# FERTILITY PREFERENCES IN CENTRAL AND COAST PROVINCES OF KENYA: A COMPARATIVE ANALYSIS OF SOME CORRELATES.

By

Kimondo, Maina G.

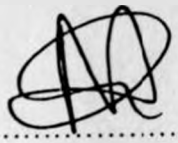


Thesis submitted in partial fulfillment of the requirement for the degree of Masters of Arts in Population studies, University of Nairobi.

October 2003

## DECLARATION

This Thesis is my original work and has not been presented for a degree in any other university.



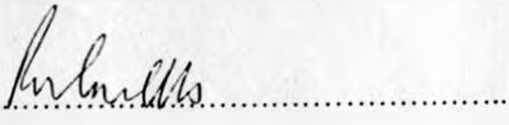
.....

Kimondo, Maina G.

This thesis has been approved for submission for examination with our approval as university supervisors

.....

Professor ABC Ochola Ayayo



.....

Dr. Kimani Murungaru

Population Studies and Research Institute

University of Nairobi

## DEDICATION

This work is dedicated to my parents Beatrice Muthoni Kimondo and the late Livingstone Kimondo Karoji.

## ACKNOWLEDGEMENTS

First I would like to thank the University of Nairobi, for availing to me funds, which enabled me to pursue a degree of Masters of Arts in Population Studies at Population Studies and Research Institute.

I also wish to thank my Supervisors, Prof. ABC Ochola Ayayo and Dr. Kimani Murungaru, whose tireless efforts made this work possible.

I also acknowledge Population Studies and Research Institute community for their institutional and moral support. I salute you all.

## ABSTRACT

In Kenya the desire for additional children has been falling, but the decline has not been uniform throughout the country. This study therefore examined the factors associated with desire for additional children in Coast and Central Provinces, two of the provinces in Kenya recording the highest and the lowest percentages of women who desire additional children. The data used were obtained from the 1998 Kenya Demographic and Health Survey. The analysis utilized both descriptive and inferential statistical techniques.

Fertility preference was represented by the dummy variable, desire for additional children which was dichotomized as 1 'desire' and 0 'non-desire', and the following variables were hypothesized to be associated with it; the number of living children, number of living sons, current age of wife, child loss experience, education level of wife, work status of wife, current place of residence and religion.

The results of the descriptive analysis reveal that currently married women in Central Province are the least likely to desire additional children compared to currently married women in Coast Province. In Central Province about two thirds (66%) of currently married women responded that they don't desire an additional child, while in Coast Province this figure drops to (44%). These differences were found to persist even when controls for the number of living children, number of living sons and age of the women were introduced.

The results of the multiple logistic regression show that, the number of living children, number of living sons, current age of wife, and current place of residence are significant in both provinces, while education level of wife is only significant in Coast Province. Other variables such as child loss experience, religion, and work status of wife are not significant for both provinces.

Although desire for additional children decreases as women age and increases with the number of living children and the number of the living sons a woman has for both provinces, this study found that differences between the two provinces are apparent when we look at proportions of women who desire additional children within the respective categories of the above 3 variables. For instance, a larger proportion of women with four or more children in Coast province (about

28 percent) as opposed to about 5 percent in Central province desire to have an additional child. About 27 percent of women in Coast province as compared with 4 percent of women with 3 or more living sons desire an additional child. For age when we compare women from the two provinces who are over 35 years, for Central province only about 7 percent desire an additional child while for Coast province the figure is 32 percent.

Further differences between the two provinces are apparent when we look at socio - economic and socio-cultural factors affecting desire for additional children. At the bivariate level the relationship between education and desire for additional children is positive in Central province but negative in Coast province. Further, education is not significantly associated with desire for additional children at the multivariate level in Central province but is significantly associated in case of Coast province. For Central province one of the explanations for this is that as education spreads and gains ground in a community, even women with a few years of education start to adopt the same family size ideals as women with at least secondary education. Consequently, the fertility desires of women with some sought of education starts to decrease. During this period, fertility desires of women with some education may be found to be similar to those with no education. Therefore education stops being a major factor determining, fertility desires.

Place of residence is significantly associated with desire for additional children in both provinces. However differences between the two provinces are seen in that contrary to our hypothesis desire for addition children is higher among rural women than urban women in Central province. This is as a result of the fact that a greater percentage of rural women have more children than urban women and the proportion of women wanting no more children rises with the number of living children.

Table of contents

## List of tables

## List of figures

## Chapter One

## INTRODUCTION

In the last two decades, fertility has dropped dramatically in most developing countries. Likewise, surveys on fertility preferences desired show a steady decrease in the number of children desired among women of reproductive ages. Various influences are hypothesized to be at work on fertility preferences. Among them are the changes in social and economic status of individuals, perception and values within the community, the strength of family planning programs, health and survival chances for children, rationalization of past fertility and reflection on alternatives to childbearing. Another factor influencing fertility preferences is the increase in the proportion of younger people entering into their childbearing years and the exit of older groups who generally prefer a large family.

This study specifically focuses on desire for additional children, as a measure of fertility preferences. Bankole and Westoff (1998) argue that reproductive intentions (desire for additional children) are the most consistent and likely to be more accurate in predicting future fertility of all measures of fertility preference. Whether a woman wants to get another child or not is more likely to predict future fertility than preferences for total number of children (ideal family size).

Whether women want additional children or want to stop childbearing is of critical importance for rates of population growth, for estimating the market for contraception, and for targeting family planning programs. The proportion of women who want no more children has been shown to have a strong association across populations with contraceptive prevalence rate and thus with fertility rate (Westoff 1990).

In Kenya, the proportion of currently married women who desire no additional children increased from 17 percent in 1977 (CBS, 1980) to 32 percent in 1984 (CBS, 1984). It further increased to 49 percent in 1989 (NCPD, 1989) and then to the level of 52 percent in 1993 (NCPD, 1993). Brass & Jolly (1993) argue that such changes in

fertility preferences have not been documented elsewhere in Sub-Saharan Africa. The actual fertility performance of Kenyan women during the same period has continued to decrease consistently with the fertility intentions aforementioned. The total fertility rate (TFR) which was recorded as 7.9 in 1977 (CBS, 1979) declined to 7.7 in 1984 (CBS, 1984), to 6.7 in 1989 (NCPD, 1989), 5.6 in 1993 (NCPD, 1994) and the recently recorded 4.7 in 1998 (NCPD, 1998).

Regionally, however the proportion of women wanting no additional children has varied over the years. NCPD (1994) reports that two thirds (61.9 percent) of women with three children in Central Province want no more children compared to only a quarter (26.6 percent) of those in Coast Province. Nationally, women in Nairobi, Central and Eastern Provinces are least pro-natalist while women in Rift Valley and Coast Province are the least likely to want to stop childbearing.

The underlying theme therefore in this study is that improvement in education, health, social economic status and other indicators of development affects reproductive attitudes, which lead to declines in fertility. In order to explain fully the observed differences in fertility preferences for the two provinces, it is important to consider the historical, economic and social development or non-development of the two provinces. For Kenya the pace of economic development has not been the same for all its provinces and this is reflected in regional variations in reproductive attitudes and preferences. We argue that fertility attitudes favour continuing childbearing in areas, which are still in early stages of development, but favour stopping childbearing in those areas, which are more developed.

It is worthwhile to mention that, in those areas in early stages of development, despite having seen significant strides in modernization in areas of development such as women being exposed to education, mass media and wage earning, their reproductive attitudes do not change in the short run. The pro-natalist attitudes are still held by the majority of the population, and enforced by the norms and value systems of the people

and will in fact lead to a rise in fertility more so because such factors as childlessness, infant mortality, postpartum infecundability will have been reduced.

After a time lag improvement in income, education, health facilities, etc. lead to people's expectations with respect to better education and lifestyles for their children and higher income levels for their households. These rising expectations in turn lead to changes in people's attitudes towards family size. Further the same factors, which improve health conditions and increase fertility lead to a higher rate of population growth and in turn impede people from attaining their new expectations. This gap between expectations and their ability to achieve them, leads people to revise their reproductive attitudes.

This sequence of events can be demonstrated by two provinces in Kenya, each one representing different stages in economic and social development.

Central province or at least parts of it can be said to be in the late stage of this development continuum and it is the most advanced province in terms of anti-natalist attitudes. Central province, because of its resources potential, attracted early colonial settlers and missionaries who introduced improved agricultural techniques and some educational and health facilities at the beginning of this century. It is one of the most developed regions in the country. This development presumably lead to increased incomes for the African population and in turn to a rapid rise in fertility, and a decline in childlessness and in child mortality up to the early 1960's. This later development was accompanied by decreased size of land holding per family because the area of cultivatable land remained relatively unchanged over the years, while that of inheritors increased. This decrease in land holding per household along with the rising expectations and the demand for education and other social services probably started leading to changes in people's attitudes towards family size and the decline in fertility. Coast province on the other hand does not enjoy the high fertility of soils, which characterizes Central province, and so there was little settler and missionary activity

compared to Central province. However development could be said to have picked up in the 1950's as a result of growth in the tourism sector (Henin and Jain, 1987).

As Table 1.1 (below) shows, by 1993 both provinces had almost attained universal primary school education enrolment.

**Table 1.1 Gross enrolment in Primary Schools in Coast and Central Provinces (percent of children ages 6-12) 1968 – 1993.**

| Province | 1968 | 1978 | 1984 | 1988 | 1993 |
|---|---|---|---|---|---|
| Central | 102 | 107 | 109 | 112 | 104 |
| Coast | 57 | 55 | 72 | 89 | 90 |

Source: Adopted from Fertility decline in Kenya; levels, trends and differentials, APPRC 1998

However the table also shows the historical patterns of educational development in the two provinces. By 1968, Central Province clearly had a head start in universal enrolment with a gross enrolment ration of 102 compared to Coast province which had a gross enrolment ratio of 57.

With Kenya's economy being largely based on agriculture, the issue of availability of arable land is important.

**Table 1.2 Availability of Arable land per person (hectares) in Central and Coast provinces (1969-1993)**

| Province | 1969 | 1979 | 1984 | 1989 | 1993 |
|---|---|---|---|---|---|
| Central | 0.58 | 0.48 | 0.35 | 0.22 | 0.19 |
| Coast | 1.49 | 0.87 | 0.70 | 0.54 | 0.38 |

Source: Adopted from fertility decline in Kenya; levels, trends and differentials, APPRC 1998.

Table 1.2 (above), shows that although arable land hectares per person for two provinces has continued to decrease, it has decreased more and it is far much less is Central province than Coast province. This more serious land shortage in Central province than Coast province has also meant more landlessness, decreased loss of livelihood and out migration to towns.

Provincial and district hospitals, health centres and dispensaries in Kenya constitute the core of health care delivery system in Kenya. The health care delivery system has been crucial in bringing levels of infant, child and adult mortality down. Access to these facilities however has not been uniform in all of Kenyan regions and as Table 1.3 (below) shows Central Province has a lot more of them than Coast Province.

**Table 1.3. Index of health centers/dispensaries per 100,000, Central and Coast provinces**

| Province | 1962 | 1969 | 1979 | 1989 |
|---|---|---|---|---|
| Central | 120 | 136 | 137 | 166 |
| Coast | 45 | 50 | 50 | 77 |

Source: adopted from Fertility decline in Kenya; Levels, trends and differentials, APPRC 1998.

The following table 1.4 shows the trends in urbanization in Central and Coast provinces from 1969 to 1993. As the table shows urbanization has been more rapid in Coast than Central province.

**Table 1.4 Percent of the population classified as urban Central and Coast Province (1969-1993)**

| Province | 1969 | 1979 | 1984 | 1989 | 1993 |
|---|---|---|---|---|---|
| Central | 3 | 6 | 8 | 10 | 12 |
| Coast | 3 | 3 | 18 | 32 | 47 |

Source: adopted from Fertility decline in Kenya; levels, trends and differentials, APPRC 1998.

All the above are some of the indicators that show that by the time of independence, Central province could have been said to have had a head start in terms of development compared to Coast province and gap between the two provinces has not been significantly narrowed even today. These differentials we argue have largely been responsible for the variations in fertility preferences for the two provinces.

## 1.1 Statement of the problem

In Kenya, the percentage of women who desire additional children has been falling over the last two decades. The proportion of currently married women who desire no additional children increased from 17 percent in 1977 (CBS, 1979) to 32 percent in 1984 (CBS, 1984). It further increased to 49 percent in 1989 (NCPD, 1989) and then to the level of 52 percent in 1993 (NCPD, 1993). Brass & Jolly (1993) argue that such changes in fertility preferences have not been documented elsewhere in Sub-Saharan Africa.

Regionally, however the proportion of women wanting no more children has varied over the years. African Population Policy Research Centre (1998) reports that the percentage of women who want no additional children has increased from 26.5 percent in Central province in 1978 to 64.3 percent in 1993, while in Coast province, the percentage of women who want no more children has remained very low, increasing only marginally from about 11 percent in 1978 to about 30 percent in 1993. These striking differences between different provinces in the country as far as fertility preferences are concerned stimulate an interest to investigate this phenomenon.

Studies in Kenya such as Henin and Jain (1987) have tried to explain that these variations are as a result of the differing rate of socio-economic and socio-cultural change for various regions in the country. The inter-relationships of the above mentioned factors with demographic factors of individual women have also contributed to the apparent variations in fertility preferences for the two provinces. This study will therefore examine the socio-economic, socio-cultural and the demographic factors prevailing in the two provinces that are hypothesized to affect desire for additional children.

## 1.2 Objectives of the study

The study examines the role of selected demographic, socio-cultural and socio-economic determinants of fertility preferences in the two provinces. Though fertility

variations are primarily determined by biological processes, they are also affected and modified by socio-economic and socio-cultural factors. The main objective therefore is to isolate the factors that would be of importance to policy makers and planners in Coast and Central provinces in addressing the factors that will stimulate fertility decline.

**Specific objectives**

1. To investigate whether there is a significant association between demographic, socio-cultural and socio-economic characteristics of women in the two provinces and desire for additional children.

2. To determine those factors which are of relevance and importance to policy makers in Kenya. What recommendations can be made based on these results.

### 1.3 Justification for the study

The high population growth and the attendant problems associated with it are a cause of great concern to a developing nation like Kenya. Scholars, planners and policy makers need to come up with appropriate anti-natalist population policies. Therefore as control over fertility becomes a possibility for more and more people, the question of whether another child is desired or preferred becomes an increasingly important factor in population growth and the measurement of such preferences becomes correspondingly important. In a developing country like Kenya where the reduction of fertility rate is a great concern in view of the scarcity of resources, a study that could set priorities to allocate the scarce resources towards the important factors that could greatly reduce fertility is needed.

Data on fertility preferences are important in the sense that they enable planners to assess the relative need of such populations for family planning services. The assumption here is that most family planning programs seek to enable individuals to freely implement their preferences and avoid unwanted births (Pullum, 1980). If it were known why some couples prefer large families while others prefer small families,

it would be easier to work out a motivation model so as to increase the number of family planning acceptors in this country, especially in the regions where contraceptive use is still very low and fertility is high.

Central province has recently recorded a remarkable decline in fertility rates, and a study in the area is of tremendous importance to this country as it reveals what has made this decline possible. The lessons learned could be used in encouraging similar declines in Coast Province and the rest of the country.

