FACTORS INFLUENCING AGE AT FIRST BIRTH IN COAST PROVINCE

BY

MAMBOREO NYARINDA JANETH

Q50/64224/2010

A PROJECT REPORT SUBMITTED TO POPULATION STUDIES AND RESEARCH INSTITUTE IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR A MASTER OF ARTS DEGREE, UNIVERSITY OF NAIROBI

2012

DECLARATION

This research project is my own original work and has not been presented to any university for an award of a degree.

Mamboreo Nyarinda Janeth……………………….. Date …………………

This research project is presented for examination with our approval as University Supervisors.

Dr. Anne Khasakhala …………………………….. Date 22.11.2012

Dr. Murungaru Kimani ……………………………Date ……………

DEDICATION

This work is dedicated to my parents, Mr. George Marita and Mrs. Monicah Moraa you are my heroes for instilling the value of education in me you are such a blessing! May God grant you ability to achieve this and much more.

To my dear sisters Helymer and Nyansiaboka. To my brothers Pius, Kivon and Hosea for their love and support and to my fiancée Cyprian for being a true friend to me.

ACKNOWLEDGEMENTS

First I wish to praise the Almighty God for giving me the strength for the entire period of my study in the University and his unlimited love and blessing for me.

Secondly, I am indeed indebted to acknowledge the good work my supervisors Dr Anne Khasakhala and Dr Kimani Murungaru have done during the supervision of this project, their insightful guidance and constructive criticism that have contributed to the success of this project. Thanks very much.

I am also grateful to all my lecturers at PSRI Dr Lawrence Ikamari, Dr Wanjiru Gichuhi, Mr. Ben Obonyo, Prof John Oucho, Mr Andrew Mutuku, Mr George Odipo and Dr Tom Agwanda. Asante sana!

I also extend my gratitude to all PSRI staff and thank all my colleagues at PSRI especially my beloved friends with whom we have struggled to see the successful completion of this course together as a group – Emma Joan, Charles Obila, Sharon Lidoroh, Charles ogollah and the entire class of 2010 for their right company, positive insights and criticism and being there for me.

Special thanks go to Mr. and Mrs. Mogoi for their unending support and care that gave me the strength to go on. God bless you for your kindness.

ABSTRACT

This study sought to establish factors that influence the age at first birth in coast province. Specifically it sought to determine the effect of some socio-economic, socio-cultural and demographic factors on the age at first birth in Coast province. Using data from the 2008/2009 KDHS, a total of 1149 women from Coast province were used as a unit of analysis and their demographic, socio-economic, socio-cultural characteristics. Bivariate and multivariate analyses were used to establish the relationship between selected independent variables and age at first birth. The independent variables were women's age, level of education, type of place of residence, religion, marital status and the intervening variable was ever use of contraceptive while the dependent variable is the age at first birth.

The study findings showed that the level of education, women's age, the type of place of residence and contraceptive use significantly influenced the age at first birth. For example women with at least secondary education were associated with a lower risk of a first birth also women who lived in rural areas at the time of the survey had a higher risk of birth compared to their counterparts from urban areas.

Significant variations in the age at first birth across the women's cohorts were also evident. The delayed effect of education on first birth is higher among those women in the older cohorts compared to those in the younger cohort. The high likelihood of age at first birth among women who were using contraceptives indicates the need for improving family planning services in the region to avoid failure and discontinuation. Religion and marital status failed to show significance influence the occurrence a first birth.

Findings of the study are of policy appeal especially in policies geared towards delaying the age at first birth for women in Coast province. The findings of the study suggest that the age at first birth is an important issue in Coast province and it has an association with demographic and socioeconomic aspects. This study is expected to be used by policy makers in family planning programs to recognize the issue of early childbearing among teenagers in the region.

It is essential to identify the determinants of age at first birth to facilitate policy makers and program managers to design programs and services especially for women who have the highest likelihood of having a first birth at a younger age.

TABLE OF CONTENTS

CHAPTER ONE

INTRODUCTION

1.0 BACKGROUND TO THE STUDY

Age at which the first birth occurs is a major transition for an adolescent or young adult woman, it is one important indicator of readiness for parenthood, factors such as family circumstances, social economic support systems, demographic and cultural background are important and can influence the age at which child bearing begins. In addition age at first birth is a critical factor in generating subsequent fertility, because the earlier the timing of the age at first birth the higher the completed fertility and postponement of the first birth tends to lower the fertility rate (Presser 1971).

Age at first birth has attracted the attention of researchers and demographers because it influences on child bearing, timing, sequencing and has substantial effects on completed fertility (Morgan and Rindfuss 1999; Rindfuss et al.1977). A woman's age at first birth is one of the most significant events in her life because it influences the total number of births that a woman might have in her life which impacts on the size, composition and the future growth of the population (Mathews and Brady 2009). As well age at first child birth is important because it contributes significantly to a woman's social and family identity; the arrival of the first child marks the beginning of parenthood and it is an important social indicator since it signals a woman's preparedness to accept the roles of motherhood (Miller and Newman 1978; Hong 2006)).

An early age at first birth can have a negative effect on occupational attainment, marital stability, asset accumulation and health of the woman and her baby as well as a positive effect on the spacing of subsequent children and on completed family size (Bumpass et al. 1978; Coombs 1966; Freedman 1970; and Menken 1972). Delayed child bearing affects subsequent fertility by reducing the reproductive lifespan because women who postpone child bearing will have fewer children than those who started having children earlier whereas early entry into child bearing is a major determinant of large family size and rapid population growth; it lengthens the reproductive period and subsequently

1

increases individual's lifetime fertility rates particularly in countries where contraception is not widely practiced moreover population growth is more rapid when women have their first child in their teen years (Singh, 1998; Mazur, 1997; Senderowitz and Paxman, 1985; Islam 1999)

Nahar and Hosik (2008) postulates that early childbearing denies young women the opportunity to pursue their education which is important to their future prospects and often reduces their status in society; it hinders a mother's educational attainment, career-building roles and it often results in reducing economic opportunity for the mother and the household as a whole (Rao and Balakrishnan, 1988).

Young maternal age is linked with adverse health risks including; increased incidence of complications, bleeding, severe anemia, prolonged and difficult labor, pre-eclampsia and low birth weight and inadequate prenatal care of babies leading to prenatal deaths among the adolescent mothers as compared to older mothers (Wassuna and Mohammed 2002). Pregnant teenagers face greater risks of pelvic born immaturity which increases the occurrence of cephalopelvic disproportion which is associated with a higher incidence of prematurity and difficulty during child birth. Moreover, infants born to adolescent mothers are more likely to be born prematurely and to have low birth weight which in turn lead to a lifelong neurological problems and retard wholistic developments (physical, cognitive, social and language) and its the single most predictor of neonatal mortality (Adetoro and Agah 1988: Senanayake 1990; Senderowitz and Paxman 1985; Hayes 1987)

Early marriage is associated with early childbearing, especially in settings where marriage is virtually universal and where strong social sanctions exist against child bearing outside of marriage (Caldwell 2005). Furthermore, early marriage and childbearing have numerous negative social and health consequences on women; they have been identified as an abuse of girls' human rights (UNICEF 2001), for instance, for a woman who is married at a very young age, decisions on the number of children, use of

contraceptives may be made at a less mature age, thus affecting birth intervals and fertility as a whole (Bumpass et al 1978).

Socio-economic factors such as; place of residence, maternal education, age at marriage, knowledge and access to contraception, labour force participation, type of place of residence and values regarding family size have considerable influence on age at which child bearing begins Gyimah (2002). As well Towett's (2005) study on the covariates of age at first birth revealed that education, religion, type of place of residence, childhood place of residence, region of residence, ethnicity and age at first marriage were significant factors influencing age at first birth. In a closely similar study, Ikamari (2008) established that region of residence had a significant effect on the timing of child bearing in Kenya. Further, the type of place of residence and religion were found not to be significant on the risk of first birth, whereas education was found not to have a significant effect among younger birth cohort but had significant effects among the older cohorts. Given the range of consequences associated with the transition to motherhood and its timing, the need for a comprehensive understanding of the factors influencing age at first birth process becomes self evident. This study therefore, seeks to examine the factors influencing age at first birth in Coast province using the most recent KDHS data set, 2008/09.

1.1 PROBLEM STATEMENT

In social scientific research, the timing of the first birth is known to affect a variety of Demographic and non-Demographic phenomena in the life course of women. A woman's decision to become a mother and the age at which the first birth occurs have a large impact on the societal level of reproduction for individuals, families, institutions and entire country (Mirowsky 2002, Taniguchi 1999, and Morgan & Rindfuss 1999). Age at first birth is important in an individual's life history and in explaining fertility and mortality transitions. The timing of this event measured by the mother's age has strong effects on both individual and aggregate levels of fertility, as well as broader implications for women's roles and social changes in general. Social background characteristics such as religion, place of residence, ethnicity, region and the educational attainment are some

of the factors that may biologically postpone the onset of the child bearing process (Ikamari 2008; Gyimah 2002).

Moreover the first birth marks a woman's transition into motherhood; it has a significant role in the future life of each individual woman and a direct relationship with fertility. It is believed that the age at which child bearing begins influences the number of children a woman bears throughout her reproductive period in the absence of any active fertility control (Trussell & Menken et al. 1978). Therefore the age at which first birth occurs has important demographic implications, as both the timing of subsequent births and completed family size is related to the age at first birth. For Coast Province region where contraceptive use is relatively low and the levels of teenage childbearing are highest and low younger ages at first birth tends to boost the number of children a woman will have in life compared to other provinces as shown in the table below.

