westoff and Lois Paul. Contraceptive failure rates Latin America. International Family Planning Perspectives 9 No.2, June 1983.

13.Hammerslough. Characteristics of women who stop using

contraception. Family Planning Perspectives 16 (1) January/February 1984.

14.Hersel, D. F. "Attitudes and practice of contraceptives in Kenya." Demography, Volume 5, 1968.

15.Kelly, W. J. Estimation contraceptive continuation function. Demography 8.

16.Kish, L. Survey sampling. John Wiley and Son, New York, 1975.

17.Kreager, P. Family Planning drop-outs reconsidered: A critical review of research and research findings. IPPF, LONDON 1979.

18.Laing, J. E. continuation and effectiveness of contraceptive practice: A cross-sectional approach. Studies in Family Planning Vol. 10 No.3, 1985.

19.Laing, J. E. Estimating the effects of contraceptive use on fertility: "Techniques and findings from the 1974 Philippine National Acceptor Survey" Studies in Family Planning 9 No.6 June 1974.

20.Lewis Beck, M. J. Applied Regression. Sage University London.

21.Murungaru, K. Fertility and Family Planning in Kenya. M.Sc Thesis university of Nairobi, 1982.

22.Narkavonnakit, Et Al. "Continuation of injectable contraceptives in Thailand." Studies in Family Planning 13 No.4 April, 1982.

23.Nealkar, N. and Smith, L. Reasons for not using contraceptives: An International comparison. Studies in Family Planning Volume 15 March/April 1984.

24.Ojakaa, D. M. The determinants of contraceptive continuation in Kenya. M.Sc Thesis. University of Nairobi, 1986.

25.Phillips, J.F "Continued use of contraception among Philippine Family Planning Acceptors: A multivariate analysis. Studies in Family Planning 9 No.7 July, 1984.

26.Porter, E. G. "Birth Control Discontinuance as a Diffusion Process." Studies in Family Planning 15 No.1

January/February, 1984.

27. Lightbourne, R. E. Urban-rural differentials in contraceptive use. Comparative Studies WFS No.10 May 1980.

28.Schoen, R. Constructing increment-decrement life tables. Demography 12 1975.

29.United Nations. Manual X. Indirect techniques of Demographic estimation. 1981.

30.Weiss, E. and Udo,A.A "The Calabar Rural Maternal and Child Health/Family Planning Project" Studies in Family Planning 12 No.2 February, 1981.

Appendix 1

LIFE-TABLE ANALYSIS FOR 1982 ACCEPTORS (NATIONAL)

MONTH	nqx	ndx	lx	nLx	Tx	e(x)
0	0.003407	10	2945	2940	55720.5	18.92037
1	0.216328	522	2935	2674	52780.5	21.87339
2	0.055555	127	2413	2349.5	50106.5	21.91885
3	0.112408	231	2286	2170.5	47757	23.23941
4	0.078740	150	2055	1980	45586.5	23.92992
5	0.049586	90	1905	1860	43606.5	24.02561
6	0.055846	96	1815	1767	41746.5	24.28534
7	0.056545	92	1719	1673	39979.5	24.57252
8	0.043617	68	1627	1593	38306.5	24.57119
9	0.046308	69	1559	1524.5	36713.5	24.63993
10	0.057487	81	1490	1449.5	35189	24.97444
11	0.049925	67	1409	1375.5	33739.5	25.14120
12	0.060031	76	1342	1304	32364	25.56398
13	0.035159	43	1266	1244.5	31060	25.39656
14	0.035563	42	1223	1202	29815.5	25.24597
15	0.029642	34	1181	1164	28613.5	24.94638
16	0.024107	27	1147	1133.5	27449.5	24.50848
17	0.031307	34	1120	1103	26316	24.23204
18	0.029383	31	1086	1070.5	25213	23.89857
19	0.035328	36	1055	1037	24142.5	23.69234
20	0.033468	33	1019	1002.5	23105.5	23.43356
21	0.032460	31	986	970.5	22103	23.14450
22	0.026881	25	955	942.5	21132.5	22.72311
23	0.034482	31	930	914.5	20190	22.45828
24	0.029782	26	899	886	19275.5	22.07961
25	0.028268	24	873	861	18389.5	21.66018
26	0.036630	30	849	834	17528.5	21.40231
27	0.025031	20	819	809	16694.5	20.89424
28	0.011392	9	799	794.5	15885.5	20.10822
29	0.025974	20	790	780	15091	19.59870
30	0.030789	23	770	758.5	14311	19.15796
31	0.031767	23	747	735.5	13552.5	18.71892
32	0.035765	25	724	711.5	12817	18.33619
33	0.034023	23	699	687.5	12105.5	17.90754
34	0.028919	19	676	666.5	11418	17.37899
35	0.046178	29	657	642.5	10751.5	17.12022
36	0.057239	34	628	611	10109	17.01851
37	0.034843	20	594	584	9498	16.54703
38	0.034234	19	574	564.5	8914	16.06126
39	0.035447	19	555	545.5	8349.5	15.57742
40	0.040776	21	536	525.5	7804	15.15339
41	0.040404	20	515	505	7278.5	14.70404
42	0.029106	14	495	488	6773.5	14.08212
43	0.021231	10	481	476	6285.5	13.34501
44	0.023913	11	471	465.5	5809.5	12.62934
45	0.057471	25	460	447.5	5344	12.28505
46	0.038186	16	435	427	4896.5	11.68615
47	0.042288	17	419	410.5	4469.5	11.11815

48	0.033419	13	402	395.5	4059	10.43444
49	0.048517	18	389	380	3663.5	9.874663
50	0.050991	18	371	362	3283.5	9.301699
51	0.038235	13	353	346.5	2921.5	8.592647
52	0.021021	7	340	336.5	2575	7.732732
53	0.024615	8	333	329	2238.5	6.887692
54	0.012461	4	325	323	1909.5	5.948598
55	0.006269	2	321	320	1586.5	4.973354
56	0.003144	1	319	318.5	1266.5	3.982704
57	0.003154	1	318	317.5	948	2.990536
58	0.006349	2	317	316	630.5	2.001587
59	0.003184	1	315	314.5	314.5	1.001592