Fertility preference when implemented by the respondents are potentially important in shaping the future fertility (Ayehu, 1998). Longitudinal studies have shown that individual fertility preferences are often sufficiently stable to have a large effect on subsequent fertility (Hermalin et al., 1979; Forcit and Suh, 1980), this though has been observed mostly in societies where contraception is widely practiced (De Silva, 1991). Various researchers have also found that fertility preferences can be regarded as precursors of actual fertility performance (Bankole and Westoff, 1998; Freedman et al., 1975; Westoff and Ryder 1977; Pullum, 1980; De Silva 1991; Hermalin et al 1979) and are implemented in the course of subsequent childbearing career.

Fertility preference data from various regions can be used in designing family planning programs. For instance differences in fertility preferences have implications for the type of family planning services women utilize. Women with few children may want to use temporary family planning methods to achieve healthy births spacing, while the needs of older women with many children may be better served by the long acting or permanent methods of family planning.

### 1.4 Scope and limitations of the study

This is a comparative study of factors affecting desire for additional children among Kenyan women in Coast and Central provinces but does not examine whether the fertility preferences of women have actually got a predictive validity on their subsequent fertility performance.

Fertility decision-making is a process that might be or is implemented through inter-spousal communication. This study, however, only examines fertility preferences of women as obtained from the KDHS survey. The rationale for excluding fertility preferences analysis of husbands from most studies appears to be that their reported desires explain only a small marginal variance in couple fertility beyond that explained by wife's desire. The definition of fertility preferences in this study is limited only to desire for additional children. Other events in the fertility decision making process such as ideal family size, how many additional children a woman wants to have, how soon to have the next child, etc. are not considered.

## Chapter Two

# LITERATURE REVIEW

### Introduction

Most of the studies undertaken in the world show that factors such as number of living children, number of living sons, education, wife's socio-economic status, age of first marriage, marriage duration, sex preference of children and residence have an effect on fertility preferences. However whether fertility preferences predict actual fertility remains debatable.

Various studies including Mauldin (1965) and Demeny (1988) have discussed problems associated with accuracy and consistency of measurements of fertility preferences and their predictive validity. This is especially so with ideal family size. Some of the difficulties encountered include: no answer to this type of question due to illiteracy or inability to verbalize, no numerical answer, overlapping replies, no clear concept of ideal family size, rationalization of achieved family size, respondents sensitivity to interviews, failure to measure the intensity of the respondent's feelings on the subject, and that they are meaningless to respondents in may developing countries.

In spite of the above mentioned problems results from many studies on fertility preferences show that fertility preference measures are consistent, have predictive validity and have useful meaning (Bankole and Westoff, 1998; De silva, 1991; Kim and Choi, 1981; Freedman et al., 1975).

Bankole and Westoff (1998) in their study of consistency and validity of reproductive attitudes in Morocco using DHS surveys in which a sub sample of women initially interviewed in 1992 and were re-interviewed in 1995, found the responses to the ideal number of children for both surveys very consistent at the aggregate level. The mean number of children desired in 1992 was 3.85 compared with 3.82 in 1995. However at individual level only 36% of the sample gave the same numerical response in both surveys. Joint frequency distribution of responses to desire for additional children, revealed that the bulk of respondents (44.5%) said that they wanted to more children in

both 1992 and 1995, while the second most common response (26.6%) was that they wanted more children at both times. The next most frequent category was (16.3%) of women who shifted from wanting more children in 1992 to wanting no more by 1995.

On the predictive validity of reproductive intentions, the researchers reported that for all the women who wanted more children in 1992, 62% reported a birth in the subsequent three years or were currently pregnant. Among the women who intended not to have any more children, 28.7% nonetheless reported a birth or current pregnancy. Those who were uncertain were in the middle with 47%. Using piecewise exponential hazard model, the researchers examined the effects of reproductive intentions on subsequent fertility and found that women who intended to stop childbearing and those who were uncertain about their intention are significantly less likely to have another child compared to those who wanted to have more children.

De Silva (1991) used data collected in 1982 Sri Lanka contraceptive prevalence survey and 1985 Sri Lanka contraceptive prevalence survey, a follow up study, whereby computer and manual matching yielded 2,219 matching respondents who were used to examine the reliability of respondent's preferences for additional children. He found that the reproductive preferences of Sri Lankan women are at least moderately predictive of their future fertility. Among the women who wanted to cease child bearing in 1982, 65% were successful in avoiding unwanted birth in the follow up period. Among those who said they wanted another child, about 64% reported a birth during that period. At the aggregate level, 53% of women wanted no more children and 51% had none, while 47% intended to have another child and 49% reported at least one birth, a slight excess of actual over wanted fertility.

Freedman et al. (1975), using interview data from a longitudinal study conducted in Taiwan in the period 1967 – 1970, tried to measure the predictive accuracy of respondent's statements about their future fertility. He found out that Taiwanese women are able to predict their subsequent fertility. The preference measures were also predictive of rates of contraceptive use and abortion. Demographic and social

characteristics were correlated with fertility in expected directions, and statements about wanting more children proved to be highly predictive of subsequent fertility for both modern and less advanced segments of population.

Hermalin et al. (1979) conducted a similar study in Taiwan for the period 1967 – 1974 using multivariate analysis to assess the relative predictive value of desire for more children and use of contraception as compared with demographic and socioeconomic variables, analyzing consistency between stated intention and behaviour in a form comparable to that used by Westoff and Ryder (1977) for the United States. In addition to the set of data on which the previous study was based, fertility experience for the same sample of women for the four additional years (1970 – 1974) was based on data from Taiwan's population register. The results were that, prospective longitudinal data for Taiwan during the period 1967 – 1974 indicate that whether a woman had birth was strongly related to whether she wanted more children and whether she was practicing contraception. Together these two variables predicted whether a child was born well than any combination of three other demographic variables or seven socioeconomic variables either for the whole period 1967-1974, for 1967 – 1970, or for the period 1970 – 74.

However, a multivariate analysis that included four socio-demographic factors; - marital duration, parity, number of sons, and education – along with desire for more children and contraceptive use, revealed that marriage duration was the single most important determinant of whether an additional birth occurred, with desire for more children showing a somewhat lower effect. Contraceptive use and parity were about equal in importance, while number of sons did not have a significant effect. Although education (and several other socioeconomic variables) had only a slight relation to an additional birth at the zero order level, its effect in the multivariate analysis was significant.

## 2.1 Demographic correlates and desire for additional children

### 2.1.1 Number of living children

There is a very high correlation between the actual number of children and the preferred number of children. In their study of fertility decline and demand for family planning in Kenya, Muganzi and Takona ( 1994) conducted a descriptive analysis of fertility preferences and found that as the number of living children increased the percentage of women who wanted to have another child decreased, while the percentage who wanted no more children increased.

Lightbourne and MacDonald (1982) conducted a study on family size preferences, using World Fertility Survey data for 19 countries, and the findings invariably showed that the average number of children desired tends to increase quite noticeably with almost every increase in the number of children living. However the strength of the association varied markedly across countries. The authors also found out that the mean number of children desired was substantially lower among younger women, among women with few children, and among recently married women.

Four factors were found to explain the above correlation. First, in countries where women implement their preferences by actually trying to restrict fertility once they reach the parity where they want no more children, part or all of the correlation could be produced by the simple fact that women who want small families are successful in restricting their fertility, while women who want large families tend to go ahead and have them. Secondly, it may also often be true that many women continue to have children after they stop actively wanting further children, and that such women will tend to report their current family size as their wanted family size, in order to avoid implying that any of their children are unwanted. Pullum (1980) argues that such upward revisions in response to increases in actual number of children are called rationalization effects.

A third factor may be the tendency of women with relatively few children to understate the number of children they will ultimately want, perhaps partly out of inexperience, partly because they have at least one or two children of a given sex, or perhaps partly because of a disinclination to think far into the future.

Finally a fourth factor is the effect of modernization. In countries which are undergoing, or have recently undergone, a substantial decline in fertility, younger women may quite possibly come to have lower average desired family size than older women, not just because of rationalization effects, but also because desired family size is really declining, in response to such factors as urbanization, declining child mortality, improvements in education, changes in the occupational structure away from occupations in which children are economic assets to parents, and increases in housing costs. Such changes between age cohorts would help to strengthen the association between mean desired family size and parity.

The authors also concluded that there are negligible differences in mean total number of children desired between younger and older women once number of living children is held constant indicate that very little of the correlation is explained by modernization effects.

Even cases such as Bangladesh and Nepal, where widespread contraceptive use is absent, the correlation between desired and actual number of children is quite strong, which suggests that rationalization effects and underestimation effects are by themselves sufficient to produce a fairly large correlation between the number of children and the number desired, though there are some countries such as Costa Rica and Fiji where contraception is sufficiently widespread to strengthen substantially the correlation between parity and the mean number desired.

If selection effects of contraception or modernization were the only factors producing the correlation between parity and mean number of children desired, the mean for all women would correctly reflect the mean number of children desired, undistorted by

rationalization or underestimation effects. If on the other hand, rationalization effects were the only force producing the correlation, then the mean for lower parity women would provide the least distorted estimate of the mean. And if underestimation by low parity women were the only factor producing the correlation, then the mean for higher parity women would be the least distorted estimate of the mean. Since selection, rationalization and underestimation effects are probably to some extent operating, it follows that the best estimate of the true mean (the mean undistorted by rationalization and underestimation effects) is probably either (i) the overall mean or (ii) to be on the safe side, the mean for parity to women which would provide a minimum estimate and the mean for parity 4 or parity 5 women, which would provide a maximum estimate of the mean.

Various other studies have demonstrated that the association between additional children and actual fertility is negative. Khan and Sirageldin (1977), in their study of Son Preference and the demand for additional children in Pakistan, examined the extent to which the desire to have additional children can be explained by a variety of socio-economic and demographic variables based on 2,910 currently married women in Pakistan. The authors found that the greater the number of living sons or living daughters in a family, the less the probability of a couple wanting additional children. They also found that the negative inducement of the number of living sons or wanting additional children is about three times that due to the number of living daughters and the greater the deficit number of living sons or daughters from the corresponding ideal number, the greater the probability of a couple wanting additional children.

Bulatao and Fawcet (1983) investigated the influence of various determinants of childbearing intentions throughout the fertility career using a set of parallel surveys conducted in the Philippines, Turkey, Indonesia, Republic of Korea, Taiwan, Singapore and United States. Fertility intentions or preferences were represented by two measures; desire for another child and ideal family size. The authors found that important differences between the desire for additional child and ideal family size are prevalent though the two are strongly interdependent. At higher parities, many of those

who want to continue childbearing would do so despite having attained their ideals. Ideals appear to be somewhat more restricted in range or more clustered, perhaps reflecting social norms than personal prediction. The association of these two measures with number of living children was also different. Desire for another child falls as parity rises while ideal family size increases with parity, probably because couples rationalize having had additional children.

**2.1.2 Age**

There is a significant association between fertility preference and age of the mother and duration of marriage. Mean desired number of children increases steadily with age of respondents and their duration of marriage possibly reflecting a rationalization of achieved fertility which increases with age while desire for more children declines with age evidently because parents will have achieved their desired family size.

Kim and Choi (1981), for example, in their study of fertility preference of Korean women found out that the respondent's age and her marital duration are two of the four demographic variables, which explained variance in desire for future births.

Snyder (1974), in his study of economic determines of family size in Sierra Leone, found out that life-cycle variables are important determinants of number of births. A wife's age has a positive effect up to age 35, and wife's age at first birth has a negative effect reflecting that parents crowd births into the early years of marriage rather than spacing them evenly. He also found that Sierra Leonean parents tend to replace or over-replace a lost child especially when they are in the early stages of family formation. Child deaths in later years are slightly under-replaced presumably because some parents are physiologically or psychologically unable to produce children for replacement. He also found out that the labour force participation of Sierra Leonean wives has unexpectedly positive relationship to number of births and attributed this to the fact that mothers with large families are forced by economic necessity to re-enter

the labour market or because re-entry is made easier by the presence of elder children in large families who can take care of younger siblings.

The Kenya Demographic Health Survey (KDHS) of 1993 reports that early initiation into child bearing is generally a major determinant of large family size and rapid population growth, particularly in countries where family planning is not widely practiced (NCPD 1994). Early marriage leads to early child bearing and high fertility. In Kenya, it has been noted that 58% of Kenyan women marry before they reach the age of twenty years. The women's age at marriage is positively associated with her education according to the findings of the KDHS of 1993.

Greeley (1977), in his study of men and fertility regulation in South Meru, described and analyzed the traditional factors that have contributed to the acceptability of family planning among the Meru people. He postulates that for most families, a number of factors favour a family size of four or five children. These include the reduction in mortality risk, the accelerating cost of living, a degree of "understanding" reflecting at least three years of schooling, for husband and wife. An additional factor is the perception that Meru's resources are finite-an idea reinforced by the still strongly sanctioned norm that the father must provide farmland (or failing that education) for every son.

Studies about the value of children in Taiwan, Korea, Japan, Hawaii, Philippines and Thailand summarized by Arnold et al. (1975) show that the general trend was that the rural parents expected a greater degree of economic help from their children. The study also revealed that family size is influenced by son's preference.

### 2.1.3 Child loss experience

Hamed (1988), in examining the impact of child loss on fertility preference and regulation in Egypt using Egyptian Fertility Survey (EFS) carried out in 1980, found that there is a positive association between mean additional children wanted and the

number of dead children even after controlling the number of living children and duration of marriage.

Pebley et al. (1979) examined fertility desires and child mortality experience among Guatemalan women age 15 and over on attitude towards and expectations related to children. The authors found that a woman's fertility is influenced by both the death of her siblings and her own children. The authors found that at third and fourth parities, death of a woman's siblings had the greatest influence fertility was greatest but at the fifth parity the death of a woman's own children had the greatest influence on fertility. From this finding the authors concluded that the child mortality experiences affecting a woman's fertility decisions are not only those of her own childbearing years but also those of her mothers childbearing years. The authors further suggested that mortality declines must occur over two generations to make a significant impact on a woman's desire for additional children.

Deeb (1988) investigated the relationship between child loss and fertility behaviour and attitude in Egypt, Sudan, Kenya and Lesotho. The study population was women in the reproductive age (15-49) who were surveyed in these four countries. The analysis quantifying the effect of the former on the latter revealed that loss of one child out of four children ever born resulted in an increase in the desired family size of 1.0 in Lesotho, 0.4 children in Sudan, 0.3 child in Egypt and 0.2 in Kenya. Women who had lost all their children ever born desired a higher number of children of 0.4 in Lesotho, 1.7 children in Sudan, 1.4 in Egypt and 0.8 in Kenya as compared with the average number of desired family size of women who did not experience any child loss.

In their investigation of the influence of various factors affecting childbearing intentions throughout the fertility career, Bulatao and Fawcett (1983) found out that the effect of child loss on desire for more children was negligible while it is positively associated with ideal family size which led the authors to argue that the positive response of ideals to child loss is probably a one-time adjustment process that is not modulated by later experiences in making up for the loss, as desires might be.