Current use of contraceptive method among married Women age 15-49, by background characteristics.

Table 1: Percentage Distribution of women by contraceptive use and Region

PROVINCE	CONTRACEPTIVE USE IN PERCENTAGE
Nairobi	55
Central	67
Coast	34
Eastern	52
Nyanza	37
Rift Valley	42
Western	47

Source: Adapted from KDHS 2008/09

From the above table it is evident that contraceptive use among women age 15-49 is lowest in Coast Province at 34% compared with the other provinces.

From the 2008/09 KDHS data teenagers and adolescents from Coast province give birth early compared to other provinces like Central, Nairobi, Northeastern, Western and Central and teenage pregnancies stands at 26% at the national level.

Age at first birth as the dependent variable can be influenced by a number of factors that could be social, economic, cultural and demographic, among these are the background determinants of age at first birth as such, we know little about which factors come into distinction when individuals want to start childbearing at the regional and subgroup levels. Therefore, there is a need of such studies in Kenya and this study seeks to fill this gap in knowledge on the factors influencing age at first birth in Coast province.

Many studies that have been done in Kenya mainly focus on the factors influencing age at first birth at a national level thus few studies have been done on the same on the regional level in the recent past, therefore this study seeks to assess the factors influencing age at first birth in Coast province whether they are contributing to the higher levels of fertility in the region which has a TFR of 4.8 which is slightly above the national average TFR of 4.6.

1.2 RESEARCH QUESTIONS

This study seeks to answer the following questions:

1) What are the socio-economic and cultural factors that influence age at first birth in Coast province?
2) What are the demographic characteristics that influence age at first birth in Coast province?

1.3 OBJECTIVES OF THE STUDY

1.3.1 The General Objective

The general objective of the study will be to identify the factors influencing age at first birth in Coast province.

1.3.2 Specific Objectives

1) To examine the socio economic and cultural factors influencing age at first birth in Coast province.

2) To examine the demographic characteristics that influence age at first birth in Coast province.

1.4 JUSTIFICATION OF THE STUDY

This study was expected to contribute to the understanding of the factors influencing age at first birth in coast province, as well as contribute to the understanding of Kenya's fertility by examining the fertility situation in the province which has a TFR of 4.8 which is slightly higher than the national average TFR of 4.6.

The study of age at first child bearing was very necessary because it is important to understand when child bearing begins, what the implications are and the current fertility levels in the province. Furthermore, the analysis of new data was used to give a better understanding of age at first birth in Coast province.

From the ICPD and ICPD+5 goals attention to the reproductive health needs of women and adolescent girls is critical to achieve the MDGs 5 and 6 which aims at improving maternal health and combating HIV/AIDS by advocating for prevention of unwanted pregnancies, delay of early sexual debut and age at first birth as well as consistent condom use which are all critical measurements to achieve the MDGs. Therefore a better understanding of the reproductive health needs of women and adolescent girls is critical because it can result in improved services to this very vulnerable special group.

This study will help in programme formulation and setting up interventions and policies aimed at improving higher educational opportunities for women which will be important in delaying age at which childbearing starts, also reproductive health programmes that target young people and enable them access information on sexuality and their welfare and social status.

1.5 SCOPE AND LIMITATION

1.5.1 Scope

This is a regional study with particular focus on Coast province as was covered by the KDHS 2008/09.

1.5.2 Limitations

The study will use secondary data from the 8,444 women aged 15-49 years in the 2008/09 excluding childless women and men. Information on the variables pertains to the characteristics of the women at the time of the survey but not at the time of the birth of the first child and its limited to the variables in the data which are woman's level of education, place of residence, childhood place of residence, age at first marriage, the age of the mother, religion and contraceptive use.

The KDHS data to be used has information on (the age of the mother, level of education, contraceptive use, type of place of residence, religion and marital status) of women aged 15-49 only leaving out teenage women aged below 15 which is a very important group because sometime some women give birth earlier than 15 years therefore we miss large part of information of this very important group.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

In this chapter related literature on the socio-economic, socio-cultural and demographic factors influencing age at first birth will be reviewed. The review will be conceptualised under the objectives of the study and focuses mainly on the age of the mother, age at first marriage, level of education, contraceptive use, type of place of residence, religion and childhood place of residence with age at first birth. In addition each of the variables is reviewed independently. The conceptual framework and hypotheses are presented followed by definition of key concepts and variables.

Socioeconomic variables
Level of education and age at first birth

The effect of the timing of first childbirth seems to be mediated both by the level of education and labor force participation of a woman. Long years of schooling may delay a woman's entry into marriage hence rising the age at first birth. Educated women are urbanized and modernized subgroup with better socioeconomic status which is conducive towards delayed marriages. Moreover, they are more likely to use family planning within marriage to limit and space out their children to develop their careers first (Maitra, 2004).

Lindstrom and Paz (2001), in their study of two cohorts of Mexican women, found that education indirectly influences age at first birth; that increased number of years in school reduces the likelihood of an early first birth and change in the traditional work role. Maxwell (1987) in a study of 5,000 US women observed a positive relationship between education and age at first birth. Women who start child bearing at early ages were likely to have lower levels of education. Similarly, in Bangladesh Nahar and Hosik (2008) found that among Bangladeshi women, women's education, especially higher education, had the strongest effect in delaying first birth during adolescence, women with highest level of education (higher than secondary) had the lowest chance of having a teenage first birth compared to women who had no or some levels of education. A woman with an

incomplete primary education was 16% less likely to have a teenage birth compared to a woman with no education. The same was 21% for women who had incomplete secondary, 33% for women who had complete secondary and 37% for women who had higher than secondary schooling, respectively.

Further, in a study of eight countries of sub-Saharan Africa namely: (Burkina Faso, Côte d'Ivoire, Ghana, Kenya, Mali, Senegal, Tanzania, and Zimbabwe) revealed that adolescents who were better educated were less likely to have an early first birth before their 18th birthday than those with no education Gupta and Mahy (2003), likewise in Canada higher level of education of a woman and previous labor force activity were found to exert a powerful influence on birth timing for women of all age groups. In the case of education attainment, observed cohort trends resulted from changes in the content and socio-economic significance of formal schooling which had accentuated the delaying impact of education achievement on women's timing of child bearing De wit and Ravanera (1997). Similarly, in Malaysia women with secondary education tend to have their first child two to four years later than women with no schooling or only primary schooling.

Neeru and Luri (1999) found that a young woman's level of education is the factor most strongly and consistently associated with the probability of giving birth during adolescence. In particular, an adolescent with no more than primary schooling was more than twice likely to have had a first birth than an adolescent with at least secondary education in Brazil. Correspondingly, using a Cox proportional hazard model on timing of parenthood in Ghana from the (1998) Ghana DHS the median age at first birth was found to be 20 years but with differences by education attainment, 19.8 years for women with no education 23.7 years for women with more years of education, a cross the women cohorts the study found that there was a higher magnitude on the risk of birth among younger cohorts; for instance 11 or more years of education attainment reduces the risk of first birth by 54%, 25% and 14% for the 15-29, 30-39 and 40-49 cohorts respectively. There were more pronounced effects of education among the older cohorts which were attributed to the breakdown of cultural barriers that in the past which saw motherhood as

the main career. Consequently, educated women delayed child bearing for longer periods in order to focus on career aspirations (Gyimah 2003)

Education was also found to be positively related to age at first birth as women with higher education had a higher age at first birth in Tanzania. Age at first motherhood rises with the increase in the level of education. Primary education raises age at first motherhood by 1.2 years above those with no education, Women with secondary or higher education have the most significant increase in age at first birth as they delivered their first child on average 2 years later than those with no education (Ngalinda 1998).

Correspondingly in a study to examine the covariates of age at first birth in Kenya, Towett (2005) found that the median age at first birth in Kenya to be 19.41 years. Those women who resided in urban areas and who were educated and those who lived in Nairobi had higher median ages of first birth. Trends of age at first birth across the three cohorts derived from age of women at the time of the survey showed that higher education and urban areas were associated with later ages at first birth. Primary education was significantly associated with higher risk, primary educated women were found to be more likely to have a first birth compared to those with higher education, secondary educated women on the other hand were found to less likely have a first birth compared to those with no education, Primary educated women were 15% more likely to have a first birth compared to those with no education and secondary educated women were 24% less likely to have a first birth. Similarly Yigit (2008) found in turkey the education covariate is important in the risk of first birth; as the education level of the women increases the risk gradually decreases. Women who completed at least high school have a risk of first birth fifty percent less than the risk of women with no education. Additionally, the education of mother was found to be important, having a mother with at least secondary school education reduces the risk of first birth to 82 percent of the risk faced when having a mother with no education.

On the contrary, in a study done in a village of Kerala State in India, Nair (1996) found no any significant effects in terms of the education of women on age at first birth. Female education was also found to be an insignificant determinant of the risk of pregnancy in Philippines and Indonesia. male education and occupation were found to be significant determinants of fertility in Indonesia and Philippines (Trussel et al., 1985)

Place of residence and age at first birth.
Type of place of residence is considered to influence the timing of childbearing and it is classified as rural and urban. The rural and urban distinction is important because of differences in access to health facilities, cultural beliefs, living situations, and opportunities. In an urban setting an adolescent has more work or education opportunities that might motivate her to delay childbearing (Gupta and Mahy 2001).