## 2.2 Socio-economic correlates

### 2.2.1 Education

Parent's education may affect fertility attitudes and behaviour in a number of ways. First education influences a broad spectrum of social, psychological orientation in parents including freedom from tradition, high aspirations in life and may open up the possibility of alternative lifestyles including preference for ownership of consumer durables, reduce preference for more traditional lifestyle which include large family size (Freedman et. Al.,1975).

Secondly, education increases women's income earning potential and thereby increases the opportunity cost of their withdrawing from the labour force to care for children. Educated parents have better understanding in fertility decision making including childbearing and rearing and perceive higher costs and lower benefits of their children which is believed to impinge upon both their fertility attitudes and behaviour.

A number of studies support the conclusion that better educated couples tend to prefer small family size and want to terminate childbearing sooner than do those less educated ones (Cochrane, 1979; Pullum, 1980; Khan and Sirageldin 1977; Choe et al., 1992).

Westoff (1991), in a comparative study of reproductive preferences in the 28 countries included in the first phase of DHS programme argues that the relationship between education and the percentage of women who want no more children is positive in several countries, but weak or non-existent in many others.

Asikpata (1988), in his study f determinants of family size preferences in Ghana basing his analysis on GFS and CBS information, found out that women with no schooling wanted an average of 7 children as opposed to women with 11 or more years of schooling who wanted an average of 4 children.

Although the extension of formal education and particularly education for females has been identified as an important determinant of the onset and the speed of the fertility

transition in less developed countries (Lesthaeghe et al., 1983), studies have shown that the relationship between education and fertility is not linear. Dow and Werner (1981) in their study of perceptions of family planning held by rural Kenyan women in the family planning programme found out that women with no schooling desired 6.19 children; those with standard 1-4 level of education desired 6.28 children. While those with standard 5-8 level of education desired 5.86 children.

Maleche (1990) in a study of accessibility and contraceptive use in Kenya found that the primary level of education has negative effects on the family size preferences. Contraceptives use was found to increase with educational levels, from 9.9% among women with no education to 24.2% among women with secondary or higher education. Keraka (1991) found that women with lower primary level of education tended to prefer large family sizes compared to those women who were more educated.

Poedjastoeti and Hatmadji (1991) however after analyzing the 1987 National Indonesian Contraceptive Prevalence Survey (NICPS) and considering several background factors such as women's educational attainment, residence, religion, number of living children, and social economic status found that the percentage of women wanting to terminate childbearing decrease as education level of women increases. Schultz (1973), cited in Ross (1977) attributes this positive relationship between education level and fertility preference to the effect of education on income since higher education could result in a couple's ability to get more income and consequently being able to raise more children.

Nkanata (1991) in his research on family size preferences in Meru District found that majority of women respondents had primary level of education which did not greatly influence their decisions on the desired number of children.

### 2.2.2 Work status of wife

Although the association between family size and work status of a woman is not quite clear and the conflicting findings with regard to this association, negative association

between number of children desired and woman's participation in the labour force is documented by different studies. (Moustafa, 1988; Deeb, 1988; and Abdalla, 1988).

The presence of young children supposedly represents a significant cost inform of foregone income for a working wife, thus causing a negative relationship between fertility and female participation in the labour force. However, evidence from studies concerning the effect of female labour force participation on fertility attitudes and behaviour is inconclusive. There are several criticisms on the theoretical assumptions underlying the arguments on the inverse association between fertility and female labour force participation especially in developing countries. Firstly, opportunity cost of childcare is said to be low in these countries where many families have other household members who help take care of children. Secondly, in those societies, work is usually done at home, on a farm or in a family business, thus work and childcare are not necessarily incompatible. A reason why fertility and female labour force participation may not be found to be negatively related, is that woman with many children may have a relatively "strong need for income" so that these women may be more likely to work than other women.

Caldwell (1968), in his study in Ghana focusing on new urban elite, their awareness of population issues, changing family size and family planning, notes that the use of contraceptives rose steeply with the education of the wives, from 5% among the uneducated women ever contracepting to 71% of those with post secondary training or university education. Furthermore, wife's employment status my affect the contraceptive use and the desired family size. Most working women may not be interested in exploiting the labour of their children. They may not also need many children for old age security. The working mothers are also more interested in the financial benefits from their jobs and are capable of supporting themselves even in old age. Furthermore, women who are educated and employed prefer to have few children whom they can give the necessary food and shelter.

Choe et al. (1992) using data on ever-married women of reproductive age from six Chinese provinces from the 1987 in-depth fertility survey, phase 2, postulates that the urban women have lower actual fertility performance and ideal family size than rural women. Although little attention has been given to the socio-economic status of women and its influence on the desired family size, there is some evidence to suggest that high incomes of women are positively related to the reduction in the size of the family. This is because women with high incomes spend more money on education, clothing and the general upkeep of their children. Furthermore, a small family increases the mother's availability for income generating activities (Safilios-Rothschild and Mburugu 1986). Women who contribute more to the family's income are generally said to have a greater opportunity cost if they drop out of their jobs in order to rear children. But if the contribution of the woman to the family's income is minimal, the opportunity cost of dropping out of the job is smaller. Those women with a small opportunity cost will have few reasons not to bear children (Leibeinstein 1974).

### 2.3 Socio-cultural correlates

#### 2.3.1 Number of living sons

The subject of parental attitudes and aspirations concerning the sex of children has attracted considerable analytical attention in the past few decades. The interest has been aroused mainly by evidence that sex or gender preferences may sustain higher levels of childbearing than would be the case if the sex of children was a matter of indifference, this is so because couples may continue childbearing beyond their overall desired family size in order to achieve some favourable number or distribution of sons and daughters (Cleland et al., 1983).

Parental preferences can take many possible forms. Among the more plausible is the desire for a minimum number of children of a particular sex (eg. At least two sons), or desire for at least one child of each sex, or for an approximately equal number of sons and daughters. These may co-exist in a complex manner. Likewise, the possible origins of gender preference are many and varied. They are often assumed, to have an economic rationale, security in old age and insurance against risk. Alternatively, the

origins of gender preferences may lie in religious beliefs and observances. They may also be sought in systems of inheritance, lineage, bride-wealth or in psychological needs (Ayehu, 1998).

(Stinner and Mader 1975) conducted an analysis of actual family size composition and the desire for no additional children among the national sample of ever married Filipino women. For currently married women aged 20 and 39 years with two living children, the authors found a drop from 49% to 41% in the percentage wanting no additional children as the number of sons increased. The authors also found out that son preference is higher in rural areas while in the urban and highly developed counterparts the preference was strongly in the direction of a balanced sex composition.

Bairagi and Langsten (1986) investigated the level and pattern of sex preference for children and its impact on fertility regulation behaviour using data from a Cross-sectional KAP survey and a three-year longitudinal study of vital events for 860 married women of childbearing age from a rural area of Bangladesh. Using the regular commbs scale to measure type and strength of sex preference for boys among them, 40% expressed very strong preference. It was found out that women with higher proportion of sons are less likely to want more children and are more likely to practice contraception and to be sterilized.

Studies in Africa have shown that the desire for the male children is very strong. This is especially in exogamous marriage systems. The male child is required to continue the lineage. The assumption is that all the daughters will get married and will go to live with their husbands elsewhere. In such a situation the parents will require a son to look after them in old age. For this reason, a woman may continue to give birth until the child of the sought sex is born. Such a couple will not listen to family planning teaching regardless of the sweet words (Ocholla Ayayo, 1988).

Gupta (1974) in a case study from Punjab, India found that all women stated a strong son preference and on average less than one woman in two expressed a desire to have a daughter. Among the women who desired a smaller family, the proportion wanting a daughter was found to drop further still. The study found that the number of sons desired is positively and significantly related to fertility. The results suggested that child bearing is structured largely around a targeted number of sons. He noted that when women state their desired family size what they are really stating is the number of children they think they would probably need to bear in order to reach their desired number of sons. Furthermore women were said to stop child bearing when they reach their targeted number of sons.

### 2.3.2 Religion

Religion has acted as a break on demographic transition and on fertility change in particular in a number of historical and contemporary populations (Cleland and Wilson, 1987). In some cases, this constraint has operated at national level; elsewhere minority groups have maintained strict and sometimes separate lifestyles, against backgrounds of widespread social economic and demographic change (Hostetler, 1993). In a study of 2 rural areas of Zimbabwe, Simmons et al. (1999) found substantial differences in recent demographic trends between mission and independent or "Spirit-type" churches. Birth rates were high in some spirit type churches. In a study of fertility preferences in Kenya, Ayehu (1998) found that a woman with no religious affiliation was about 1.53 times as likely to desire more children compared to Catholic Christian.

Jaccard and Davidson (1976) tested a model where psychological, social and economic variables come into play in influencing fertility related decisions. According to the model, a woman's intentions to engage in a certain behaviour (such as to have a child in the next 2 years) in a function of the belief about the consequences of performing that behaviour and (or) her beliefs about what others think she should do and comply with them.

An analysis was done on the intention to use birth control and intention to have a child in the next two years. There was a significant religious differentiation on the intention to have a two-child family with Catholics being less likely to intend to have a two-child family than the Protestants. Protestants women were more often of the perception that their close friends, husbands and their relatives are in favour of a two-child family, than did Catholic women, and the later are more likely than the former to be of the belief that they can afford and give adequate time to more than two children.

**2.4 Summary of literature review**

The association between desire for additional children and the actual family size is inverse; as family building progresses further, parents tend to stop childbearing (Khan and Sirageldin, 1977; Kim and Choi, 1981; Poedjastoeti and Hatmadji, 1991).

Number of living sons can be used as a proxy for sex preference of childbearing. In many developing countries a high premium is placed on bearing of sons as opposed to daughters. In other words sons are presumed to have a greater net utility in the society than daughters for a variety of sociological and economic reasons such as economic utility, for example assistance in agricultural activities, security in times of illness and old age, religious utility and kinship continuity. Various studies argue that couples with a strong preference for one sex or at least one child for each sex, may go beyond their family size in the event that they don't achieve the sex composition they want by the time their preferred number of children is reached. They also concur that desire for additional children is inversely related with the number of sons in the family (Stinner & Mader, 1975; choe et al., 1992).

Age of the mother is one of the most important factors that bear association with fertility. Mean number of desired children generally increase steadily with age of respondents. This possibility reflects a rationalization of achieved fertility, which increases with, as well as tends towards smaller family size desired by young cohorts. The relationship between desire for additional children and age of women although

reported by Freedman et al. (1975) and Bulatao and Fawcett (1983) to be almost universally indirect has also been found to be inverse by other researchers such as Kim and Choi (1981).

The relationship between child loss experience and reproductive behaviour and attitudes is a complex issue. It is difficult to clearly identify the influence of child mortality experience on fertility preference. Authors such as Pebley et al. (1979) report that a woman's fertility preference may not only be affected by her children's death but also by her own siblings' death. Bulatao and Fawcet (1983) found that the effect of child loss on desire for more children was negligible while it is positively associated with ideal family size.

The relationship between education attainment and fertility is multidimensional. While factors as changing tastes, opportunity cost of wife's time and effective use of birth control methods should tend to cause negative relationship between adult education and fertility, such factors as effects of parent's education on income, among other things may introduce a positive relationship. Several studies have shown that better educated parents tend to prefer small family size than do less educated ones (Cochrane, 1979; Pullum, 1980). On the other hand the higher income potential associated with education may also affect fertility attitudes and behaviour in another direction. Some believe it should tend to increase fertility since higher education should result in couples being able to afford more children. (Poedjastoeti and Hatmadji 1991).

The association between desired family size and work status of a woman is not quite clear and there are conflicting opinions with regard to this association. This notwithstanding, the negative association between number of living children and women's participation in the labour force is documented (Abdalla, 1988; Deeb, 1988; Mustafa, 1988). These authors argue that childbearing and rearing supposedly represent a significant opportunity cost in the form of foregone income for a working wife thus causing a negative association between the two. Anker and Knowles (1982) however found that female labour force participation in Kenya is not significantly related to

fertility performance leading them to conclude that in the context of Kenyan situation, there is no major conflict between the wife's ability to work and at the same time raise a family.

Different studies conducted have evidences that urban women have lower fertility preference than women living in rural areas (Choe et. Al, 1992; Poedjastoeti and Hatmadji, 1991). This urban rural differential is due, among other things, to characteristics of urban life itself; such as higher net cost of children, freedom from traditional pronatalistic values which favour large families and better access to employment in the modern sector and other lifestyles which provide alternatives to bearing and rearing of large number of children.

The relationship between fertility preference and religion has been evidenced by different studies (Gulati, 1988; Caldwell, 1968). The consensus of these studies is that the value systems attached to various factors such as widow remarriage, abstinence and religious celibacy, adoption of contraceptives and other beliefs differ from one religion to another bringing about differentials in reproductive health.

**2.5 Conceptual framework**

In this section various theoretical orientations are explored, in order to derive a framework to guide the analysis of this study.

Fertility decision-making may be explained through two models. The first model argues that when couples marry they decide how many children they want and set forth to accomplish that goal never swayed from it by the circumstances surrounding them. This model is often called the one decision model, and has been proposed by authors such as Willis (1974). The one-decision model may be thought of as rooted in the proposition that fertility values and preferences are acquired through socialization in childhood and youth.

The sequential decision model is the second model and it has its roots in the Economic/utility theories of fertility. Its authors argue that fertility decisions are based on current assessment of costs and benefits of the next birth. According to this model decisions are made one birth at a time. After each birth a couple makes a decision to have another birth, postpone another birth or stop reproduction, based on the constantly changing payoff structure which is sensitive to changes in economic and social circumstances (Udry, 1983).

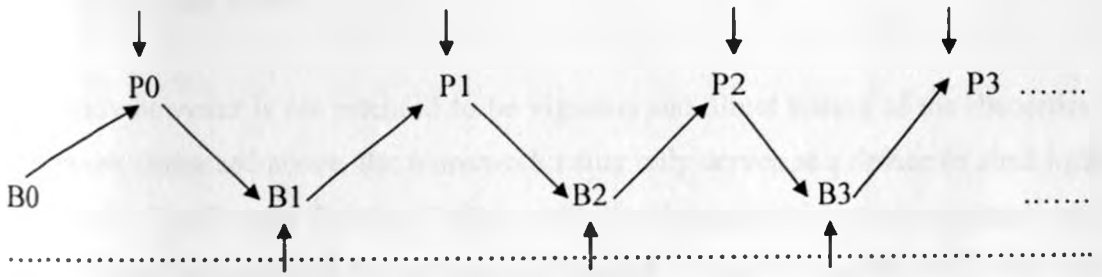
In order to put the second model in context, we will discuss the economic theory of fertility. The economic theory of fertility (Becker, 1960; Willis, 1973) asserts that parents desire children for the benefits that they generate "child services". Additional child services can be obtained extensively by having additional children or intensively by devoting additional resources to the upbringing of existing children and they're by raising the level of 'quality' per child. The cost of a unit of child services is determined by the quantity and price of each input (parental time, various goods and services,) used to produce the unit of child services. Child services are but one of the many resources of satisfaction to parents and the household's ability to produce child and other services is limited by ceilings on available time and wealth. The number of children, desired by parents is thus constrained as well.

Easterlin, 1973, in his modification of the economic theory, reports that for a developing country, whose subsistence is largely on agriculture, the theory might not be applicable, as children contribute to family income, child raising costs are low, and child mortality is high, which might lead to parents demand for children outstripping supply. However as urbanization, modernization and industrialization proceed, this excess demand for children become increasingly less productive and more expensive to raise. When a household has produced enough children that the net economic and psychic cost of an additional child exceeds the economic and psychic cost of fertility control, the parents begin to practice contraception.

Pullum (1980) proposes that every woman at every time has an entire preference function, which describes the relative utility of each family size that she could possibly have (in an abstract sense). That function, together with her current family size will generate her statements about desire for additional children. If she attaches higher utility to a greater family size than the one she currently has, then she will state a preference for more children. Her response to question on ideal family size will be the model value of the function.

Pullum's model, describes the relationship over time between (a) the underlying preference function, (b) actual family size, (c) the age related controls, and (d) the pattern of contraceptive use. He argued that the relationship between fertility preferences and actual transitions to higher parities in the lifetime of a specific woman may be diagrammed as follows:

**Fig 2.1: Pullum's preference function model**




Source: Pullum (1980)

Here B0 is the woman's own date of birth or some other stating event, such as date of menarce or date of marriage, and Bi is the date of her i-th childbirth. During the time interval (Bi , Bi + 1 ) the woman has parity i. (If there is substantial infant mortality it will be worth while to modify the process so that index i refers to the number of living children). The sequence P0, P1, etc., refers to the ideal family size that would be stated while the woman was at parity i or family size i. The arrows from Pi to Bi+1 represent the impact of a preference (stated as total desired family size or preference of another child) upon a subsequent birth event. The arrows from Bi to Pi represent the revision of a preference as a result of a birth and include a possible upward revision of desired

family size as a result of a birth previously not planned. The relationship is not deterministic. Arrows directed vertically down to Pi represent the effects of other characteristics of the woman upon her stated preference including secular trends in norms of her reference group. The vertical arrows directed upward toward the Bi represent the effects other than preferences, which determine the transition to higher parities for example fecundability and contraceptive failure (Pullum 1980).

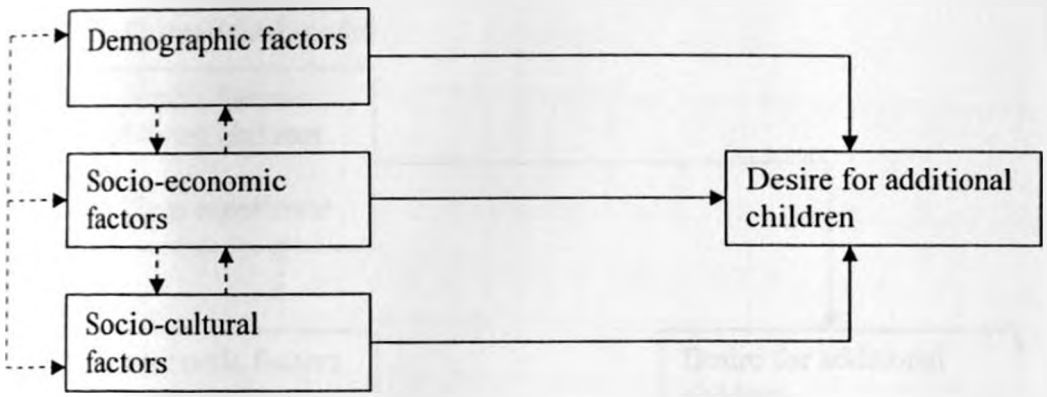
As defined earlier our measure of fertility preference in this study is desire for a child or additional children. This study takes the view that childbearing experience is not only an outcome of a single-decision-made goal but also of a sequentially adjusted process as well. The view assumes that any couple makes decisions about intended family size early in marriage and refines this decision in response to changing circumstances and hence responses to questions on desire for additional children change accordingly. These circumstances include, demographic, socio-economic, socio-cultural and others.

This study however is not intended to be vigorous and direct testing of the theoretical framework discussed above, the framework rather only serves as a device to shed light on how the "preference function" relates with the demographic, socio-economic and social cultural factors in the fertility decision making process of couples, in Central and Coast province.

### 2.5.1 Conceptual model

From the foregoing literature review and conceptual framework the study hypothesizes that a woman's desire for additional children is affected by demographic, Socio-economic and Socio-cultural factors as conceptual model below shows.

**Fig 2.2: Factors determining desire for additional children**




Source: Adopted and modified from Pullum (1980)

**Key**

Hypothesized relationship ——————→

Other relationships ----------→

In this model the continuous arrows depict the relationships that are used in the study to show the effects of demographic, socio-economic and socio-cultural factors on desire for additional children. The dashed arrows depict relationships between the independent variables and they are not directly tested in the study.

### 2.5.2 Conceptual hypotheses

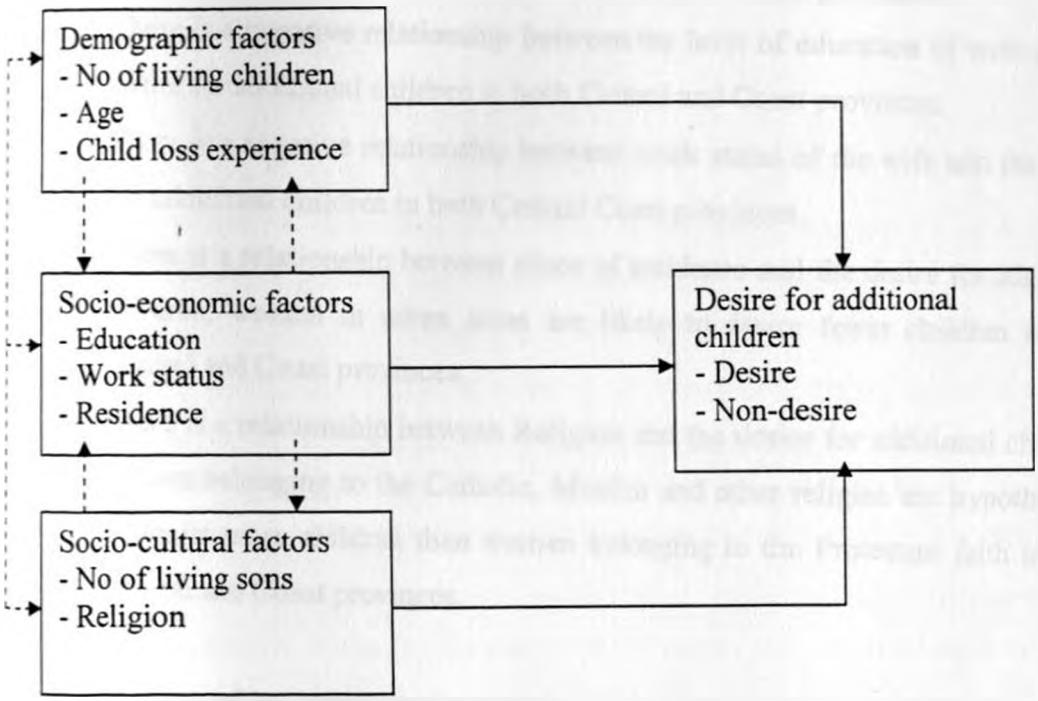
1. Desire for additional number of children of a woman in a certain family is likely to be affected or influenced by demographic characteristics in that particular family.
2. Desire for additional number of children of a woman is likely to be affected or influenced by her socio-economic characteristics.
3. Socio-cultural factors are likely to influence desire for additional children.

### 2.5.3 Operational model

The study will employ the following operational model, which shows the association between desire for additional children on one hand and the different demographic,

socio-economic and socio-cultural variables on the other as they are defined and operationalised in this section. The variables considered and are shown in this model are derived from the literature and include: number of living children, Age, child loss experience, education, work status of wife, residence, number of living sons and religion.

**Fig 2.3: Operational model**




Source: Adopted and modified from Pullum (1980)

**Key**

Hypothesized relationships ——→

Other relationships - - - - - - - →

### 2.5.4 Operational hypotheses

The following hypotheses will be tested;

- There is a negative association between the number of living children and the desire for additional children in both Central and Coast province.
- There is a relationship negative association between the number of living sons and the desire for additional children in both Central and Coast provinces.

- There is a negative association between current age of the wife and desire for additional children in both Central and Coast provinces.

- There is a positive association between child loss experience and the desire for additional children in both Central and Coast provinces.
- There is a negative association between the level of education of wife and the desire for additional children in both Central and Coast provinces.
- There is a negative relationship between the level of education of wife and the desire for additional children in both Central and Coast provinces.
- There is a negative relationship between work status of the wife and the desire for additional children in both Central Coast provinces.
- There is a relationship between place of residence and the desire for additional children; women in urban areas are likely to desire fewer children in both Central and Coast provinces.
- There is a relationship between Religion and the desire for additional children; women belonging to the Catholic, Muslim and other religion are hypothesized to desire more children than women belonging to the Protestant faith in both Central and Coast provinces.

### 2.5.5 Definition of key analytical concepts

**Dependent variables**

#### 2.5.5.1 Desire for additional children

This is the measure of fertility preference. Information of desire for additional children is derived from a question about whether another child is wanted in future. The responses for this question were recorded as desire and non-desire. The former is composed of have another child and declared infecund. While the latter is composed of women who want no more children and those women who are sterilized. The response 'undecided' is not included in the analysis as the number of women who gave this response is very insignificant in magnitude; this exclusion is not likely to affect the results of the analysis. Declared infecund refers to those women who desire to have

more children but replied that they cannot give birth to a child when they were asked how soon they wanted them. Thus it is included in the desire category.

Thus the dependent variable consists of Desire (Those who desire another child) or Non desire (for those who do not want another child). Desire takes the value of 1 and Non-desire takes the value of 0.

**Independent variables**
**Demographic factors**
**2.5.5.2 Number of living children (NLCH)**

This refers to the number of living children (actual family size) that is both sons and daughters who are at home and elsewhere. In this study this variable is categorized into none, 1-3 children and 4 or more children. This variable is represented in the regression equation by two indicator variables: NLCH2 for women with 1-3 children and NLCH3 for women with 4 or more children and zero otherwise. The reference category consists of women with no children at all (NLCH1).

**2.5.5.3 Age of mother (AGE)**

This refers to the age of the mother at last birthday. Age is categorized into three age groups namely; <25 years, 25-34 years and 35 years. The same categorization was used by previous studies (see Kimani, 1992, for example). This variable has 3 categories and it is represented in the regression equation by two dummy variables. These are AGE2 (25-34 years) and AGE3 (35 or more years) that take the value one for women whose ages are 25-34 years and 35 or more years and zero otherwise. The reference category is AGE1, which consists of women who are less than 25 years of age.

**2.5.5.4 Child loss experiences (CHLOOS)**

This variable refers to whether or not a given family has in the past experienced any child loss. This variable measures whether there is a replacement of children as a result of child loss experience. It is categorized based on whether the respondent has

experienced any child loss in the past or not. Thus, it has two categories namely, child loss and no child loss. This variable has two categories represented in the regression equation by a single dummy variable CHLOOS2 (child loss) which takes the value one if the respondent has experienced a child loss in her reproductive career and zero otherwise. The reference category is CHLOOS1, which consists of respondents who have no child loss experience upto the time of the survey.

**Socio-economic factors (proxies for socio-economic status of respondents)**

**2.5.5.5 Education (EDUC)**

Education is defined as formal schooling and the educational attainment of women aged 15-49 years has been considered. Formal education is measured by the level of education that the respondent has attained. In this study education is serving as a proxy for the socio-economic status of respondents. It is categorized into three categories namely; no education, primary education, and secondary and above. This variable has three categories, which are represented in the regression equation by two dummy variables viz, WEDUC2 (primary education) and WEDU3 (secondary education), which take value one of the respondents with primary and secondary level of education and zero otherwise. The reference category is WEDUC1, which consists of respondents with no education.

**2.5.5.6 Work status (WWORK)**

The specific aspect of work status of the wife in this study is whether or not she is currently working. Therefore, work status is serving as a proxy for the socio-economic status or respondents. It is categorized into two categories namely; working, and not working. This variable has two categories represented in the regression equation by a single indicator variable WWORK2 (wife working), which takes the value one if the respondent is working and zero, otherwise, that is if the respondent is not working. The reference category is WWORK1, which consists of respondents who are not working.

**2.5.5.7 Place of residence (RESID)**

This refers to classification of people on the basis of where they currently reside. The particular aspect of residence, which is useful for this study, is an urban area, or a rural area. The two categories are thus urban and rural. In this study residence is serving as a proxy for the socio-economic status of respondents in NASSEP3 (and therefore in KDHS 1998), urban is defined as places, which are centres of population of 10,000, or more and all district headquarters regardless of the size. This variable has two categories represented by a single dummy variable RESID2 (urban) which takes the value one if the respondent is residing in an urban area and zero, otherwise, that is if the respondent resides in a rural area. The reference category is RESID1 which consist of respondents who reside in a rural area.

**Socio-Cultural factors (proxies for the people's cultural values)**

**2.5.5.8 Number of living sons (NLSONS)**

This refers to the number of living sons both at home and/or elsewhere a woman has given birth to. This variable serves as a proxy for the sex preference of children. In this study variable is categorized into: none, 1-2 sons, and 3 or more sons. The variable is represented in the regression equation by two dummy variables, namely, NLSONS2 (1-2) AND NLSONS3 (3 or more sons), which take the value one for respondents with 1-3 sons, and 3 or more sons, and zero otherwise. The reference category is NLSONS1 and consists of women who do not have a son.

**2.5.5.9 Religion (RELGN)**

Religion is categorized into Catholic, Protestant, Muslim and traditional religion. This variable has four categories represented in the model by three dummy variables. These are RELGN2 (Protestant), RELGN3 (Muslim) and RELGN4 (Others), which take the value one if the respondent is a Protestant, Muslim or have no religious affiliation and zero, otherwise. The remaining category RELGN1 consists of Catholic respondents and is considered as the reference category.

# Chapter Three

## SOURCE OF DATA AND THE METHODOLOGY OF ANALYSIS

This chapter describes the data utilized in the study and methods of data analysis.

### 3.1 Source of data for the study

The data used in the study were drawn from the Kenya Demographic and Health Survey (KDHS) data collected in 1998.

### 3.2 Quality of data

KDHS was designed to provide high quality data. Results of sample surveys usually suffer from two types of errors. These errors are sampling errors and non-sampling errors. Non sampling error arises due to mistakes made in carrying out field activities such as failure to locate and interview the correct household, errors in the way the questions are asked, misunderstanding of the questions on the part of either the interviewer or the respondent, data entry errors, etc. Although numerous efforts were made during the implementation of the KDHS to minimize this type of error, non-sampling errors are impossible to avoid and difficult to evaluate statistically.

Sampling errors on the other hand, are a measure of variability between all possible samples and can be estimated statistically from the survey report. Sampling errors are usually measured in terms of a standard error for a particular statistic. Sampling errors encountered in the KDHS were computed by the use of some complicated statistical methodology for selected variables considered being of prime interest. It was noted from the results that the relative standard errors for most estimates of the country as a whole were very small (NCPD, 1999).