Gupta (2003) found an independent association between place of residence and risk of early childbearing was significant in Côte d'Ivoire and Senegal: girls living in urban areas were found to be over 30 percent less likely to have a first birth before age 18 as compared to their rural counterparts and in Ghana, the place of residence effects were also found to be significant to affect the timing of first birth; Rural non migrants had a significantly higher risk compared with urban non migrants (Gyimah 2003). Likewise in a study done in Cameroon revealed that place of residence influences the occurrence of a teenage pregnancy, teenagers from rural areas were found to have high incidences of teenage pregnancies compared to teenage women living in urban areas Elhag (2003), whereas in Tanzania place of residence played a greatest role in influencing age at first birth and it was established that rural residents had a higher mean age at first birth than women living in urban areas. Urban women residents had the lowest mean age at first birth, the regression results showed that urban women gave first birth 0.2 years earlier than their rural counterparts (Ngalinda 1998).

Further, in Bangladesh, while the chance of having a first birth is highest among rural residents compared to residents from other areas, the finding was not consistent among three different types of urban areas; large metropolitan city, small city, and towns. Living

in a small town decreases the probability of teenage birth compared to living in other urban area; however, living in a large metropolitan city increased the chance of a first teenage birth compared to small cities. (Quamrun and Min 2008). As well in Canada, compared to women residing in urban areas, those from small towns or rural areas were found consistently at lower risk of an early birth (De wit 1994)

On the contrary, Desriani (2009) in a study in Indonesia using the 2007 Indonesian Demographic and Health Survey data (IDHS) to evaluate the Determinants of teenage motherhood found that the type of place of residence showed an insignificant effect on teenage motherhood among teenagers, similarly, Ikamari (2008) in his study to establish the effect of region of residence on the initiation of child bearing in Kenya found that the type of place of residence and religion not significant on the risk of first birth.

Socio-cultural variables
Religion and age at first birth
Religion refers to a specific fundamental set of beliefs and practices generally agreed upon by a number of persons, usually involving devotional and ritual observances, and often containing a moral code governing the conduct of human affairs. Different religions have different practices, beliefs and norms which affect reproductive behavior in moral prescriptions and expectations.

In Rwanda Chandrasekhar (2007) found that religion seemed to have an impact on the decision to marry and have a child. Protestants, Adventists and Muslims were likely to marry early compared to Catholics and thus compared with Catholic women, Protestant and Muslim women were significantly more likely to have their first child at an earlier age. Whereas in Ghana Catholics seemed to have a higher risk of first birth compared to other Christians, correspondingly in Tanzania Moslems were found to have lower age at first birth compared to Catholics because Moslems encourages early marriages. Moslems showed a lower mean age at first birth of 18 years than other religious affiliates. Although the Catholics and Protestants have different views regarding the use of contraception, Catholics seemed to have higher mean age at first birth (18.6 years)

12

compared to Protestants (18.5 years) (Gyimah2003; Ngalinda 1998). Also in Cameroon Elhag (2003) found that being a Moslem significantly increased the likelihood of teenage pregnancy. He found that teenage pregnancies among Moslem women to be (46%) higher compared to Protestants (31%), No religion (27%) and was least among Catholic women at (25%).Thus religion was found to be a strong determinant to a risk of a teenage pregnancy.

On the contrary in Brazil religious affiliation and mass media exposure did not have any significance effect on the age at first birth over time Luri (1999). Likewise in a study on the determinants of teenage pregnancies in Busia District Were (2007) found that Religion was found not to be significant in influencing age at teenage pregnancy.

Demographic variables
Marital status and age at first birth

A premarital birth or conception can occur to an unmarried woman at any age within the child bearing span (B. Janosik 1977) in a study done in the United States of America on Marital Status and the timing of Childbearing, R. Kelly (2001) found that the first birth rate is higher for married women than non married women. In a similar study done in Spain found that entering a first union sharply increases the hazard of first birth and this effect takes place immediately after the start of the first union. The relative risk of first birth increases 25.22 times for direct marriage and nearly by 7 for cohabitation. . A marriage of a cohabiting couple produces a considerable additional increase (3.22) in the relative risk of first birth (Pau Baizán 2001).

Contraceptive use and age at first birth

Contraceptive use refers to the intentional prevention of conception by artificial, natural means and sexual practices. In a study in Cameroon contraceptive use was found to influence the occurrence of a teenage pregnancy; those women who had ever used any contraceptive reduced the risk of teenage pregnancy by one third compared to women who had never used any contraceptive method (Elhag 2003). Conversely, in Indonesia contraceptive use was found to be the most important variable in contributing to the

occurrence of early motherhood; Women who used contraception had almost seven times probability of becoming a mother compared to women who never used any contraception. Similarly, family planning and contraceptive use were proved to be significantly associated with risk of an early first birth among girls in Ghana and Senegal. In Ghana, adolescents in communities with a strong family planning environment were more likely to have had an early birth, while in Senegal they were less likely to have an early first birth (Desriani 2009; Mahy 2003).

2.1 Summary of Literature Review

From the literature review above it is evident that age at first birth is affected by number of factors such as woman's level of education, marital status, contraceptive use, woman's age, religion and the type of place of residence. Nevertheless, the effect of some of the variables is not consistent across all studies. This therefore, implies that the research findings are still uncertain. Thus this study will be done against this background in order to establish whether these variables have a significant effect on age at first birth in Coast province.

2.1.1 Conceptual framework

Using a multi-disciplinary approach Charles Hirschman (1985) developed a conceptual framework for the study of premarital, socio-economic roles and the timing of early family formation in Asian countries. He produced a useful classification for the analysis of age at first birth at the family level making it is supplementary suitable for this study because age at first birth is heavily dependent on socio-economic, demographic and cultural factors and the conceptual framework is as given below:

Figure: 1 Conceptual framework for analysis of timing of family formation by Charles Hirschman (1985:35-39).
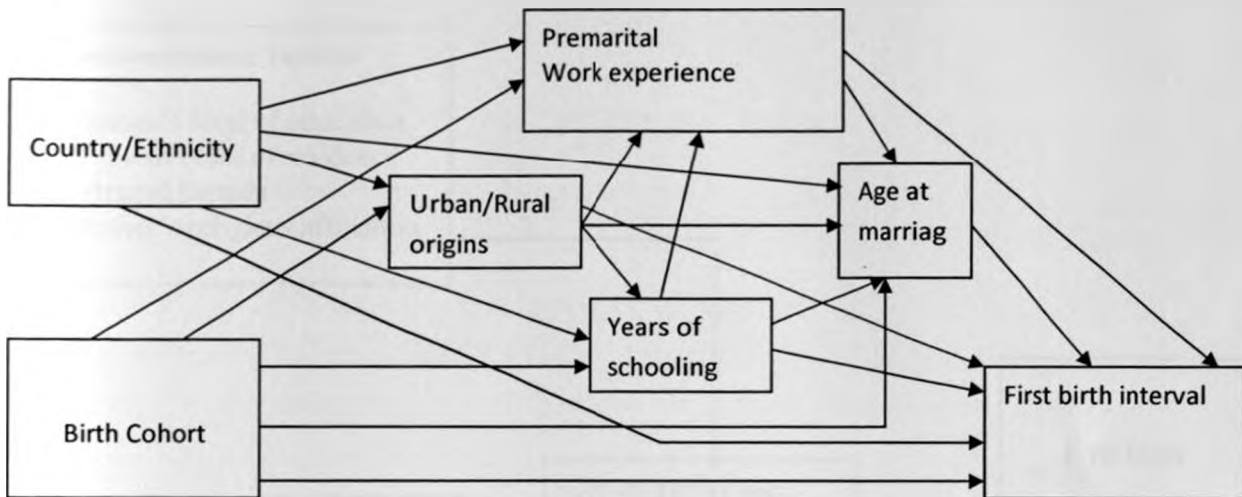
Source: C. Hirschman, Demography volume 22, 1985 pp 35-39.

Country/ethnicity and birth cohort are exogenous variables that represent the respondent's cultural background and social changes that have occurred over time. Various socio economic characteristics are hypothesized to intervene between the effects of the exogenous variables and the timing of early family formation that is place of residence, rural or urban, woman's education and woman's premarital work status.

This study will modify this framework somewhat to suit the purpose of the study. Since the data to be used doesn't measure the premarital socio-economic characteristics of the respondents, the premarital work experience variable will not be used. Years of schooling will be measured using level of education; rural/urban origin will be measured by type of place of residence. Childhood place of residence and region in place of country will be included. Religion and contraceptive use will also be included since they have been found to be significant determinants of age at first birth.