In order to assess desire for more children, currently married women were asked: would you like to have (another) child or would you prefer not to have (any/more) children? Interviewers were asked to alter the wording of this question depending on whether the respondent already had children or not. If the woman was pregnant, she

was asked if she wanted another child after the one she was expecting. Women, who said they did not want to have another child, were then asked how long they would like to wait before the birth of the next child. Other data used in this study in this study relate to the different set of independent variables hypothesized to affect desire for more children including number of living children, highest education level, work status of the respondent, religion, place of residence, age of respondent, number of living sons and child loss experience.

### 3.3 Methods of data analysis

#### 3.3.1 Descriptive statistics

Descriptive measures such as frequency distribution and percentages are used. The aim is to condense data into manageable proportions. Descriptive statistics are used to examine the basic distribution characteristics of each of the variables and the differences in Central and Coast provinces
that are used in the subsequent statistical analysis. The statistics were computed using STATA computer program.

#### 3.3.1.1 Cross tabulation

Cross tabulations are used in this study to analyze the relationship between desire for additional children and each of demographic, socio-economic and socio-cultural variables separately for Coast and Central provinces. Percentages are employed in cross tabulations because of the fact that comparing just the counts in the cells of the cross tabulation table is misleading. Therefore percentages will eliminate the differences that come up because there are more respondents in Coast province than in Central province. Tests of significance of the relationships are undertaken using $X^2$. In this study the level of significance chosen was 0.05.

The chi-square test conducted in this study is to evaluate whether or not frequencies, which are empirically obtained, differ significantly from the expected frequencies under certain theoretical assumptions. The larger the differences between the observed

and the expected frequencies the larger the chi-square value, which would imply rejection of a null hypothesis.

After specifying the null hypothesis $H_O$ that there is no association between variables considered, the calculated value of $X^2$ is compared with the table value of $X^2$ for given degrees of freedom at 1 percent and 5 percent levels of significance. If the observed level of significance is $\infty = 0.001$ and $\infty = 0.005$, the null hypothesis of independence is rejected and the alternative hypothesis is accepted as the calculated chi-square value at the chosen levels fall in the rejection area.

### 3.3.2 Inferential statistics

#### 3.3.2.1 Logistic regression

Desire for additional children, the dependent variable and the measure of fertility preference in the study is a dichotomous variable with an outcome of either 0 or 1 depending on non desire and desire for additional children respectively. Logistic regression is the appropriate method of analysis utilized in this study to predict desire for an additional child. In the case of a dichotomous dependent variable where the outcome is either 0 or 1, multiple linear regression technique is inappropriate because the predicted value may fall outside the 0-1 range.

Therefore, in order to introduce the 0, 1 bounds into the model, we will utilize logistic regression. The interest in this case is not in estimating the value or numerical size of the desire for additional children but rather in analyzing probability of a woman desiring an additional child, or more specifically, how a series of exogenous variables influence the underlying probabilities of a woman desiring an additional child.

The logistic model is usually presented in terms of the log of odds or logits, which transforms the general logistic contribution into the log...

$$\text{Log}\left(\frac{Þ}{1 - Þ}\right) = ß_0 + ß_1 X_1 + ß_2 X_2 + \ldots + ß_n X_n$$

In this study

Þ - is the probability that a woman desired an additional child

1- Þ - is the probability that a woman does not desire an additional child

$ß_0$ - is the intercept of the model

$ß_1$ to $ß_n$ - are the logistic regression coefficients

$X_1$ to $X_n$ - Are the independent variables considered in this study

This transformation which is usually referred to as the logit transformation is central to the study of logistic regression. L is called the logit or the log of the odds, where an odds is defined as the ratio of the probability that an event will occur (Þ) to the probability that it will not occur (1- Þ) and the analysis based upon the logistic distribution is often called logit analysis.

A coefficient of a logistic regression is interpreted as the change in the log of odds of occurrence of an event associated with a one-unit change in the independent variable under consideration. This means that a unit change in particular variable $X_j$ from $X_{j+1}$ changes the log of odds in favour of the occurrence of a particular event by the amount of $ß_j$ or equivalently the odds of occurrence of the event is multiplied by the magnitude $\exp^{ß1}$. A unit change occurring jointly in two variables, $X_j$ and $X_k$ from $X_j$ to $X_{j+1}$ and $X_k$ to $X_{k+1}$ is similarly seen to change the log of odds (logits) in favour of the occurrence of an event by the amount $ß_j + ß_k$ or equivalently the odds in favour of occurrence will change by the factor $\exp^{(ß j + ß k)} = \exp^{(ß j)} \exp^{(ß k)}$ (Schlesselman, 1982).

The parameters in the logit model may, therefore, be interpreted as ordinary regression coefficients where positive values indicate that the independent variables or their interactions raise the log of odds of the independent variable, while negative betas show lower log odds (Pindyck and Rubinfeld, 1976).

In the case of discrete variable such as religion, with no ordinal scale of measurement, indicator (dummy) variables taking the values 1 or 0 to designate the presence or absence of an attribute are used to correctly represent the effects of such variables in a logistic regression model. For discrete variable with K categories, K-1 indicator variables are used and the interpretation is made in terms of the reference category. Thus coefficients associated with one of the K-1 indicator variables represents the change in logits for this category relative to the reference category.

A negative logistic regression coefficient (ß) will reduce the odds of occurrence of event which, in this case, is desire for more children, since the resulting value of EXP (ß) which is the factor by which the odds ratio is multiplied in less than one. A dummy variable, which has a negative regression coefficient, has therefore lower odds compared to its reference category. On the other hand, positive logistic regression coefficient (ß) will raise the odds ratio as the corresponding value of EXP (ß) is greater than one. In this case, a dummy variable has higher odds compared to its reference category. In both of the above cases, the deviation of EXP (ß) from the value one represents the proportion by which the odds is reduced or raised depending on whether the regression coefficient is negative or positive respectively.

The maximum likelihood provides the foundation for the approach to the estimation of the logistic regression model. The method of maximum likelihood yields by several iterations the best values for the unknown parameters, which maximize the probability of obtaining from the observed data set. The maximum likelihood criterion is frequently used in statistics because it is known usually to be the asymptotically efficient estimator, but it is also an intuitively appealing criterion.
The difference between OLS and MLE is that the former is concerned with picking parameters that yield the smallest sum of squared errors in the fit between the estimated model and the data while the latter is concerned with picking parameter estimates that imply the highest probability or likelihood of having obtained the observed sample.

The goodness of fit of the estimated logistic regression model is assessed using the Pearson Chi-Square value which is computed using the SPSS computer software used in the estimation of the logistic model while the significance of the logistic regression coefficients in undertaken using the Wald statistic which is obtained by dividing the maximum likelihood estimate of the slope parameter, $\beta_i$ by the estimate of its standard error. The resulting ratio, under the hypothesis is that $\beta_i$ follows standard normal distribution. Both the above tests will be conducted at 5 percent level of significance (Hanushek and Jackson 1977).

## Chapter Four

# FACTORS ASSOCIATED WITH DESIRE FOR ADDITIONAL CHILDREN IN CENTRAL AND COAST PROVINCES

### Introduction

In this chapter, the results of the descriptive analysis based on data on fertility preference of Kenya women in Central and Coast Provinces is presented. First the characteristics of the respondents based on demographic, socio-economic and social cultural variables selected for this study are described briefly. Relationships between desire for additional and the demographic, socio-economic and socio-cultural factors are discussed using cross tabulations. Chi-square test is employed to test the association between desire for additional children and the different explanatory variables considered.

### 4.1 Description of the variables

Table 4.1 below shows the percentage distribution of respondents in Central and Coast provinces for the desire for more children and the demographic, socio-economic and socio-cultural characteristics for the 482 and 753 currently married women in the respective provinces.

The data clearly shows that there are differences in desire for additional children in the two provinces. Table 4.1 shows that about 34 percent of currently married women in Central province desire an additional child, while about 66 percent of the women in the same province reported that they do not desire an additional child. In Coast province, about 56 percent of currently married women desire an additional child, while about 44 percent of currently married women report that they do not desire an additional child. The data therefore reveals that majority of the currently married women in Central province do not desire an additional child, while majority of the women in Coast province desire an additional child.

**Table 4.1**

Percentage Distribution of the study population in Central and Coast Provinces, 1998

| Variables | Percentages | |
|---|---|---|
| | Central Province | Coast Province |
| **Dependent Variables** | | |
| Desire for additional children | | |
| Desire | 34.4 | 56.0 |
| Non-desire | 65.6 | 44.0 |
| **Independent variables** | | |
| **Demographic variables** | | |
| Number of living children | | |
| Children | | |
| Non (ref) | 4.8 | 10.2 |
| 1 –3 | 53.2 | 50.5 |
| 4+ | 42.0 | 39.3 |
| Current age of respondent | | |
| <25 years (ref) | 19.3 | 29.7 |
| 25 – 34 years | 42.4 | 34.7 |
| >35 year | 38.3 | 35.6 |
| Child loss experience | | |
| Never experiences loss (ref) | 88.1 | 74.2 |
| Experienced loss | 11.9 | 25.8 |
| **Socio-economic variables** | | |
| Education level of respondent | | |
| No education (ref) | 6.0 | 33.7 |
| Primary | 63.2 | 44.8 |
| Secondary + | 30.8 | 21.5 |
| Work status | | |
| Not working (ref) | 55.3 | 61.1 |
| Working | 44.7 | 38.9 |
| Place of residence | | |
| Rural (ref) | 6.2 | 41.3 |
| Urban | 93.8 | 58.7 |
| **Socio-cultural variables** | | |
| Number of living sons | | |
| None (ref) | 18.5 | 24.4 |
| 1 – 2 sons | 57.0 | 50.9 |
| 3+ sons | 24.5 | 24.7 |
| Religion | | |
| Catholic (ref) | 28.9 | 14.1 |
| Protestant | 68.8 | 38.9 |
| Muslim | 1.2 | 29.5 |
| Others | 1.0 | 17.5 |
| No. of cases | 481 | 753 |

Source: computed from the 1998 KDHS Data set.

In Central province, less than 5 percent of currently married women have no living children, about 53 percent have 1 – 3 living children, while 42 percent have four or more living children. In comparison, about 10 percent of currently married in Coast province have no living children, about 51 percent have 1 – 3 children while about 39 percent have four or more children.

Evidently so, although majority of the women in both provinces have 1-3 number of living children, a larger percentage of women in Coast province have no living children (10 percent) compared to Central province where the figure is about 5 percent. Again the data reveals that a large percentage of currently married women in Central province 42 percent have four or more living children, while in Coast province the percentage of women with four or more living children is 39 percent.

A similar trend is found for the distribution of respondents by the number of living sons, they have. In Central province about 19 percent of currently married women have no living sons. 57 percent have 1 – 2 living sons, while about 25 percent have three or more number of living sons. In Coast province about 24 percent of currently married women have no living son. Thus a larger percentage of women in Coast province (24 percent) than in Central province (19 percent) have no living sons. Again a larger percentage of women in Central province have 1 – 2 sons (57 percent) than Coast province (51 percent). For Coast province about 51 percent of currently married women have 1 –2 living children and about 25 percent of the women in the same province have three of more living children.

The distribution of respondents by age shows that there are younger (less than 25 years of age) currently married women in Coast province ( about 30 percent) than Central province (about 19 percent). This can be as a result of women's age at marriage being lower in Coast province than in Central province. On the other hand, there are more currently married women in Central province who are more than 35 years (about 38 percent) than in Coast province (about 36 percent). Therefore, the majority of the

currently married women in Central province are between 25 – 34 years while for Coast province the majority are 35 years and older.

About 88 percent of currently married women in Central province have never experienced child loss, while in Coast province 74 percent of currently married women have never experienced child loss. The data also reveals that about 12 percent of women in Central province have experienced child loss, this compares to about 26 percent of women in Coast province who have experienced child loss. Thus we can conclude that child loss is probably higher in Coast province than Central province.

Majority of currently married women in Central province have some education with only 6 percent having no education. On the other hand, in Coast province, more than a third of all currently married women have no education at all. About 63 percent of currently married women in Central province have primary education, while about 31 percent of women in the same province have secondary school education. For Coast province, about 45 percent of currently married women have primary education, while about 22 percent have some secondary education. Thus we argue that women in Central province are more educated than women in Coast province as the above figures has shown.

The percentage distribution of respondents by work status shows that about 45 percent of currently married women in Central province are working. This is a slightly higher percentage than 39 percent, which is the percentage of currently married women who are working in Coast province. Thus there are more currently married women who are working in Central province than in Coast province.

In Coast province about half of all currently married women reside in urban areas (41 percent), compared to Central province only a mere 6 percent of currently married women population is residing in urban areas. This shows that Central province is largely rural while Coast province has a sizeable population that is urbanised.

The majority of currently married women in Central province are Christians with Catholics making a proportion of about 29 percent while Protestants making up 69 percent. In Coast province, however the distribution of respondents by religion is somewhat more diverse, with Protestants forming the majority 39 percent, followed by Muslims 29 percent and Catholics 14 percent. There is also a sizeable minority of respondents in Coast province with no religion (about 18 percent) as compared to Central Province, where those with no religion are negligible 1 percent.

**4.2 Factors associated with desire for additional children**

In this section, factors associated with desire for more children are discussed. Table 4.2, summaries the percentage distribution of currently married women in both provinces by desire for more children and demographic, socio-economic and socio-cultural variables together with the chi-square test statistics.

Results in the table 4.2 below show that desire for additional children is related significantly to the number of living children. For currently married women in both provinces about 95 percent in Central province and about 97 percent in Coast, who have no children want to continue childbearing. Generally it follows that at lower parities, the proportion of women who want more children dominates, while at higher parities, the proportion of women who do want any more children dominates.

However there are significant differences between the two provinces pointing to a stronger desire for additional children in Coast province than in Central province. For instance a bigger proportion of women with four or more children in Coast province (about 28 percent) as opposed to about 5 percent in Central province desire to have an additional child. For women with 1 –3 children about 52 percent desire an additional child in Central province and about 69 percent desire an additional child in Coast province. The results of the chi-square test for both provinces indicate that the association between desire for more children and the number of living children in a family is significant at the 5 percent significance level.