2.1.2 Operational Framework on the factors influencing age at first birth

Figure 2: Operational Framework

Background factors   **Intervening variable**   **Outcome**
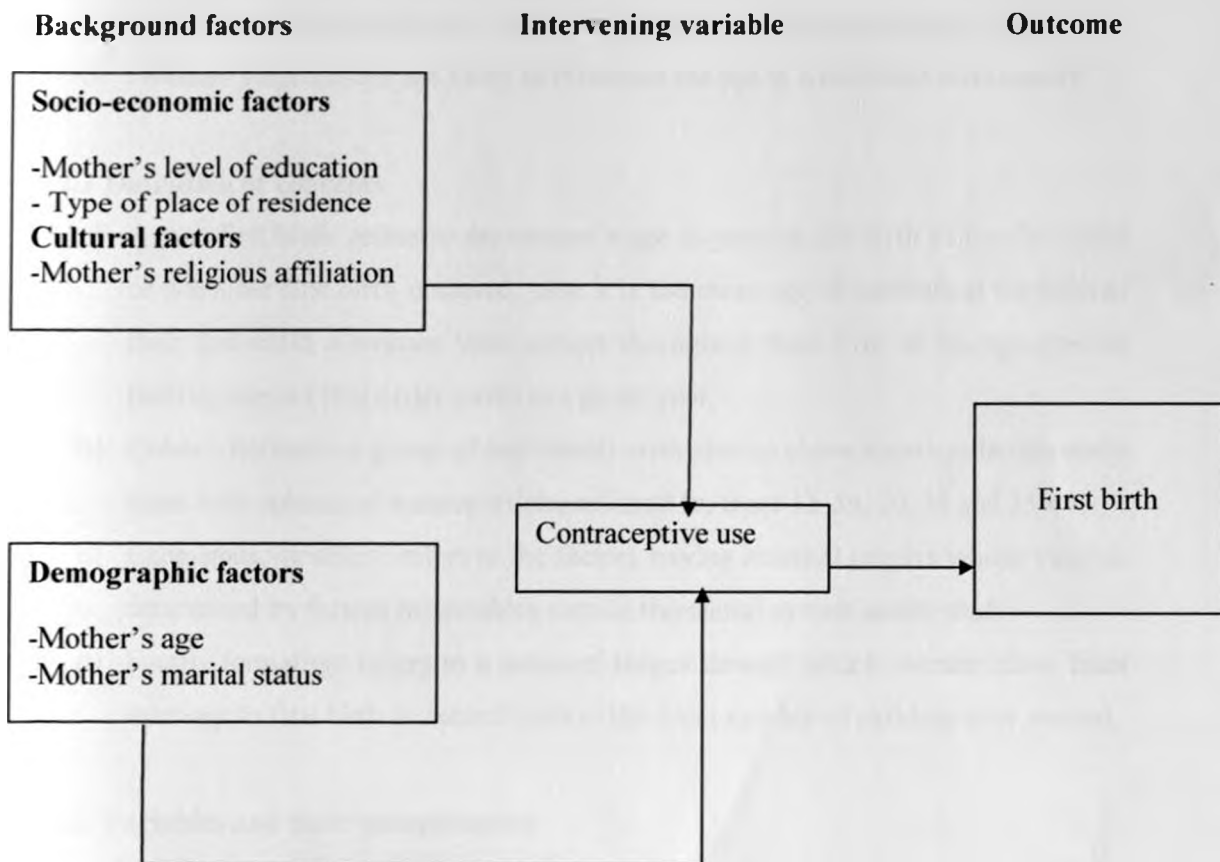
Adapted from C. Hirschman's framework

The operational framework above is an illustration showing how some socio-economic and cultural variables (mother's level of education, type of place of residence, childhood place of residence and mother's religious affiliation) operate through a group of proximate variables to influence age at first birth. The proximate variables included are mother's age, age at first marriage and contraceptive use as the intervening variable.

2.2 OPERATIONAL HYPOTHESES

1. The woman's level of education has a significantly positive effect on age at which first birth occurs.

2. The mother's religious affiliation is likely to influence the age at first birth.

3. Marital status is positively associated with the age at first birth

4. Contraceptive use is likely to influence the age at first birth.

5. The woman's type of place of residence is likely to influence the age at first birth.

6. Women's age groups are likely to influence the age at which first birth occurs.

2.2.1 Definition of concepts

a) Age at first birth: refers to the woman's age in years at the birth of her first child or when her first birth occurred, also it is the mean age of mothers at the birth of their first child if women were subject throughout their lives to the age-specific fertility rates of first order births in a given year.

b) Cohort: Refers to a group of individuals with similar characteristics. In this study three birth cohorts of women will be referred to, those 15-19, 20-34 and 35-49.

c) Exogenous variables: refers to the factors having external origins whose value is determined by factors or variables outside the causal system under study.

d) Family formation: refers to a series of stages through which women move from marriage to first birth to second birth to the ideal number of children ever wanted.

2.2.2 Variables and their measurement:

This section describes the variables that will be used in the study and how they will be measured.

2.2.3 Dependent variable

Age at first birth is the dependent variable and will be measured as the average completed years of age of women when their first child was born.

2.2.4 Independent variables

The selected independent variables that might be associated with age at first birth in Coast province include socio-economic, cultural factors and demographic factors and the following variables will be used for the analysis: woman's current age/age cohort, marital status, contraceptive use, level of education, the type of place of residence, and religion.

Type of place residence is considered to influence the timing childbearing and it is classified as rural and urban. The rural and urban distinction is important because of differences in access to health facilities, cultural beliefs, living situations, and opportunities. In an urban setting an adolescent has more work or education opportunities that might motivate her to delay childbearing. Represented by rural=1 and urban=2

Religion refers to a specific fundamental set of beliefs and practices generally agreed upon by a number of persons, usually involving devotional and ritual observances, and often containing a moral code governing the conduct of human affairs. Different religions have different practices, beliefs and norms which affect reproductive behavior in moral prescriptions and expectations. In this study religion will be classified as Catholic=1 Other Christians/Protestants=2, Muslim=3, No religion/other=4

Age cohort refers to a group of individuals with similar age characteristics, three age cohorts of women will be used that is women age 15-19=1, 20-34=2 and 35+=3 so as to examine the differences in age at first birth over time.

The effect of the timing of first childbirth seems to be mediated both by the level of education and labor force participation of a woman. Long years of schooling may delay a woman's entry into marriage hence raising the age at first birth in this study education will be measured in terms of No education=0, primary education=1, secondary education=2 and higher education=3

Contraceptive use will be used as a control variable; it refers to the intentional prevention of conception by artificial, natural means and sexual practices. It was obtained by asking women whether they have ever used any contraceptive method to delay or avoid a pregnancy and this will be represented by never used=1 and ever used=2.

THEORETICAL PERSPECTIVES

A theory is a perspective or a point of view that is a way of explaining how and why something is the way it is, or happens the way it happens. A theoretical perspective is a non-explanatory general framework. It is meant to define a point of view within a discipline, which may include basic assumptions that draw attention to aspects of a phenomenon. It will then generate particular kinds of questions about it.

Life history theory

Life history theory offers evolutionary explanations for the timing of life events, with a particular focus on age-schedules of fertility, growth, and mortality (Cole 1954, Partridge & Harvey 1988). Life history theory suggests that in risky and uncertain environments the optimal reproductive strategy is to reproduce early in order to maximize the probability of leaving any descendants at all. The fact that early menarche facilitates early reproduction provides an adaptationist rationale that women who experience more risky and uncertain environments early in life would have earlier menarche and earlier first births than women who experience less stress at an early age. Also the subjective early experience of risky and uncertain environments or insecurity is part of an evolved mechanism for entraining alternative reproductive strategies dependent on environmental risk and uncertainty reflected in expected lifespan.

Second Demographic Transition theory

These theory postulates that educational groups differ in terms of values such as self fulfillment and anti-authoritarianism, earning power and economic independence, leading to educational differentials in the timing of entering motherhood. Higher educated women are expected to delay becoming a mother as a consequence of amongst others, their stronger emphasis on self fulfillment which may compete with childbearing, the lower opportunity costs of childbearing and -rearing after accumulating a certain amount of work experience compared to the beginning of their career, and the time required to obtain job security. It further states, that the higher educated women are assumed to have a non-conformist value profile and to display innovative demographic behavior, such as

delaying the first birth, but also to disseminate these values to the wider population (Lesthaeghe & Meekers, 1986; Lesthaeghe & Surkyn, 1988).

Economic and sociological theories

Economic and sociological theories postulate that the gender-specific division of childcare and households tasks as well as traditional gender role attitudes leads higher educated women to delay the entry into motherhood. A more equal or less unequal division of household labour and a shift in gender role attitudes should therefore weaken the positive relation between educational level and first birth timing

New home economics theory

Proponents of the new home economics theory hypothesize that women's growing economic independence largely accounts for the rise in delayed marriage and motherhood in industrialized societies. Thus it states that women's extended participation in schooling delays their transition to adulthood, young women in school are not ready for marriage and motherhood.

A classical theoretical approach on the impact of the educational career on the transition to motherhood is based on the New Home Economics, pioneered by Becker (1991, and Gustafsson, 2001) provides a more recent review. Becker hypothesizes that women who have attained higher educational levels are economically more independent of men, in societies where a traditional division of labour prevails in the household. Higher educational level is considered as a key indicator for the accumulation of human capital. Women with higher education do not feel the pressure of the economic advantages of marriage and are more likely to postpone marriage, and therefore births, than lower educated women. In addition, the opportunity costs of time spent for childcare increase with human capital; therefore highly educated women tend to postpone births and sometimes they may even choose to remain childless.

CHAPTER THREE
STUDY DESIGN AND METHODOLOGY

3.0 Source of Data and Methods of Analysis

3.1 Source of Data

The source of data used in this study was the 2008/09 Kenya Demographic and Health survey (KDHS 2008/09) which was a national representative sample survey of 8,444 women aged 15-49 years. It was designed to provide data to monitor the population and health situation in Kenya.

The survey was carried out by Kenya National Bureau of Statistics(KNBS) in collaboration with the Ministry of Public Health and Sanitation, the Kenya Medical Research institute (KEMRI), The National Coordinating Agency for Population and Development(NCAPD) and the National AIDS Control Council (NACC). International MEASURE DHS at ICF Macro and NCAPD provided technical assistance and the U.S. Agency for International Development (USAID), the United Nations Population Fund (UNFPA) and the United Nations Children's Fund (UNICEF) provided financial assistance.