Table 4.2

**Percentage distribution of desire for additional children by demographic, socio-economic and socio-cultural variables of currently married women, Central and Coast provinces.**

| Independent Variables | Desire for additional children | |
|---|---|---|
| | Central province | Coast province |
| Number of living children | | |
| None | 95.4 | 97.4 |
| 1 –3 | 51.8 | 68.6 |
| 4+ | 5.2 | 28.3 |
| | df = 2 | df = 2 |
| | $X_2$ = 142.5 p =0.00 | $X_2$ = 162.9 p=0.00 |
| Number of living sons | | |
| None | 81.2 | 85 |
| 1 – 2 | 32.6 | 55.3 |
| 3+ | 3.6 | 27.1 |
| | df = 2 | df = 2 |
| | $X_2$ = 130.4 p =0.00 | $X_2$ = 119.9 p =0.00 |
| Current age of respondent | | |
| <25 | 74.7 | 82.7 |
| 25-34 | 40.7 | 57 |
| >35 | 6.8 | 32.1 |
| | df = 2 | df = 2 |
| | $X_2$ = 128.8 p =0.00 | $X_2$ = 122 p =0.00 |
| Child loss experience | | |
| Never experienced | 36 | 49.7 |
| Experienced loss | 22.6 | 58.1 |
| | df = 1 | df = 1 |
| | $X_2$ = 3.6 p =0.055 | $X_2$ = 3.86 p =0.050 |
| Education level | | |
| No education | 14.3 | 57.9 |
| Primary education | 33.2 | 56 |
| Secondary + | 41 | 52.9 |
| | df = 2 | df = 2 |
| | $X_2$ = 7.9 p=0.019 | $X_2$ = 0.96 p =0.618 |
| Work status | | |
| Not working | 35.8 | 59 |
| Working | 32.7 | 51.4 |
| | df = 1 | df = 1 |
| | $X_2$ = 0.49 p =0.484 | $X_2$ = 4 p=0.135 |
| Place of Residence | | |
| Urban | 42.9 | 53.4 |
| Rural | 33.9 | 57.9 |
| | df = 1 | df = 1 |
| | $X_2$ = 0.94 p =0.332 | $X_2$ = 1.4 p =0.231 |
| Religion | | |
| Catholic | 32.9 | 54.4 |
| Protestant | 35 | 47.8 |
| Muslim | 33.3 | 63.2 |
| Other | 40 | 63.9 |
| | df = 3 | df = 3 |
| | $X_2$ = 0.27 p =0.965 | $X_2$ = 15.2 p –0.002 |

Source: Computed from the KDHS 1998

The data also show that the association between desire for more children and number of living sons exists in both provinces. More than 81 percent of currently married women in Central province who have no sons want to continue childbearing while the corresponding percentage in Coast province is 85 percent. For currently married women in Central province with 1 –2 and three or more sons, the proportions who desire more children are 33 percent and 3.6 percent respectively. For Coast province the proportions of women with 1-2 and 3 or more sons who desire more children are significantly higher. The corresponding proportions of currently married women in Coast province with 1 –2 and 3 or more sons are about 55 and 27 percent respectively.

It is evident from Table 4.2 that younger women in both provinces are likely to desire more children than older ones. Among currently married women below 25 years old, about 75 percent in Central province desire to have additional children. While in Coast province we found that about 85 percent desire to have additional children. The inverse relationship between desire for more children and age is further revelled in that in Central province, of the proportion currently married women are 35 years of age and older, only 6.8 percent desire additional children. While in Coast province we found that about 32 percent desire an additional child. Thus more currently married women in Coast province who are 35 years of age or older desire additional children than in Central province. The relationship between desire for additional number of children and age was found to be significant in both provinces.

Women who have experienced child loss in their reproductive career are expected to desire to continue childbearing than their counterparts who have had no experience of child loss at all due to the fact that the former tend to ensure their family's survival by having as many children as possible. Data results in Table 4.2, however, do not support this. The proportion of women in Central province who want to have more children is higher among women who have never experienced child loss, which is 36 percent, compared to about 23 percent who have experienced child loss. In Coast province however the expected relationship holds the proportion of women who want

to have more children among women who have never experienced child loss is about 50 percent. In Coast province the respective proportion is about 58 percent. The results of chi-square analysis indicate that the association between desire for more children and child loss experience is significant at 0.1 confidence level in Central province and 0.05 in Coast province.

The association between education level of wife and desire for more children is shown in the table. Generally, women with no education achievement are expected to desire more children than women with primary and secondary education. However from the cross tabulation in Table 4.2, the results show that for currently married women in Central province this is not the case. The proportion of currently married women in the province who desire more children is higher among women with secondary education than women with no education. The respective proportions are 41 and 14.3 percent. The inverse pattern though is seen in Coast province the proportion of currently married women who desire more children is about 58 percent for women with no education and about 53 percent for women with secondary and more education. Results of the chi-square analysis for both provinces show that the relationship between desire for more children and education level of wife is significant in Central province but not significant in Coast province.

The association between work status of a woman and desire for more children is inverse. Other things being equal, a working mother is more likely to stop childbearing than a mother not working due to a higher opportunity cost incurred by the former in childbearing and child rearing process. Data from both provinces appear to support this hypothesis. In Central province the proportion of currently married women who are not working and desire additional children is about 36 percent, while the proportion of those women who are working and desire additional children is about 33 percent. The corresponding figures for Coast province are 59 and 51 percent respectively. Results of chi-square analysis for both provinces show that there is no significant association between desire for more children and work status of wife.

Table 4.2 reveals that a larger proportion of rural than urban women in Central province wants to stop childbearing. About 66 percent of currently married women living in rural areas in Central province want no more children compared to 57 percent in urban areas of the province. The situation is a bit different in Coast province where about 47 percent compared to about 42 percent living in rural areas want to stop childbearing. In terms of desire for more children, in Central province, a larger proportion of urban women than rural women desire more children. The opposite is true of Coast province. Results of chi-square analysis show that there is however no significant relationship between place of residence and desire for more children, in both provinces.

A cross tabulation of women's desire for more children by their religious status reveals that in Central province there is no significant relationship between religious status with desire for more children. However in Coast province, the results in Table 4.2 reveal that Muslims and currently married women who religions status is other are more pro-natalist. While Christian women (Catholics and Protestants) are least pro-natalist. About 63 percent of currently married women in Coast province that are Muslims desire more children compared to about 49 percent of currently married women who are Protestants. Results of the chi-square analysis reveal that for Coast province there is a significant association between religion and desire for more children.

## Chapter Five

# SOME CORRELATES OF DESIRE FOR ADDITIONAL CHILDREN IN CENTRAL AND COAST PROVINCES

### Introduction

In this chapter the results of the logistic regression analysis are discussed and then the correlates of desire for more children in the provinces are compared based on the results obtained in the proceeding analysis.

### 5.1 Some correlates of desire for additional children; Coast and Central province

#### 5.1.1 Correlates of desire for additional children, Coast province

For Coast province out of the eight basic variables introduced into the regression equation, three variables failed to be significantly associated with desire for additional children at 1, 5 and 10 percent level significance. These variables are child loss experience, religion and work status of wife. All the dummies that represented these three variables are not significantly different from their respective reference categories i.e. all categories of women in these variables have the same likelihood of desire to have more children and hence for women in Coast province desire for more children does not significantly covariate with childless experience, religion and work status of wife (Table 5.1).

The remaining five variables were found to be significantly associated with a woman's desire for additional children. These variables are the number of living children, number of living sons, current age of wife, education level of wife and current place of residence. The dummy variables representing these variables were found to be significantly different from their corresponding reference categories implying that the likelihood of desire for another child significantly covariates with these variables.

**Table 5.1**

**Logistic regression coefficients of some correlates of desire for more children, Central province and Coast province 1998**

| Correlates | Central Province | | | Coast Province | | |
|---|---|---|---|---|---|---|
| | Coefficient | Std. Err. | Odds Ratios | Coefficient | Std. Err. | Odds Ratios |
| Number of living children 1 (ref) | | | 1.00 | | | 1.00 |
| Number of living children 2 | 17.753 | .1579447 | .1416256** | -3.001 | .07677775 | .1000949** |
| Number of living children 3 | -3.190 | .0283694 | .243629*** | -4.496 | .0209594 | .257542*** |
| Number of living sons 1 (ref) | | | 1.00 | | | 1.00 |
| Number of living sons 2 | -4.089 | .081693 | .2211143** | -2.341 | .145932 | .5152162** |
| Number of living sons 3 | -4.128 | .0434355 | .0659467** | -2.839 | .1294695 | .3518046** |
| Age 1 (ref) | | | 1.00 | | | 1.00 |
| Age 2 | -2.762 | .1325365 | .4047478** | -1.645 | .1692638 | -6527137** |
| Age 3 | -4.986 | .0439621 | .091772** | -4.167 | .0856306 | .2815036** |
| Child loss experience 1(ref) | | | 1.00 | | | 1.00 |
| Child loss experience 2 | 0.959 | .92355845 | 1.689536 | -0.695 | .1928307 | 8548915 |
| Education 1 (ref) | | | 1.00 | | | 1.00 |
| Education 2 | -1.161 | .3165752 | .3553504 | -2.152 | .1340808 | .5291145** |
| Education 3 | -0.915 | .3962118 | .4313653 | -2.296 | .1509707 | .4997954** |
| Work status 1 (ref) | | | 1.00 | | | 1.00 |
| Work status 2 | 0.039 | .2742016 | 1.010756 | -0.468 | .18303281 | .9115089 |
| Residence 1 (ref) | | | 1.00 | | | 1.00 |
| Residence 2 | 1.802 | 1.522725 | 2.731428** | 4.351 | .5484282 | 2.549468** |
| Religion 1 (ref) | | | 1.00 | | | 1.00 |
| Religion 2 | 0.416 | .3376049 | 1.132223 | -0.105 | .2043046 | .73558455 |
| Religion 3 | -0.082 | 1.056977 | .985963 | 1.627 | .4786153 | 1.617947 |
| Religion 4 | -0.206 | .8743255 | .7984696 | 0.935 | .4980075 | 1.396109 |

Note: level of significance: *p<0.10; **p<0.05; ***p<0.01.

Source: Computed from the 1998 KDHS data set.

Actual number of living children in a family is significantly associated with a woman's desire for more children in Coast province. The results of the logistic regression show that in this province, women with 1 – 3 children and 4 are more likely to desire to stop childbearing (that is less likely to desire to have more children) as compared with the reference category which consists of women with no children at all. The probability that a woman with 1-3 children (NCHILD2) and one with 4 or more children (NCHILD3) selected at random would desire to have more children is 0.1 and 0.03 times that of a woman with no children at all. These figures represent a decrease in the odds of desire for more children by 9 percent and about 97 percent for a woman with 1-3 children and 4 or more children respectively. The results obtained here are consistent with the results of the descriptive analysis in this study and findings of previous related studies (Khan and Sirageldin, 1977, Poedjastoeti and Hatmadji, 1991; Kim and Choi, 1981).

Results of the logistic regression indicate that in Coast province a woman's desire for additional children is significantly associated with the number of living sons she already has. Like actual number of children, all the dummy variables designating number of sons are significant at 5 percent level of significance. A woman who has 1-2 sons (NLSONS2) and one with 3 or more sons (NLSONS3) are about 0.52 and 0.35 times as likely to desire more children as a woman with no living sons at all (reference category). In other words, the odds of desire for more children for Coast province women with 1-2 sons are 3 or more sons are reduced by 48 percent and 65 percent respectively. These results reflect African values of son preference and are similar to other studies such as (Khan and Sirageldin, 1977, Kim and Choi, 1981).

Current age of wife (AGE) is another important variable that bears a significant association with her desire for more children in Coast province. The two dummy variables AGE2 and AGE3 are found to be significant at 5 percent level of significance. The probability that a woman aged 25-34 years and 35 years or over selected at random would desire to have more children is about 0.65 and 0.28 times that of a woman aged less than 25 years. In other words, the odds of desire for more

children are reduced by 35 and 72 percent for women aged 25-34 years and 35 years and over respectively. The results obtained here are in conformity with the results of the descriptive analysis and findings of previous related studies (Kim and Choi, 1981).

Education level of wife (WEDUC) is also another important variable that bears a significant association with her desire for more children in Coast province. The two dummy variables WEDUC2 (primary education) and WEDUC3 (secondary education) were found to be significant at 5 percent level of significance. That probability that a woman primary level of education and secondary level of education or over selected at random would desire to have more children is about 0.53 and 0.50 times that of woman with no education. In other words, the odds of desire for more children is reduced by 47 and 50 percent for women with primary level of education and secondary + level respectively. The results obtained here are in conformity with the results of the descriptive analysis and findings of previous related studies (Kim and Choi, 1981; Bulatao and Fawcett, 1983).

In Coast province a woman's current place of residence significantly influences her desire for children. The results of the logistic regression show that a woman residing in an urban area is likely to desire more children than one residing in rural are in this province. The likelihood that a rural woman would desire more children is about 2.54 times that of an urban woman. This represents an increase in the odds of desire for more children by 146 percent. The results are as expected and are in conformity with the results of the descriptive analysis and findings of previous related studies (Paedjastoeti and Hatmadji, 1991, Khan and Sirageldin, 1977).

To sum up, it emerges from the results that actual number of children, number of living sons, current age of wife and her level of education are all negatively associated with desire for more children. Desire for more children was also found to significantly vary with place of residence. Thus, the hypothesized association of desire for more children with these variables in this study is confirmed. On the other hand, child loss experience and work status of wife do not significantly covariate with desire for more

children and hence, the hypothesized association of desire for more children with variables is not confirmed.

### 5.1.2 Some correlates of desire for additional children, Central province

In Central province, out of the eight basic variables introduced into the regression equation five variables failed to be significantly associated with desire for additional children at 5 percent level of significance. These variables are child loss experience, religion, work status of wife, and wife's education. All the dummies that represented these four variables are not significantly different from their respective reference categories, i.e. all categories of women in these variables have the same likelihood of desire to have more children and hence desire for more children does not significantly covary with experience, religion, work status of wife, wife's education and residence.

The remaining four variables were found to be significantly associated with woman's desire for additional children. These variables are the number of living children, number of living sons, current age of wife and residence. The dummy variables representing these variables were found to be significantly different from their corresponding reference, categories implying that the likelihood of desire for another child significantly covaries with these variables.

As in Coast province, the Central province results of the logistic regression show that women with 1-3 and 4 or more children are likely to desire to stop childbearing (that is less likely to desire to have more children) as compared with the reference category, which consists of women with no children at all. The probability that a woman with 1-3 (NLCH2) and 4 or more children (NLCH3) selected at random would desire to have more children is 0.14 and 0.02 times respectively that of a woman with no children at all. This figure represents a decrease in the odds of desire for more children by about 86 and 98 percent for a woman with 1-3 and 4 or more children respectively. The results obtained here are consistent with the results of the descriptive analysis and findings of previous related studies (Khan and Sirageldin, 1977; Poedjastoeti and Hatmadji, 1991; Kim and Choi, 1981).

Woman's desire for additional children is significantly associated with the number of living sons she already has in Central province. All the dummy variables designating number of sons are significant at 1 percent level. A woman who has 1-2 sons (NLSONS2) and one with 3 or more sons (NLSONS3) are about 0.08 and 0.04 times as likely to desire more children as a woman with no living sons at all (reference category). In other words, the odds of desire for more children for women with 1-2 sons and 3 or more are reduced by 92 percent and 96 percent respectively. These results reflect African values of sons, preference are in conformity with the results of the descriptive analysis and findings of previous related studies (Khan and Sirageldin, 1977; Kim and Choi, 1981).

Current age of wife (AGE) is another important variable that bears a significant association with her desire for more children in Central province. The two dummy variables AGE2 (25-34 years) and AGE3 (35 years and over) are found to be significant at 1 percent level of significance. The probability that a woman aged 25-34 years and 35 years or over selected at random would desire to have more children is about 0.40 and 0.09 times that of a woman aged less than 25 years. In other words, the odds of desire for more children is reduced by 60 and 91 percent for women aged 25 – 34 years and 35 years and over respectively. The results obtained here are in conformity with the results of the descriptive analysis and findings of previous related studies (Kim and Choi, 1981).

In Central province a woman's current place of residence significantly influences her desire for more children. The results of the logistic regression show that a woman residing in an urban area is less likely to desire more children than one residing in a rural area in this province. The likelihood that a rural woman would desire more children is about 1.52 times that of an urban woman. This represents an increase in the odds of desire for more children by 48 percent. The results are as expected and they are in conformity with the results of the descriptive analysis and findings of previous related studies (Poedjastoeti and Hatmadji, 1991; Kahan and Sirageldin, 1977).

To sum up, it emerges from the discussion that actual number of children; number of living sons and current age of wife are all negatively associated with desire for more children. Desire for more children was also found to significantly vary with place of residence. Thus, the hypothesized association of desire for more children with these variables in this study is confirmed. On the other hand, child loss experience and work status of wife and education level of wife do not significantly covariate with desire for more children and hence, the hypothesized association of desire for more children with these variables is disconfirmed this case.

Table 5.2 below shows a third model whereby data from the 2 provinces is combined and a province variable is introduced. The main finding is the significance of the province variable. This implies that the inclusion of the independent variables analysed in this study does not completely explain the differences in the desire for additional children between the two provinces and hence suggests the omission of several unmeasured variables. The inclusion also produces an interesting finding in that one of the dummy variables representing religion is found to be significant at 0.05 percent confidence level. Thus the probability that a Muslim woman would desire an additional child is about 1.87 times that of a woman confessing to the Catholic faith (the reference). In other words, the odds of desire are increased by 87 percent for women belonging to the Muslim faith. This maybe attributed to the fact that the combination of the two populations introduces more religious variation.

**Table 5.2**

**Correlates of desire for more children; both Central and Coast provinces, with a discrete province variable as one of the control variables.**

| Correlates | Both regions | | |
|---|---|---|---|
| | Coefficients | Std. Err | Odds Ratios |
| Number of living children 1 (ref) | | | 1.00 |
| Number of living children 2 | -3.252 | .081158 | .1287679** |
| Number of living children 3 | -5.242 | .0207091 | .313528** |
| Age 1 (ref) | | | 1.00 |
| Age 2 | -2.984 | .1106232 | .5467368** |
| Age 3 | -6.572 | .0483624 | .1935587** |
| Child loss experience 1 (ref) | | | 1.00 |
| Child loss experience 2 | -0.550 | .1835317 | .8932291 |
| Education 1 (ref) | | | 1.00 |
| Education 2 | -3.415 | .105879 | .4381338** |
| Education 3 | -2.785 | .1276654 | .4670676** |
| Work status 1 (ref) | | | 1.00 |
| Work status 2 | -0.457 | .1452905 | .9311319 |
| Residence 1 (ref) | | | 1.00 |
| Residence 2 | 5.032 | .5547968 | 2.754938** |
| Number of living sons 1 (ref) | | | 1.00 |
| Number of living sons 2 | -4.585 | .0802039 | .3590686** |
| Number of living sons 3 | -5.019 | .066211 | .21842** |
| Religion 1 (ref) | | | 1.00 |
| Religion 2 | -0.474 | .1176829 | .9117448 |
| Religion 3 | 2.387 | .4970791 | 1.879811** |
| Religion 4 | 1.502 | .5153114 | 1.614849 |
| Region 1 (ref) | | | 1.00 |
| Region 2 | 4.982 | .5107571 | 2.63066** |

Note: level of significance: *p<0.05; **p<0.01.

Source: Computed from the 1998 KDHS data set.

This study has fulfilled the objectives of identifying the demographic, socio-economic, and socio-cultural correlates desire for additional children. In the following chapter recommendations are made on the basis of the finding of the study.

## Chapter Six

# CONCLUSION AND RECOMMENDATIONS

In this chapter, an attempt is made to summarize the findings of the study and presents recommendations based on these findings.

### 6.1 Summary

This study examined the factors associated with desire for additional children in Coast and Central provinces. These are the provinces in Kenya recording the highest and the lowest percentages of women who want no more children. In an attempt to determine factors responsible for this situation, this study investigated the relationships between desire for more children and socio-economic, cultural and demographic characteristics of women from the two provinces interviewed in the 1998 Kenya Demographic and Health Survey.

The dependent variable, fertility preference, is represented by the variable desire for more children, and the following variables were hypothesized to be associated with it: the number of living children, number of living sons, current age of wife, child loss experience, education level of wife, work status of wife, current place of residence, and religion.

Both descriptive and inferential statistical techniques of analysis, i.e. cross tabulation analysis, and logistic regression, were utilized.

The results of the descriptive analysis reveal that currently married women in Central province are the least likely to desire additional children compared to currently married women in Coast province. In Central province, about two thirds (66%) of currently, married women responded that they did not desire an additional child, while in Coast province this figure was 44%. The study also reveals more differences persisting between the two provinces even when we adjust for the number of living children,

number of living sons, and age of the wife, pointing to a stronger desire for additional children in Coast than in Central province. For instance, a larger proportion of women with four or more children in Coast province (about 28 percent) as opposed to about 5 percent in Central province desire to have an additional child. For women with 1-3 children about 52 percent desire an additional child in Central province and about 69 percent desire an additional child in Coast province.

For Coast province, out of the eight basic variables introduced into the regression equation, three variables failed to be significantly associated with desire for additional children at 1, 5 and 10 percent level of significance. These variables are child loss experience, religion and work status of wife. The remaining five variables were found to be significantly associated with a woman's desire for additional children. These variables are the number of living children, number of living sons, current age of wife, education level of wife and current place of residence. In Central province, out of the eight basic variables introduced into the regression equation, five variables failed to be significantly associated with desire for additional children at 5 percent level of significance. These variables are child loss experience, religion, work status of wife, and wife's education. The remaining four variables were found to be significantly associated with woman's desire for additional children. These variables are the number of living children, number of living sons, current age of wife and residence.

### 6.2 Conclusion

The underlying theme of this study is that there are differences in desire for additional children for women in Central and Coast provinces. As expected because of the inherently differing background factors in both provinces, the results of the descriptive analysis reveal that currently married women in Central province are the least likely to desire additional children compared to currently married women in Coast province. In Central province about two thirds (66%) of currently married women responded that they do not desire an additional child, while in Coast province this figure drops to 44%. This holds truth even after adjusting for the number of living children, number of living sons and age.

Table 4.2 showed that desire for additional children decreases as women age, it as also decreases as the number of living children and the number of the living sons a woman has increases, for both provinces. All of these variables are significant in the logistic regression models for both provinces.

However, differences between the two provinces are apparent when we look at proportions of women who desire additional children within the respective categories of the above 3 variables. For instance, a larger proportion of women with four or more children in Coast province (about 28 percent) as opposed to about 5 percent in central province desire to have an additional child. For women with 1-3 children about 52 percent desire an additional child in Central province and about 69 percent desire an additional child in Coast province. For currently married women in Central province with 1-2 and three or more sons, the proportions of women who desire more children are about 33 percent and about 4 percent respectively. For Coast province the proportions of women with 1-2 and 3 or more sons who desire more children are higher. The corresponding propositions of currently married women in Coast province with 1-2 and 3 or more sons are about 55 and 27 percent respectively.

The same trend is evident when we compare desire for additional children adjusting for age. Desire for additional children decreases as age increases in both provinces but as Table 4.2 shows among currently married women below 25 years old, about 75 percent in Central province desire to have additional children. While in Coast province it was found that about 83 percent desire to have additional children. For women aged between ages 25 and 34 years about 41 percent desire an additional child in Central province, while for Coast province the figure is 57 percent. The difference is even greater when we compare women from the two provinces who are over 35 years, for Central province only about 7 percent desire an additional child for Coast province the figure is 32 percent.

Focusing on the main theme of the study, the remaining part of this section, will try to explain these differences in desire for additional children in terms of the socio-economic and socio-cultural factors and their effects on desire for additional children in both provinces.

### 6.2.1 Education

Women in Central province are more educated than women in Coast province. A large majority of currently married woman in Central province have some education with only 6 percent having no education. This is not so in the case of Coast province where more than a third of all currently married women have no education at all. About 63 percent of currently married women in Central province have primary school education, while about 31 percent of women in the same province have secondary school education. For Coast province, about 45 percent of currently married have primary education, while about 22 percent have some secondary education.

Generally, women with no education achievement are expected to desire more children than women with primary and secondary education (Khan and Sirageldin, 1977; Kim and Choi, 1981). However, the bivariate results show that for currently married women in Central province this is not the case. The proportion of currently married women in the province who desire more children is higher among women with secondary education than women with no education. The respective proportions are 41 and about 14 percent. This positive relationship between education and desire for additional children might have been caused through the effects of education on wife's income, since higher income could result in couple's ability to afford more children. Poedjastoeti and Hatmadji (1991) in their study in Indonesia also found out that the percentage of women wanting to terminate childbearing decrease as education level of a woman increases. Another explanation in this could be due to differences in age of women with different educational levels. Women in Central province with no or low education are old and have probably finished their childbearing and hence do not desire additional children. On the other hand more of the women with secondary education

are young and still in their childbearing ages, and therefore are likely to desire more children.

The inverse pattern, though, is seen in Coast province where the proportion of currently married women who desire more children is about 58 percent for women with no education and about 35 percent for women with secondary and more education. This means that as the level of education increases, desire for additional children decreases.

Further, differences occur between the two provinces in that education is not significantly associated with desire for additional children at the multivariate level in Central province but is significantly associated in case of Coast province. Although some authors have found the relationship between education and desire for additional children being weak, non-existent and not being linear (see Westoff 1991 and Dow 1981), we feel that in this case, because of the differing socio-economic and socio-cultural differences between the two provinces, it is plausible that the different effects of education on the desire for additional children in the two provinces can be explained.

With the introduction of education in the early years of development, a few years of education would be accompanied by a rise in fertility. The stage of development in a country is represented by the situation of older women or by the less educationally developed parts of a country, such as the Coast province in Kenya. During this stage at least secondary school education is needed for a woman to desire a small family size, hence the expected relationship between education and desire for additional children in this study.

However as education spreads and gains ground in a community, even women with a few years of education start to adopt the same family size ideals as women with at least secondary education. Consequently, the fertility desires of women with some education starts to decrease. This stage is represented by areas in this country, which are more educationally developed, such as Central province. During this transitional

period, fertility desires of women with some education may be found to be similar to those with no education. Therefore education stops being a major factor determining, fertility desires.

### 6.2.2 Working status and residence

The association between work status of a woman and desire for more children is inverse. Other things being equal, a working mother is more likely to stop childbearing than a mother not working due to a higher opportunity cost incurred by the former in childbearing and child rearing process. Data from both provinces appear to support this hypothesis. In Central province the proportion of currently married women who are not working and desire additional children is about 36 percent, while the proportion of those women who are working and desire additional children is about 33 percent. The corresponding figures for Coast province are about 59 and 51 percent respectively.

Table 4.1, on the distribution of the study population shows that Central province is largely rural in terms of residence, while because (Mombasa town was included in the DHS sampling for Coast province). Coast province has a sizeable population that is urbanised. It has a large minority of all currently married women residing in urban areas (41 percent), compared to Central province where a mere 6 percent of currently married women population is residing in urban areas.

Descriptive analysis in this study reveals that a large proportion of rural than urban women in Central province want to stop childbearing. About 66 percent of currently married women living in rural areas in Central province want no more children compared to about 57 percent in urban areas of the province. The situation is a bit different in Coast province where about 47 percent of women living in urban areas compared to 45 percent living rural want to stop childbearing. In terms of desire for more children, in Central province, a larger proportion of urban women than rural women desire more children. These results confirm other similar results in the KDHS series of studies 1989, 1993 and 1998 where larger proportions of women who desire

to stop childbearing were found in rural areas. This is as a result of the fact that greater percentage of rural women have more children than urban women and the proportion of women wanting no more children rises with the number of living children. Both variables however are not significant at the bivariate level for the two provinces but at the multivariate level place of residence is significant in both provinces.

The relationship between work status of wife and desire for additional children is not statistically significant both at the bivariate and multivariate level. This largely means that the relationship between the desire for additional children and working of women in the two provinces is the same. This finding is particularly relevant as it confirms results of the previous studies in the country that there is no major conflict between a woman's ability to work and at the same time raise a family (Anker and Knowles, 1982).

However, at the multivariate level, the relationship between desire for additional children and working status of wife, though not significant, is positive for Central province by negative for Coast province. Henin and Jain (1987), in their study of impact of development on fertility in rural Kenya using multiclasification analysis, argue that in rural Kenya, higher economic status is associated with higher fertility and that the poor in the country do not have more children. As Table 4.1 shows, majority of women in Central province are living in rural areas and if we take working status of the wife as a crude indicator of economic status, then the finding that the working status of wife is positively associated with desire for additional children becomes relevant. In contrast a larger proportion of women in Coast province are in urban areas and hence the negative relationship between desire for additional children and working status of wife.

### 6.2.3 Religion

The majority of currently married women in Central province are Christians with Catholics constituting 29 percent while Protestants form about 69 percent. In Central province, however, the distribution of respondents by religion is somewhat more

diverse, with Protestants forming the majority of 39 percent, followed by Muslims who form about 29 percent and Catholics making 14 percent. There is also a sizeable proportion of respondents in Coast province who are neither Muslims nor Christians (about 19 percent) as compared to Central province, where those who are neither Muslims or Christians are a negligible 1 percent.

At the bivariate and multivariate levels, the association between religion and desire for additional is not statically significant in Central province. However in Coast province, the results of the bivariate analysis reveal that Muslim women and currently married women whose religious status is 'others' are more pronatalist, while Christian women Catholic and Protestants) are least pronatalist. About 63 percent of currently married women in Coast province who are Muslims desire more children compared to about 48 percent of currently married women who are Protestants. The association between desire for additional children and religion is significant at the bivariate level in Coast province unlike in Central province. However it is not significant at the multivariate level in both provinces, but significant when both models for the two provinces are combined, which can be explained by a more divergent background factors in the two provinces as opposed to individual provinces.

The above findings show that religious differences of fertility and fertility preferences in a given society are more likely to narrow down with changes in socio-economic, demographic and socio-cultural environments in society. Over the last quarter of a century, differentials of the 3 major religious groups in the United States have narrowed. By 1982, the total number of births expected among white Protestant women aged 15-44 was 2.3, only 0.3 children fewer among comparable Catholics and 0.2 greater than among Jews with even smaller differences when adjustments are made for education, marital status and age (Mosher and Bacharach, 1987). These relatively smaller differences in birth expectations, contrast sharply with research findings in the 1950's showing that religious affiliation was the most important determinant of birth expectation and family planning practices. (Freedman et al., 1959; Mosher et al., 1987).

## 6.3 Recommendation for policy and further research

### 6.3.1 Recommendation for policy

The second specific objective of this study is to make recommendations to policy makers and other relevant organs in Kenya based on the results of this study.

This study has found out that there are differences in desire for additional children between the two provinces and therefore the programs and policies need to be focused and tailor made in the light of the relevant factors for the two provinces.

In Central province, the study found out that the most important factors in determining a woman's desire for more children are her number of living children, number of living sons, age, and residence. These were the most significant factors out of the ones hypothesized to affect desire for additional children in the province. There may be other factors that might explain variations in the desire for additional children for the province but they were not tested in this study.

In this province, policy planners should focus on policies relating to the promotion of information, education and communication. These programmes are essential and play an increasingly influential role in building awareness of population and other development issues and enable individuals to better understand and participate more effectively in the decision making process of their families.