The ultimate aim of the survey was to assess the overall demographic situation in Kenya and assist in the evaluation of the population and reproductive health programmes in Kenya. The survey specifically obtained information on fertility levels, marriage patterns, sexual activity, fertility preferences, awareness and use of family planning methods, desire for children, availability of breastfeeding patterns, nutritional status of women and young children, maternal and child health, childhood and maternal mortality and awareness and behavior regarding HIV/AIDS.

3.2 Sample Design

The KDHS is a national household based survey and the sample was drawn from the population residing in households in the country. The KDHS utilized a two stage sample design, First step involved selecting data collection points (clusters) from the national

master sample frame NASSEP IV while the second stage involved selecting households from an updated list of households, sample points were selected from (NASSEP IV) maintained by Kenya National Bureau of Statistics (KNBS). From this 400 sample points were drawn: 133 urban and 267 rural for the 2008/09 KDHS.

3.3 Quality of Data

Few households and clusters were selected from North Eastern province because of its sparse population. An attempt was made to oversample the rural areas to get enough cases for analysis, due to this oversampling the 2008/09 is not self weighted. Three questionnaires were used, the household, Women's and Men's questionnaire. This study will utilize data from the women's questionnaire administered to women of 15-49 years since it included reproductive history and information on the timing of the first birth which are excluded in the men's questionnaire.

In the 2008/09 (KDHS) 1,149 eligible women aged 15-49 years from coast province were identified and interviewed. Detailed and complete birth history covering all births whether still alive or not, along with birth date and the age at which the mother was when giving first birth was obtained from female respondents. Age at first birth was calculated as the difference between the date of birth of the woman and the date of birth of her first child. Family planning information was collected giving data on contraceptive knowledge and use. Background and demographic characteristics expected to affect women reproductive performance were also obtained for each respondent and some of the characteristics include woman's age, age at first marriage, contraceptive use, type of place of residence, childhood place of residence, religion and woman's level of education among others. While the accuracy of information on age at first birth is dependent on that of the date of birth of the first child, the probability of recall errors is less among younger women.

3.4 Methodology

This section discusses the methods that were used to analyze the data. Univariate, bivariate and were carried out on this data to assess the relationship between

22

demographic, socioeconomic and cultural variables of respondents and the occurrence of first birth in Coast province, multivariate hazard analyses were carried out on this data to determine the effect between demographic, socioeconomic and cultural variables of respondents and the occurrence of first birth in Coast province since the selected dependent variable of the study is on a continuous scale.

3.4.1 Univariate and Bivariate analysis

The univariate analysis used was percentages and frequencies to describe the general characteristics of the study population. In the bivariate analysis cross tabulation and Chi Square Test were used to determine whether or not the variables were significant. The Chi Square Test is one of the forms of non-parametric statistical technique whose purpose is to investigate the structure of variable distribution and describe the level of significance of association between them..

3.4.2 The Proportional Hazards Model

Proportional hazards regression is a useful technique for assessing the relationship between survival times and a set of explanatory variables. The proportional hazards model of Cox (1972) assumes a parametric form for the effects of explanatory variables on survival times and allows an unspecified form for the underlying survivor function. Age at first birth is the dependent variable and is measured in completed years. It can be interpreted as survival time from childless state to having a child. Women may either have had a birth or not have had a birth (right censored) at the time of the survey. Therefore this study uses the hazards model to overcome the problem of censoring.

The Cox model recognizes that the occurrence of the first births is age dependent and not constant over time. It does not make any assumptions about the functional distribution of the timing function, hence appropriate for events whose empirical distribution is unknown. It is based on the assumption that the ratio of the hazard functions of two individuals is constant throughout the period of observation (Fiona 2005; Gyimah 2003). The model is used to model time to event in presence of censored cases (i.e., those who have not yet given birth at a given age). It allows the inclusion of covariates in the model.

It handles censored cases correctly and provides estimate coefficients for each of the covariates allowing one to assess the impact of multiple covariates in the same model and allows one to specifically test the proportionality assumption

The Cox proportional hazard model is defined as

$$h(t,X) = h_0(t) \exp(\beta_i X_i)$$
$$\log \frac{h(t,X}{h_0(t)} = \exp(\beta_i X_i)$$

Where $h(t,X)$ is the hazard of failure for an individual with covariates X at time t.

$h_0(t)$ is the base line hazard when $X=0$, called the reference group.

X is a vector of covariates

β_i is a vector of unknown parameters to be estimated in the model

The term $\exp(\beta_i X_i)$ is the relative hazard function or relative risk associated with having characteristics X. Therefore the hazard function enables one to estimate the relative risk of other groups in relation to the baseline group (reference group). When there is no covariate present in the model, then $\exp(\beta_i X_i)$ is one (1). If the relative risk of a given category is greater than one (>1) then it indicates a higher likelihood of the risk of having a first birth for that group compared with the reference group. Conversely, when the relative risk is less than one (<1) it indicates that the risk of having a first birth is lower for that group compared to the reference group.

3.5 Dependent Variable

Age at first birth is the dependent variable and was measured as the average completed years of age of women when their first child was born and was calculated as the difference between the date of birth of the woman and the date of birth of her first child.

3.5.1 Independent variables and their measurement

Table 3: Independent variables and their measurement

Variables	Measurement
Mother's age	15-19=1 20-34=2 35-49=3
Level of education	No education=0 Primary education=1 At least Secondary education=2
Religion	Catholic=1 Protestant=2 Muslim=3 No religion =4
Type of place of residence	Rural =1 Urban=2
Marital status	Never married =0 Ever married =1
Contraceptive use	Never used=0 Ever used= 1

3.5.2 Control Variable

Contraceptive use was used as a control variable; it refers to the intentional prevention of conception by artificial, natural means and sexual practices. It was obtained by asking women whether they have ever used any contraceptive method to delay or avoid a pregnancy and this will be represented by never used=0 and ever used=1

CHAPTER FOUR

DATA QUALITY AND BACKGROUND CHARACTERISTICS

4.0 Introduction

This chapter presents an assessment of the quality of data used and the characteristics of the study population. The characteristics of the women are presented by the various background characteristics, which include level of education, type of place of residence, religion, contraceptive use, age cohort and marital status. The characteristics will be described using frequencies and percentages.

4.1 Quality of data

The quality of age data is important because age distribution is not only an invariable part of a survey report but the bias introduced in reporting can lead to wrong inferences. The validity of estimates of retrospective reports is therefore determined by the accuracy and completeness of the reported information.

4.1.2 Reporting of ages

The quality of data on reporting of ages is assessed by the completeness of information and the distribution of age at first birth in single years.

4.1.3 Completeness of information

Table 4.1 shows the extent to which the respondents gave complete information in relation to their birth dates. More than 67 percent of the women gave complete information on their month and year of birth, less than 1 percent gave information on their month and age of birth, further 30 percent of the women gave information on the year and age of birth whereas 1 percent of them knew only their age.

Table 4.1 Distribution of women by information reported on date of birth, Coast Province 2008/09

Completeness of information	Frequency	Percent
Month and year	777	67.6
Month and age	9	.8
Year and age	342	29.8
Age only	21	1.8
Total	1149	100

Source: Primary analysis of 2008/09, KDHS

Table 4.2 shows the completeness of age reporting of women by various background characteristics. With respect to completeness of age reporting of women by level of education, more than 70 percent of the women with at least primary education, secondary education and higher education gave complete information of their birth dates by month and age, whereas those women with no education 59.8 percent gave complete information on their year and age of birth. More than 50 percent of the women in all the age cohorts gave complete information on their birth dates by month and year. For the 15-19 age cohort 18.6 percent gave information on their year and age of birth, 26.8 percent gave information on their year and age of birth for the age cohort 20-34 and for the 35+ age cohort 44.5 percent gave information on their year and age of birth.

With reference to the type of place of residence the results indicate that 78.9 percent of the women living in the urban areas gave complete information of their date of birth by month and year whereas 56.9 percent of the women living in the rural areas gave complete information on their date of birth by month and year. Completeness of reporting of birth dates by religious affiliation indicates that highest proportion of Roman Catholics gave complete information on their birth date by Month and year (87.8 percent), while the least proportion were those women with no religious affiliation (45.6 percent)

More than 85 percent of the women who were single gave complete information on their date of birth by month and year, while 60 percent of those ever married gave complete information on their month and year of birth. More than 70 percent of the women who had ever used contraceptives gave complete information on their month and year of birth whereas 67.1 percent of those who have never used any contraceptive method gave complete information on their month and year of birth respectively.

Consequently, the results indicate that most information provided by the women was complete. For this reason completeness of the reported information can be said to be good, thus this did not contribute to any inaccuracies in the data.

Table 4.2 Percent distributions of completeness of age reporting of women by background characteristics, Coast province 2008/09

Background characteristics	Completeness of information			
	Month and year	Month and age	Year and age	Age only
Level of education				
No education	34.9	0.0	59.8	5.4
Primary education	70.0	0.8	28.5	0.7
At least Secondary education	92.1	1.4	5.5	1.0
Women's age group				
15-19	80.6	0.4	18.6	0.4
20-34	70.0	1.0	26.8	2.1
35+	52.5	0.7	44.5	2.3
Type of place of residence				
Urban	78.9	1.1	18.1	2.0
Rural	56.9	0.5	40.8	1.7

Marital status				
Never married	88.1	0.6	10.6	0.6
Ever married	60.0	0.8	36.9	2.3
Religion				
Roman catholic	87.8	0.0	12.2	0.0
Protestants/other	81.9	1.3	15.7	1.1
Muslim	54.0	0.4	42.9	2.7
No religion/ Other	49.0	1.0	47.0	3.0
Contraceptive use	67.1	0.2	31.5	1.3
Never used	71.4	0.0	26.5	2.0
Ever used				

Source: analysis of 2008/09, KDHS

4.1.4 Age at first birth

The quality of data on reporting of age at first birth is also examined by plotting a graph as shown in figure 4.1. The figure shows that the age at first birth rises steadily and smoothly from age 12, 13 then declines at age 14 then rises again gradually from age 15 till age 19, and then declines from age 21 steadily. This indicates that there was no age heaping or digit preference on the age at first birth as reported. Thus the data is of good quality has no bias.