These I.E.C, messages are particularly important in both provinces, as the demographic factors such as age, numbers of living children, and number of living sons have been found to be important in determining desire for additional children.

It is also believed that such population education programmes could be accompanied by dissemination of knowledge about fertility regulation, promotion of more conducive and favourable attitudes to the use of contraceptive techniques and improving

accessibility to a wide range of fertility regulation means, for better results in affecting fertility behaviour and attitudes.

For Coast province more factors were found to be important in explaining desire for more children, including, mother's education, residence, number of living children, number of living sons, and age. The education level of wife in Coast province is significantly associated with her desire for another child. In this province about a third of all women interviewed have no education at all and this situation needs to be addressed. Educated women are by far likely to desire more children in the future. This calls for an increasing emphasis in the investment on women in the province. More than any other investment, the education of girls and women is key to enhancing their status and critical to the development process of a nation. The empowerment of women through education, access to employment and health care and changes in legal system favourable to women is among the goals set forth in the programme of action adopted at the International Conference on Population and Development (ICPD) in Cairo. A healthy and educated woman is better able to participate in the development of her community and more likely to make or influence decisions about childbearing and other related activities.

Enhancing enrolment of the female child at early stages of the education cycle serves as a wider base for higher number of female candidate at advanced levels of the education cycle. More over such formal education programmes should be promoted hand in hand with non-formal education and training programmes that provide specialized skills and training to illiterate and poorly educated women of childbearing age. Such measures of enhancing education and skills of women should in turn be accompanied by more chances for women to engage in gainful employment, both in the government and private sectors of the economy.

Investing in women, however, means more than just providing them with education and employment. It means removing the barriers that prevent women from realizing their full potential and recognizing their roles as vital and valuable members of society.

### 6.3.2 Recommendations for further research

The following are recommended for further research;

Due to limitations such as time and funds, among others, this study was restricted to the use of secondary data. There is a need for such kind of study to be conducted through the collection of data targeted at testing specific sypotheses. Such a study can be useful in singling out the relevant demographic, socio-economic and socio-cultural characteristics that affect fertility preference at the micro-level and can lend itself for relevant policy formulation to influence fertility attitudes and behaviour at the grass root levels.

Inspite of the fact that various explanatory variables were taken into account in investigating the correlates of desire for additional children in this study, they did not fully explain all the variation, in desire for additional children, in the two provinces. This is due to the fact that such attitudinal responses are often shaped by a multitude of factors of which, socio-economic and demographic factors are only few of the correlates. It is therefore recommended that future research on fertility attitudes and behaviour incorporate the norms and value systems which bear an effect on the decision making process of reproducing couples including cultural pressures, peer group norms and the like and adopt research/sampling strategies which incorporate these considerations.

This study investigated fertility preference using woman's responses to questions on desire for more children. A similar study can also be conducted basing on responses of husbands especially in developing countries like Kenya, were fertility decision-making is dominated by husbands rather than their wives.

The data used in this study have been cross-sectional. The study has not followed individuals throughout their fertility career to see how preferences are actually implemented into actual fertility performance. Longitudinal analysis is therefore

essential, as it would provide important additional evidence on the degree of such changes and the factors involved in them.

**BIBLIOGRAPHY**

Abdalla, A. A. 1988.
Work experience of married women and desired fertility in Egypt and Ghana. Cairo demographic centre. Research monograph series 17 (293-315). Cairo.

Angawa, P. 1990.
Impact of age at first birth and age at first marriage on fertility in Kenya. Msc thesis, University of Nairobi.

Anker R. and J.C. Knowles. 1982.
Fertility determinants in developing countries. A case study of Kenya. Ordina editions. Belgium.

APPRC, 1998.
Fertility Decline in Kenya: Levels, Trends and differentials. African population policy research centre. Nairobi.

Arnold, F. 1975
The value of children. A cross national study. Vol 1. Introduction and comparative analysis. Education resources information centre, Washington.

Asikpata, F. O. 1988.
Determinants of family size preferences in Ghana. Cairo demographic centre. Research monograph series 17 (481-512). Cairo.

Ayayo Ocholla, A.B.C. 1988.
Socio-cultural environment and family planning in Kenya. A paper presented at the Dakar Colloquium of information, education and communication in family planning in Africa. Dakar. Senegal.

Ayehu, T. Y. 1998.
Correlates of fertility preference of Kenyan women: Evidence from the 1993 Kenya demographic and health survey. Unpublished Msc thesis. University of Nairobi.

Bairagi, and R. L. Langsten. 1986.
Sex preference for children in rural Bangladesh. *Studies in Family Planning* 17 (6): 302-307.

Bankole, A and Westoff, C.F. 1998
Childbearing and intentions. DHS comparative studies 17. Macro International Inc. Calverton, M.D.

Brass, W and Jolly, L.C 1993
Population dynamics of Kenya. National academy press. Washington D.C

Becker, G. S. 1960.
An economic analysis of fertility, demographic and economic change in developing countries. University's national bureau committee for economic research.

Bulatao, R.A. and Fawcet, J. T. 1983.
Influence on childbearing intentions across the fertility career; demographic and social economic factors and the value of children. East West Centre, Honolulu.

Bulatao, R.A 1981.
Values and dis-values of children in successive childbearing decisions. *Demography* 18 1-26.

Caldwell, J.C. 1968.
Population growth and family change in Africa. The new urban elite in Ghana. Australia national university press. Canberra. Australia.

Chanaka, T.T. 1988.
The effects of child loss experience on fertility preference and regulation. A comparative study based on WFS data for Egypt, Ghana and Lesotho. Cairo demographic centre. Research monograph series, 17 (451-479). Cairo.

Central Bureau of Statistics (CBS), 1980.
Kenyan Fertility Survey 1977/78. First Report. Ministry of economic planning and Development. Nairobi. Kenya.

Central Bureau of Statistics (CBS), 1984.
Kenya contraceptive prevalence survey 1984. First report. Ministry of planning and national development. Nairobi. Kenya.

Choe, M.K., Fei, WU. J. and Zhang. R. 1992.
Progression to second and third births in China: Patterns and covariates in six provinces. *International family planning perspectives.* Dec 18(4): 130-136, 149

Cheland, J. et al., 1983
Preferences for sex of children and their influence on reproductive behaviour. WFS comparative studies no. 27, cross-national summaries. International statistical Institute. Voorburg, Netherlands.

Cheland, J. and Wilson, C 1987.
Demand theories of fertility transition; an iconoclastic view. *Population Studies* 41: 5-30.

Cochrane S. H. 1979.
Fertility and education: what do we really know? John Hopkins University Press. World bank staff occasional papers (no. 26). Washington DC.

Deeb, B.E. 1988.
Quantitative analysis of the relationship between child mortality and fertility in Egypt, Sudan, Kenya and Lesotho. In african population conference, IUSSP, Dakar. Vol. 2.

Demeney, P 1988.
Social science policy. *Population development Review*. 14 451-479.

De Silva, W.J. 1991
Consistency between reproductive preference and behavior: The Sri Lankan experience. *Studies in Family Planning* 22(3): 188-197.

Dow, T.E. and Werner I.H. 1981.
Perceptions of family planning among rural Kenyan women. *Studies in Family planning* 14 (2): 35-43

Easterlin, R.A. 1973.
An economic framework for fertility analysis". *Studies in Family planning*, 6 (3).

Embanks, G.E. 1985.
Infant and child mortality and fertility in Trinidad and Tobago, Guyana and Jamaica *WFS Scientific reports*, 75, Voorburg, Netherlands.

Fawcett, J. T. 1983.
Perceptions of children satisfaction and costs, in Bulatao R.A. and Lee R. 1983 (eds). Determinants of fertility in developing countries Vol. 1. Supply and demand for children. New York academy.

Foreit, K. G., and M. H. Suh. 1980.
The effect of reproductive intentions on subsequent fertility among low parity Korean women 1971-1976. *Studies in Family Planning* 11 (3): 91-104.

Freedman, R. A.1. Hermalin and M.C. Chang. 1975.
Do statements about desired family size predict fertility? The case of Taiwan 1967-1970. *Demography*, 12 (3): 407-416.

Greeley, E. H. 1977.
Men and fertility regulation in Southern Meru. A case study from the Kenya highlands. Ph.D. Dissertation. The Catholic University of America 1977. Washington DC.

Georgson, S. Zhuwau, T, Anderson, R, M, and Chandiwana S. K. 1999.
Apostles and Zionists: The influence of religion on demographic change in rural Zimbambwe. *Population studies*. 53 (2). London school of economics. London.

Gulati, S.C. 1988.
Fertility in India. An economic analysis of a Metropolis. *Studies in economic development and planning*, (46). New Delhi. India.

Gupta, M. D. 1974.
What motivates fertility decline? A case study from Punjab, India in Egero B (eds) Understanding reproductive change.

Hamed, M. E. 1988.
Levels, trends and differentials of infant and child mortality in Egypt. Studies in African and Asian demography. Cairo demographic center annual seminar 1987. *Research monograph series*. Cairo demographic center.

Hanushek, E.A. and Jackson 1977.
Statistical methods for social scientists. Academic Press, Inc. Orlando. U.S.A.

Henin, R and Jain, A.K 1987
Impact of socio-economic development on fertility in rural Kenya. Population studies and research institute. University of Nairobi.

Hermalin, A. I. R. Freedman, TH. Sun and M.C. Chang. 1979.
Do intentions predict fertility? The experience in Taiwan, 1967-74. *Studies in Family planning,* 10 (3): 75-95.

Hoestetler, J. 1993.
Amish society. John Hopkins university press. Baltimore. USA.

Jaccard, j. j and Davidson, A.R. 1976
The relation of psychological, social and economic variables to fertility related decisions. *Demography* 13 (c) 329-338

Keraka, M. N. 1995.
Determinants of contraceptive use in Kisii district. Unpublished M.A thesis. Population studies and research institute. University of Nairobi.

Khan, A. M.and I Sirageldin, 1977.
Son preference and the demand for additional children in Pakistan. *Demography*, 14(4): 481-495.

Kim, N. I. And B. M. Choi. 1981.
Preference for number and sex of children and contraceptive use in Korea. *WFS Scientific Reports*. No. 22

Kimani, M, 1992.
Effects of infant mortality on fertility in Kenya. Unpublished Phd, thesis. Population studies and research institute. University of Nairobi. Kenya.

Leibeistein H 1974.
Socio-economic fertility theories and their relevance to population policy. International labour review 109 (5-6).

Lesthaege, R., 1983
Individual and contextual effects of Education on lifetime fertility in Kenya. Inter-University program in demography (I.P.D) Brussels.

Lightbourne, R.E. 1985
Individual preferences and fertility behaviour. In reproductive change in developing countries; insights from the world fertility surveys. Oxford university press. London.

Lightbourne, R.E. and A. L. McDonald. 1982.
Family size preferences. *WFS comparative studies*, 14 International statistical institute, Voorburg. Netherlands.

Maleche, R. 1990.
Accessibility and contraceptive use in Kenya. Unpublished Postgraduate dissertation. Population studies and research institute. University of Nairobi.

Mauldin, P. 1965.
Fertility studies, knowledge, attitude and practice. *Studies in family planning.* 7:1-10.

Mburugu, E. K. and Safilios, Rothschild, 1987.
Woman's status, breastfeeding patterns and contraception use in rural Kenya. In the cultural roots of african fertility regimes. Proceedings of the Ife conference. Department of demography and social statistics. University of Ife. Nigeria.

Muganzi, Z and Takona T (1994)
Fertility decline and demand for family planning in Kenya. DHS, Marco International Inc. Columbia, Maryland. USA.

Moustafa, E.M. 1988,
Factors related to supply and demand for children, Upper Egypt region. Cairo demographic centre. *Research monograph series* 17 (111-146). Cairo.

Namboodiri, J. K. 1972
Some observations on economic framework for fertility analysis. *Population Studies* 26 (19): 185-206.

National Council for Population and Development (NCPD), Central Bureau of Statistics (CBS) and Institute for Resource Development (Macro system) Inc. IRD. 1989. Kenya demographic and health survey, 1989, Columbia, Maryland, USA.

National Council for Population and Development (NCPD), Central Bureau of Statistics (CBS) and Institute for resource Development (Marco system) inc. IRD. 1994. Kenya demographic and health survey, 1993. Columbia, Maryland, USA.

National Council for Population and Development (NCPD), Central Bureau of Statistics (CBS) and Institute for resource Development (Marco system) inc. IRD. 1999. Kenya demographic and health survey, 1998. Columbia, Maryland, USA.

Nkanata, F.M 1991
Fertility preferences among the currently married women, a case study of Abogeta Location in Meru district. Unpublished Msc. thesis. Population studies and research institute. University of Nairobi.

Pebly A. R., H. Delgado and E. Brinemann. 1979.
Fertility desires and Mortality experience among Guatemala women. *Studies in Family planning* 10(4): 129-136.

Pindyck, R. S. and Rubinfield. 1976.
Economic models and economic forecasts. McGraw-Hill Book Company. New York.

Poedjastoeti, S. and S. H. Hatmadji. 1991.
Fertility decline in Indonesia: An analysis of fertility intentions. In Demographic and Health Survey World conference proceedings, August 5-7, 1991, Washington DC Columbia, Maryland USA.

Pullum, T. W. 1980.
Illustrative Analysis; fertility preferences in Sri Lanka. *A World Fertility Survey Scientific report*. International statistical institute. Voorsburg. Netherlands.

Safilios-Rothschild, C and Mburugu EK. 1986.
Women's income and fertility in rural Kenya. Working paper 441. Institute of development studies. University of Nairobi.

Ross, J. A. 1977.
International Encyclopedia of population Vol 1. The Free Press

Stinner, W. F. and P. D. Mader. 1975.
Sons, Daughters or Both? An analysis of family sex composition preference in Philippines. *Demography*, 12(1): 67-79.

Snyder, D. W. 1974.
Economic determinants of family size in West Africa. *Demography* 11 (4): 613-627.

Udry, J. R. 1983
Do couples make fertility plans one birth at a time? *Demography* 20 (2).

Vlassoff. C. 1990.

Fertility intentions and subsequent behaviour. A longitudinal study in rural India. *Studies in family planning.* 21 ( 4).

Walji P. 1980.

The relationship between socio-economic conditions and fertility behaviour among selected Asian groups in Nairobi. P.hd. Thesis. University of Nairobi.

Ware, H. 1974.

Ideal family size. World fertility survey occasional papers No. 13. World fertility survey. London.

Westoff, C.F. and N. Ryder. 1977.

The predictive validity of reproductive intentions. *Demography* 14(4): 431-453.

Westoff, C. F. 1990

Reproductive intentions and fertility rates. *International Family planning Perspectives* 16 (3): 84-96.

Willis, R. J. 1973.

A new approach to the economic theory of fertility, in Shultz, W (ed) New economic approaches to fertility. Proceedings of a conference. June 8-9, 1972. *Journal of political economy* 81: 14-64.

Willis, R. J. 1974.

Economic theory of fertility and behaviour, in Schultz W (ed), economics of family, marriage, children and human capital, Chicago university press. Chicago.

Youssef, N. H. 1982,
The Interrelationship between the division of labour in the household, women's roles and their impact on fertility in Anker R, Buvinic and Youssef N. H. (eds) women's roles and population trends in the Third World, Groom Helm, London.