Figure 4.1 Distribution of women by age at first birth, Coast province 2008/09
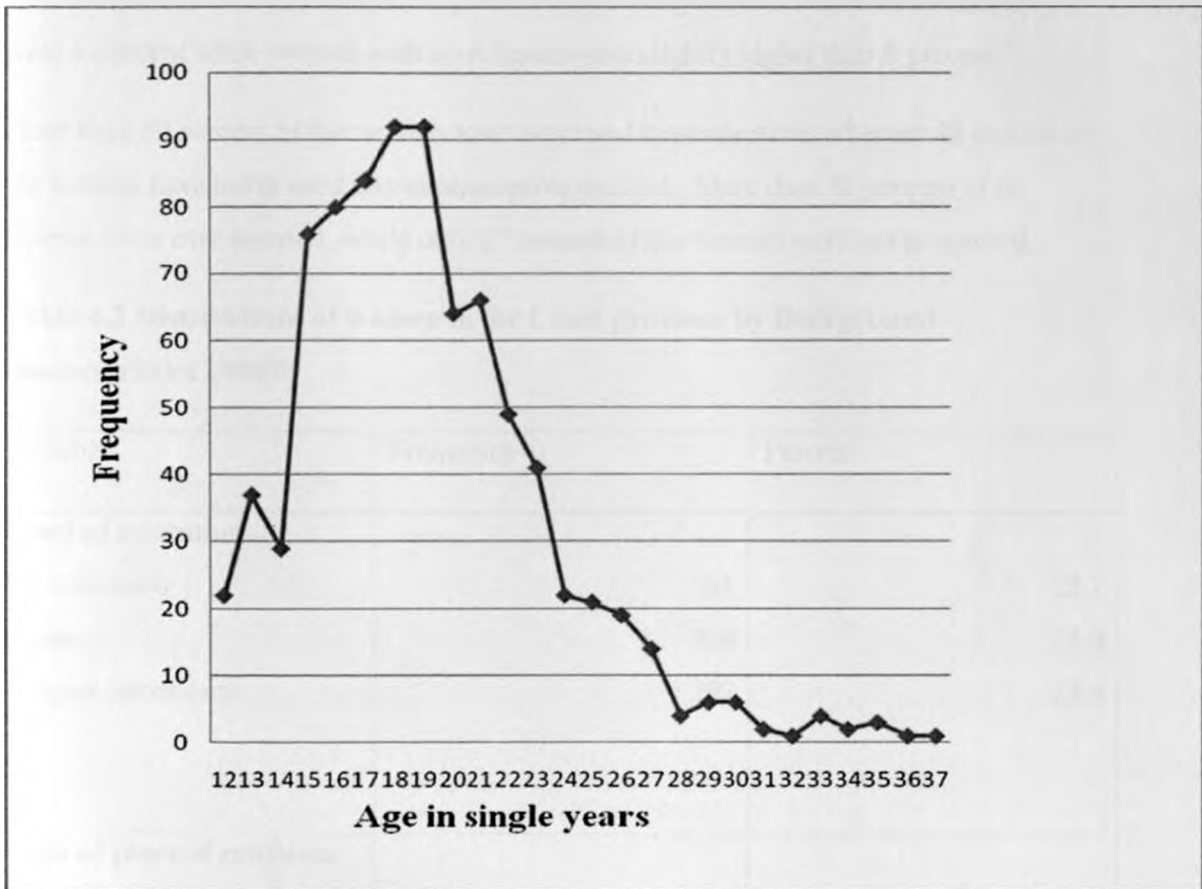
4.2 The characteristics of the study population

A total of 1149 women aged 15-49 interviewed in the 2008/09 KDHS from Coast province are analyzed in this study irrespective of their marital status. The basic characteristics of these women are presented in Table 4.3. The results show that with respect to education, over 51 percent of the women had primary education, while 23 percent of the women had no education with 25.4 percent of the women having at least secondary education. 53 percent of the women were aged between 20 and 34 years, 26 percent of the women were more than 35 years old whereas only 20 percent of the women were aged between 15 and 19 years.

Distribution on the type of place of residence shows that 51 percent of the women lived in rural areas whereas 49 percent of the women lived in urban areas. The dominant

30

religion in coast province is Muslim accounting for 43 percent. Women who professed protestant/other faith constituted 41 percent of the study population, Roman Catholic were 8 percent while women with no religion were slightly higher than 8 percent.

More than 50 percent of the women have ever used contraceptives whereas 48 percent of the women have never used any contraceptive method. More than 70 percent of the women were ever married, while only 27 percent of the women were never married.

Table 4.3 Distributions of women in the Coast province by Background characteristics 2008/09

Variable	Frequency	Percent
Level of education		
No education	261	22.7
Primary	596	51.9
At least Secondary	292	25.4
Type of place of residence		
Urban	559	48.7
Rural	590	51.3
Religion		
Roman Catholic	90	7.8
Protestant/Other	470	40.9
Muslim	489	42.6
No religion	100	8.7
Contraceptive use		
Never used	550	47.9
Ever used	599	52.1
Marital status		

Never married	312	27.2
Ever married	837	72.8
Women's age group		
15-19	237	20.6
20-34	611	53.2
35+	301	26.2

Source: Primary Analysis of KDHS, 2008 / 09

4.3 Bivariate analysis

4.3.1 Introduction

In this section cross tabulation and the Chi Square Test were used to describe the level of significance of association between the age at first birth and the selected background variables in coast province. It can be observed from the bivariate results that women's level of education, the type of place of residence, religion and women's age group are associated with age at first birth in Coast province.

The results show that women's level of education was significantly associated with the age at first birth, with a P-Value of 0.000 women's education can be said to be associated with age at first birth in coast province, therefore this finding confirms with other previous studies which states that education is a strong determinant of age at first birth (Lindstrom and Paz 2001; Ngalinda 1998 and Towett 2005)

The results further revealed that women's age groups has a strong relationship with age at first birth in coast province, with a p-value of 0.000, it can be said that women's age group is significantly associated with age at first birth in Coast province. This finding confirms other previous studies that women's age group is directly associated with the age at first birth (Desriani 2009).

Also the age at first birth was found to be significantly associated with the women's type of place of residence in Coast province. With a p-value of 0.000 the type of place of

residence is found to be a strong determinant of age at first birth in coast province. Thus this finding corresponds with other earlier studies that type of place of residence is a strong determinant of age at first birth (Gupta and Mahy 2001; Gyimah 2003; Elhag 2003 and Ngalinda 1998).

There is a significant association between religion and age at first birth, with a p-value of 0.007 religion can be said to influence the age at which first birth occurs. This finding confirms other previous studies that religion is strong determinant of age at first birth (Chandrasekhar 2007; Gyimah2003; Ngalinda 1998 and Elhag 2003).

Table 4.4 Bivariate analysis of the relationship between background variables and age at first birth.

Variables	Chi Square Test		
	Value	df	P- Value
Highest level of education No education Primary At least Secondary	85.368[a]	4	0.000**
Type of place of residence Urban Rural	24.271[a]	2	0.000**
Religion Roman Catholic Protestant/Other Muslim No religion/other	17.708a	6	0.007*
Contraceptive use Never used Ever used	0.134a	2	0.935[ns]
Marital status Never married Ever married	0.507a	2	0.776[ns]
Women's age group 15-19 20-34 35+	60.676[a]	4	0.000**

Source: Primary Analysis of KDHS, 2008 / 09

*P<0.05, **P<0.001, ***P<0.01

From the selected variables, it was observed that women's education level, type of place of residence, religion and women's age group were found to have an association with age at first birth in Coast province. The study did not establish significant relationship between marital status and contraceptive in determining the age at which first birth occurs in Coast province. Therefore, in order to analyze how significantly these characteristics influence age at first birth, the next section will use multivariate analysis.

4.4 Multivariate analysis

4.4.1 Fitting of the models

Having examined the association between age at first birth with each independent variable and found that some variables were significant at a bivariate level and some variables not significant, the next step was to fit the hazard proportional models for all the variables so as to establish the net effects of all explanatory variables on all women aged 15-49 in Coast province.

Three models were fitted where the first 2 models have three explanatory variables each. The first model will have the women's level of education, the type of place of residence and religion while the other model has women's age groups, contraceptive use and marital status. Finally the other model is the full model that includes all the variables.

Table 4.5 shows the results of model 1, where education was found to have a statistically significant effect in determining the age at which first birth occurs in Coast province but it was only significant for women with at least secondary education. Women with at least secondary education were found to be 0.298 times less likely to have had a first birth compared to women with no education in coast province. The relationship was significant at 0.001 level.

34

Table 4.5 A multivariate hazard model of the risk of birth by level of education, the type of place of residence and religion 2008/09 Coast province

Variables in the model	Coefficient (β)	Standard error (S.E)	Significance	Exp(β)
Level of education				
No education (RC)				1.000
Primary	-0.094	0.115	.414	0.911
At least Secondary	-1.210	0.195	.000	0.298**
Type of place of residence				
Urban (RC)				1.000
Rural	0.142	0.106	.177	1.153
Religion				
Roman Catholic (RC)				1.000
Protestant/Other	-0.052	0.191	.784	0.949
Muslim	0.043	0.188	.819	1.044
No religion/other	0.077	0.235	.742	1.081

Source: Primary analysis from 2008/09 KDHS

P<0.05, **P<0.001, ***P<0.01

The multivariate analysis results of model 2 are presentenced in Table 4.6. The study also established that women's age groups were a significant factor affecting the age at which first birth occurs in Coast province. Women aged 20-34 age groups were found to be 0.367 times less likely to have had a first birth compared to those women aged 15-19. The relationship was significant at 0.001 level. Also women aged 35+ were found to be 0.246 times less likely to have had a first birth compared to those aged 15-19 respectively in Coast province.

Table 4.6 A multivariate hazard model of the risk of birth by contraceptive use, marital status and women's age group 2008/09 Coast province.

Variables in the model	Coefficient (β)	Standard error (S.E)	Significance	Exp(β)
Contraceptive use Never used (RC) Ever used	-.046	0 .104	.658	1.000 0.955
Marital status Never married(RC) Ever married	.062	0.183	.734	1.000 1.064
Women's age groups 15-19 (RC) 20-34 35+	-1.004 -1.401	0.164 0.177	.000 .000	1.000 0.367*** 0.246***

Source: Primary Analysis of KDHS, 2008 / 09

Significance *P<0.05, **P<0.001, ***P<0.01 RC-Reference category

The multivariate analysis results of the final full model are presentenced in Table 4.7. Among the six variables fitted in the model only four variables were found to have statistically net effects on the risk of first birth in coast province. These variables are the women's level of education, women's age groups, the type of place of residence and contraceptive use.

Education level was found to have a statistically significant effect in determining the age at which first birth occurs in Coast province. Women with primary education were found to be 0.7 times less likely to have had a first birth compared to those women with no education. This relationship was significant at 0.01 level. Women with at least secondary education were found to be 0.22 times less likely to have had a first birth compared to those women with no education in Coast province. The relationship was significant at 0.001 level. This finding thus supports the hypothesis that educated women are more likely to prolong the start of child bearing compared to their uneducated counterparts.

This finding confirms previous studies that education indirectly influences age at first birth and increased number of years in school reduces the likelihood of an early first birth (Ngalinda 1998, Neeru and Luri 1999, Gyimah 2003,)

The results further indicate that the type of place of residence was found have significant effect on the risk of first birth in Coast province. Compared to women in urban areas, women in rural areas were found to be 1.229 times more likely to have had a first birth. The relationship was significant at a 0.05 level of significance. The rural and urban disparities could be due to differences in access to health facilities, cultural beliefs, living situations, and opportunities. In an urban setting an adolescent has more work or education opportunities that might motivate her to delay childbearing. This finding confirms previous studies that women from rural areas have high chances of the risk of an early first birth compared to women living in urban areas (Gyimah 2003, Gupta 2003, Elhag 2003).

Contraceptive use was also found to be a significant determinant of age at first birth in Coast province. Women who used contraceptives were found to be 1.296 more times as likely to have had a first birth compared to those who had never used any contraceptives in Coast province. The relationship was significant at 0.05 level. This finding confirms previous studies that women who use contraceptives use are significantly associated with a higher risk of an early first birth (Desriani 2009; Mahy 2003).

Women's age groups were also found to be a significant determinant of age at first birth. Women aged 20-34 were found to be 0.360 times less likely to have had a first birth compared to those women aged 15-19years. The relationship was significant at 0.001 level. Also women aged 35+ were found to be 0.225 times less likely to have had a first birth compared to those aged 15-19 in coast province. Thus this finding supports the hypothesis that across the women age groups there is a higher magnitude on the risk of birth among younger cohorts

Table 4.7 A multivariate hazard model of the risk of first birth Coast Province, 2008/09

Variables in the model	Coefficient (β)	Standard error (S.E)	Significance	Exp(β)
Level of education				
No education (RC)				1.000
Primary	-0.342	0.121	.005	0.710***
At least Secondary	-1.411	0.198	.000	0.244***
Type of place of residence				
Urban (RC)				1.000
Rural	0.206	0.106	.051	1.229*
Religion				
Roman Catholic (RC)			.767	1.000
Protestant/Other	-0.052	0.191	.785	0.949
Muslim	-0.028	0.191	.885	0.973
No religion/other	0.132	0.238	.579	1.141
Contraceptive use				
Never used (RC)				1.000
Ever used	0.259	0.112	.020	1.296*
Marital status				
Never married(RC)		0.186		1.000
Ever married	-0.151		.416	0.860
Women's age groups				
15-19 (RC)				1.000
20-34	-1.022	0.169	.000	0.360**
35+	-1.492	0.187	.000	0.225**

Source: Primary Analysis of KDHS, 2008 / 09

*P<0.05, **P<0.001, ***P<0.01

RC- Reference category

The overall fit of the model

Omnibus Tests of Model Coefficients[a]

-2Log Likelihood	(Overall Score)			Change From Previous Step			Change from previous Block		
	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
5253.721	149.605	10	.000	146.303	10	.000	146.303	10	.000

a. Beginning Block Number1. Method=Enter

Chapter 5

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter presents a summary of the whole research; outlines major study findings on the factors influencing age at first birth in Coast province and make conclusions vested of the findings. Recommendations for policy and future research are also given at the end of the chapter.

5.1 Summary

This study set out to analyze the factors influencing age at first birth in Coast province. The whole study was carried out with the objective of examining the factors influencing the age at first birth and determine the effect of some factors on age at first birth in Coast province. Specifically it sought to examine the socio economic factors, cultural factors and the demographic characteristics that influence age at first birth in Coast province.

To achieve the objectives, several hypotheses were tested by fitting a model to data drawn from the 2008/09 Kenya Demographic and health survey. The survey involved 1149 women in the reproductive ages of 15-49 from Coast province.

Age at first birth was taken as the dependent variable. Six explanatory variables were used in the study and these include; the women's level of education, women's age groups, type of place of residence, religion, contraceptive use and marital status.

Chapter one presents the background of the study, the problem of the study, the research questions and the objectives of the study. It also gives the justification, scope and the limitations of the study.

Chapter two looked at the literature for the study, the conceptual framework and the hypotheses for the study. It gives the definitions of concepts ,description, measurement of the variables and the theoretical perspectives.

Chapter three presents the study design, source of data and methodology used. It also explains how the data is analyzed.

Chapter four presents the quality of data used and the background characteristics of the study population, it showed that the data was of good quality and it could be used. Also the results of the bivariate and multivariate analysis are presented in this chapter.

The bivariate results showed that women's education level, the type of place of residence religion and women's age were significantly associated with age at first birth, while marital status and contraceptive use were found to be statistically insignificant in Coast province. Multivariate results gave further evidence about the results of bivariate analysis. Among the six variables fitted in the model only four variables were found to have statistically net effects on the risk of first birth in coast province. These variables are the women's level of education, women's age groups, the type of place of residence and contraceptive use.

Women with primary education and those women with at least secondary education were significantly associated with a lower risk of a first birth compared to those women with no education. This finding confirms with other previous studies that education is a strong determinant of age at first birth. (Ngalinda 1998, Gyimah 2003 and Towett 2005).

Also women who resided in rural areas were found to be at a higher risk of an early age at first birth compared to women who resided in urban areas this finding confirms other previous studies that the woman's place of residence is likely to influence the age at which first birth occurs (Gupta and Mahy 2001, Gyimah 2003). Also contraceptive use was found to be a significant factor in determining the age at first birth in coast province, those women who had ever used contraceptives were found to have a higher risk of a first birth compared to those who have never used and women in the older cohorts were found to have a lower risk of a first birth compared to those women in the younger cohort.

5.2 Conclusions

The study found that women's level of education, the type of place of residence, contraceptive use and age cohort to affect the age at which first birth occurs in Coast province.

As hypothesized the woman's level of education has a significant positive effect on age at which first birth occurs. The risk of having a first birth is lower among educated women than among the non-educated women in Coast province. Women with at least secondary education were found to have a lower risk of a first birth; Women with at least secondary education were found to be 0.244 times less likely to have a first birth compared to those women with no education. Thus this finding confirms with other previous studies which states that education is a strong determinant of age at first birth.

The result also supports the hypothesis that the woman's type of place of residence is likely to influence the age at first birth in Coast province. The risk of having a first birth is higher for women residing in rural areas compared to their counter parts living in urban areas. Women in rural areas were found to be 1.229 times more likely to have a first birth compared to their urban counterparts.

As hypothesized, there are significant differences in age at first birth among the various women age groups. The delay effect on first birth is higher among those women in the older age groups compared to those in the younger age group. This could be explained through education and advanced career opportunities for modern women. Women in the 35+ age groups were found to be 0.225 times less likely to have had a first birth compared to those women in the age groups 15-19 in Coast province. Also women in the age groups 20-34 were found to be 0.360 times less likely to have had a first birth compared to their counterparts aged 15-19 years in coast province.

As hypothesized Contraceptive use is likely to influence the age at first birth in Coast province. The risk of having a first birth is higher among women who have ever used contraceptives compared to those who have never used. Women who had ever used contraceptives were 1.296 times more likely to have had a first birth compared to those

who had never used any contraceptives. This could be attributed to the fact that there could be no proper use of the contraceptives or failure of the contraceptives in the coast province.

5.3 Recommendations

5.3.1 Policy recommendations

Findings of this study are of policy appeal especially in policies geared towards delaying the age at first birth for women in Coast province, county level and even for the whole country. The findings of the study suggest that the age at first birth is an important issue in Coast province and it has an association with demographic and socioeconomic aspects. This study is expected to be used by policy makers in family planning programs to recognize the issue of early childbearing among teenagers in the region.

This study revealed that there is need to put up policies and strengthen the already existing policies and programs that improve higher educational attainment for women in Coast province so as to delay the age at first birth. Women's access to secondary education should be improved as a way of raising age at first birth. These policies should integrate reproductive health programmes with information on sexuality targeting young people. Programmes set should emphasize on the health advantages of delaying childbearing and increase the socio-economic status of women in Coast province.

5.3.2 Recommendations for further research

There is need for further qualitative research and in-depth interviews on the impact of contraceptive use on the age at first birth so as to unravel the reasons behind the finding that the women who used any contraceptive method were more likely to have a first birth earlier than those who never used contraception. To have a clear understanding about this case, further investigation is needed.

This research has only investigated the factors associated with the incidence of age at first birth in Coast province; hence, further research is needed in order to gain more understanding regarding the consequences of early age at first birth in the region and even in the whole country.

REFERENCES

Adetoro, O. and Agah. A (1988). "The implications of childbearing in postpubertal girls in Sokoto, Nigeria." International Journal of Gynaecology and Obstetrics.

Agha. Z and Hassan. E (2005) Demographic and Socio-Economic Determinants of Birth Interval Dynamics in Iran: A Hazard Function Analysis, Master of Arts population studies Thesis, Shiraz University, Iran

Anuja J, Tesfayi G and Chandrasekhar S. (2007) The Impact of Conflict on Age at Marriage and Childbirth in Rwanda, Demographic and health research, United states Agency for International Development, Macro International.

Cochrane, Susan H. and Farid S.M. (1989). "Fertility in sub-Saharan Africa: Analysis and explanation."World Bank Discussion Papers, No. 43. Washington, DC: The World Bank.

De Wit L. and R. Ravanera et al. (1997) Educational attainment and timing of child bearing Among Recent cohorts of Canadian Women: Population studies and Social science, Discussion paper No 94-3.

Desriani D. (2009) Determinants of Teenage Motherhood, Evidence from the 2007 Indonesia Demographic and Health Survey. Master of Applied Population Studies thesis, Flinders University Adelaide, South Australia.

Elhag A, (2003) Teenage Pregnancy in Sub Saharan Africa Cameroon. Master's Thesis, Ohio state University.

Fiona. S (2005) Event history analysis, A National Centre for Research Methods Briefing Paper, University of Bristol

Gupta. N, Da Costa. L (1999) "Adolescent fertility behavior: Trends and Determinants in Northeastern Brazil, International Family Planning Perspectives Volume 25 No 3.

Hiromi T, (1999). "The Timing of Childbearing and Women's Wages" Journal of Marriage and Family, Vol. 61, No. 4

Hirschman C, (1985) Premarital Socioeconomic Roles and the Timing of Family Formation: A comparative Study of Five Asian Societies. Population Association of America, Demography, Volume 22 No 1.

Hirschman C, Rindfuss R, (1980) Social, Cultural, and Economic Determinants of Age at Birth of First Child in Peninsular Malaysia, Population studies, Volume 34,Issue 3 PP 507-518.

Hirschman C. and Rindfuss R. (1982) The Sequence and Timing of Family Formation Events in Asia, American Sociological Review, Vol. 47, No. 5

Ikamari. L (2008) Regional Variation in Initiation of Childbearing in Kenya, Population Studies and Research Institute, University of Nairobi, Kenya

John M. P, et al (1991) Adolescent Sexuality and Fertility in Kenya: A Survey of Knowledge, Perceptions, and Practices. Studies in Family Planning, Vol. 22, No. 4

LeGrand T , and Cheikh M (1993), "Teenage Pregnancy and Child Health in the Urban Sahel", Studies in Family Planning, Vol. 24, No. 3

Mary M, and Neeru G, (2001). "Trends and Differentials in Age at First Birth in Sub-Saharan Africa" Demographic and Health Research Division

Neeru G, and Mary M, (2003). "Adolescent childbearing in sub-Saharan Africa" *Demographic Research* – Volume 8, Article 4 Population Studies, Vol. 60, No. 3

Ngalinda I, (1998) Age at First Birth, Fertility, and Contraception in Tanzania. Masters of Arts Thesis. Humboldt University of Berlin. Population Studies, Vol. 60, No. 3

Presser, H. B. (1971)"The timing of the first birth, female roles and black fertility." Milbank Memorial Fund Quarterly 49:329-362.

Ronald R, Morgan S. P and C. Gray (1984) the Transition to Motherhood: The Intersection of Structural and Temporal Dimensions, American Sociological Review, Vol. 49, No.3

Ronald R, Rindfuss and Craig J, (1983) Social Determinants of Age at First Birth. Journal of Marriage and Family, Vol. 45, No. 3

S. P. Morgan and R. Rindfuss, (1984) Household Structure and the Tempo of Family Formation in Comparative Perspective. Population Studies, Vol. 38, No. 1

Senanayake, and Pramilla. (1990)."Adolescent fertility." In Health Care of Women and Children in Developing Countries. Ed. H.M.Wallace and K. Giri. Oakland.

Senderowitz, J, Paxman J M, (1985) "Adolescent fertility: Worldwide concerns." Population Bulletin, Washington, DC: Population Reference Bureau.

Stephen O. G (2003) Women's Educational attainment and the timing of Parenthood in Ghana: A cohort perspective. Population studies and sociology discussion paper No 03-04.

Stephen O. G, (2003) a Cohort Analysis of the Timing of First Birth and Fertility in Ghana, Population Research and Policy Review, Vol. 22, No. 3

Susheela S, (1998), Adolescent Childbearing in Developing Countries: Studies in Family Planning, Vol. 29, No. 2

Teachman and Polonko A, (1985) Timing of the Transition to Parenthood: A Multidimensional Birth-Interval Approach, Journal of Marriage and Family, Vol. 47, No. 4

Towett C, (2005) Covariates of age at first birth in Kenya. Unpublished Msc Thesis at PSRI University of Nairobi.

Trussell J, and D. E. Bloom (1983) Estimating the Covariates of Age at Marriage and First Birth. Population Studies, Vol. 37, No. 3

Wasunna A. and Mohammed.K (2002) Morbidity and outcome of low birth weight babies of adolescent mothers at Kenyatta National Hospital, Nairobi, East African Medical Journal.

Ying H, (2006), Marital Decision-Making and the Timing of First Birth in Rural China, Population Studies, Vol. 60, No. 3

Appendix

Appendix A

A multivariate hazard model for the risk of birth by Level of education, Religion and the type of place of residence, Coast province , 2008/09 KDHS

Variables in the model	B	SE	Wald	df	Sig.	Exp(B)
Level of education						
No education(RC)			43.590	2	.000	1.000
Primary	-.094	.115	.667	1	.414	.911
At least Secondary	-1.210	.195	38.421	1	.000	.298
Religion Roman Catholic (RC)			.909	3	.823	1.000
Protestant/Other	-.052	.191	.075	1	.784	.949
Muslim	.043	.188	.053	1	.819	1.044
No religion	.077	.235	.108	1	.742	1.081
Type of place of residence Urban (RC)						1.000
Rural	.142	.106	1.820	1	.177	1.153

Source: Primary analysis from 2008/09 KDHS

Significance *P<0.05, **P<0.001, ***P<0.01 RC-Reference Category.

Appendix B

A multivariate hazard model for the risk of first birth by contraceptive use, women's age groups and marital status Coast province 2008/09

Variables in the model	B	SE	Wald	df	Sig.	Exp(B)
Contraceptive use Never used (RC)						1.000
Ever used	-.046	.104	.196	1	.658	.955
Marital status Never married(RC)						1.000
Ever married	.062	.183	.116	1	.734	1.064
Women's age groups 15-19 (RC)			62.697	2	.000	1.000
20-34	-1.004	.164	37.460	1	.000	.367
35+	-1.401	.177	62.639	1	.000	.246

Source: Primary analysis from 2008/09 KDHS

Significance *P<0.05, **P<0.001, ***P<0.01 RC-Reference Category.

Appendix C
A multivariate hazard model for the risk of birth in coast province 2008/09

	B	SE	Wald	df	Sig.	Exp(B)
Contraceptive use						
Never used (RC)						1.000
Ever used	.259	.112	5.375	1	.020	1.296
Marital status						
Never married(RC)						1.000
Ever married	-.151	.186	.662	1	.416	.860
Women's age groups						
15-19 (RC)			64.126	2	.000	1.000
20-34	-1.022	.169	36.726	1	.000	.360
35+	-1.492	.187	63.799	1	.000	.225
Religion						
Roman Catholic (RC)			1.140	3	.767	1.000
Protestant/Other	-.052	.191	.074	1	.785	.949
Muslim	-.028	.191	.021	1	.885	.973
No religion	.132	.238	.307	1	.579	1.141
No education (RC)			51.080	2	.000	1.000
Primary	-.342	.121	7.976	1	.005	.710
At least secondary	-1.411	.198	50.600	1	.000	.244
Type of place of residence						
Urban (RC)						1.000
Rural	.206	.106	3.806	1	.051	1.229

Source: Primary analysis from 2008/09 KDHS
Significance *P<0.05, **P<0.001, ***P<0.01 RC-Reference Category