SOCIO–ECONOMIC FACTORS INFLUENCING FERTILITY BEHAVIOUR IN MASENO DIVISION, KISUMU WEST SUB-COUNTY, KENYA

BY

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DECLARATION

Declaration by student

I, the undersigned, hereby declare that this thesis is my original work and that it has never

been presented for award of any degree or academic work in this University or elsewhere.

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DEDICATION

This work is dedicated to my lovely wife Theresa Akal, my beloved children Ian Obiero Onyango and Tracy Diana Achieng, for their constant support and prayers. May the Almighty God bless them abundantly. It is as well dedicated to my parents John Obiero Oloo and Mary Atieno Obiero who also prayed and supported me though died when I was about to complete this work. May the good Lord rest their souls in eternal peace.

ABSTRACT

Fertility behaviour issues are a concern of many governments and organizations in several countries. Documentation of children ever born is important in understanding fertility behaviour of a region. Fertility bevahiour is usually influenced by various factors so it's necessary to determine their level of influence. Modern contraceptives are currently available for fertility regulation so when fertility is high, it's necessary to find out the threshold at which various factors influence the decision to regulate fertility. Fertility level of Maseno Division is high as illustrated by a total fertility rate of 5.2, higher than those of the sub-county, national and global ones of 4.5, 3.9 and 2.5, respectively. Its population growth rate of 3.9% is higher the national and global ones of 2.6% and 1.2%, respectively. Its contraceptive prevalence rate of 26.1% is lower than the national of 58%. High fertility is causing undesirable effects in Maseno Division yet there isn't documented study on factors influencing it. The purpose of this study was to examine socio-economic factors influencing fertility behaviour in Maseno Division of Kisumu West Sub-County, Kenya. The objectives of this study were to: determine the mean number of children ever born to married women; determine the level at which education level, age at marriage, sex preference, religion, income level, family pressures and family land size influence mean number of children ever born to married women; and assess the threshold at which education level, age at marriage, sex preference, religion and income level influence the decision to regulate fertility by use of modern contraceptives. Cross-sectional survey research design was used. A sample size of 384 married women was obtained from a study population of 40,306 women. The study area was stratified according to locations then married women, key informants and members of Focus Group Discussions were selected using purposive sampling technique. Primary data was collected using questionnaires, Key Informant Interviews and Focus Group Discussions while secondary data was collected from published sources. Quantitative data was analyzed by using descriptive and inferential statistics such as frequency distribution, percentages, mean and correlation analysis.. Qualitative data was analyzed by organizing them into themes and patterns then evaluating their usefulness to answer research questions. Results showed that the mean number of children ever born to married women at age cohort 44-45 years is 7 children. Results also revealed that socio-economic factors influence mean number of children ever born at various levels: education level, age at marriage, family income, size of family land sex preference, religious affiliation and family pressures. Results further indicated that education level, income level, age at marriage and sex preference had thresholds at which they influence the decision to regulate fertility by use of modern contraceptives. The study concluded that a small proportion of the division is in the early third phase of transition according to Demand-Supply Theory of Easterlin. The study recommends enactment of laws that limit the size of a family and a two pronged approach to empower married women economically and to increase their level of motivation towards fertility control and hence adopt modern contraceptives.

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ABBREVIATIONS

CBOs: Community Based Organizations

CBS: Central Bureau of Statistics

CEB: Children ever born

FGDs: Focus Group Discussions

KDHS: Kenya Demographic Health Survey

KNBS: Kenya National Bureau of Statistics.

KHPF: Kenya Health Policy Framework

MCA: Multiple Classification Analysis

MENAC: Middle East and North African Countries

NCPD: National Council for Population Development

NGOs: Non Governmental Organizations

TFR: Total Fertility Rate

UN: United Nations

UNICEF: United Nations Children's Emergency Fund

UNESCO: United Nations Education Scientific and Cultural Organization

OPERATIONAL DEFINITION OF TERMS

Children ever born - Refers to the mean number of children born alive to married women in a particular age cohort.

Contraceptive prevalence rate - Refers to the percentage of all married women of reproductive age, aged 15-49 years who are using a method of modern contraception.

Fertility - Refers to the actual number of births per married woman during her child bearing years.

Fertility behaviour - Refers to the mean number of children ever born to married women and use of modern contraceptives by married women,

Fertility regulation - Refers to efforts consciously made to limit child bearing.

Modern contraceptive - Refers to a device, drug or chemical agent that prevents contraception. It includes pills, injection, tubal ligation, male condoms, skin patch, female condoms and diaphragm.

Socio-economic factors - Refers to the factors such as educational, age at marriage, sex reference, religion, income level, family pressures and family land size.

Threshold - Refers to the first point in terms of percentage where there is marked rise in the number of respondents that use modern contraceptives.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Fertility refers to the actual number of live births per woman during the child bearing periods, expressed in terms of achieved family size or the number of children ever born by a woman at a particular stage of her reproductive career (Adhikari, 2010). Family size is the number of live births to the family unit under consideration, not the number of surviving children at the time of observation (Weeks, 2007). Total fertility rate is also a common measure of fertility (CIA, 2015). A total fertility rate of 2.1 births per woman is a rate which is necessary to replace both parents; is widely accepted as indicating a stable fertility (Billari, Philipov & Testa, 2009). A total fertility rate greater than 2.1 indicates a rising fertility and a rate lower than 2.1 a declining fertility (ESHRE Capri Workshop Group, 2010). Fertility is one of the three principal components of population dynamics that determine the size and structure of the population of a country (United Nations, 2002). World population explosion has plunged the poor developing countries into the dark age of poverty (UNICEF, 2015). Population explosion is a pessimistic expression of high fertility (Pandey, Thakkar, Rawat, Jha & Awasthi, 2012). One of the recognized ways of curbing population explosion is aggressively using the available ethical services to bring down fertility (Okech, Wawire & Mburu, 2011).

Globally, fertility levels, illustrated by use of total fertility rate, have been on a decline (UNICEF, 2015; An-Migritt, 2015). The total fertility rates in Europe are below replacement level (Lutz, 2006). The fertility rates in Europe are not uniform, Western and Northern

Europe have higher fertility rates (2.0) than the Southern and Eastern Europe (1.50) (ESHER Capri Workshop Group (2010). Fertility rates in Asia also vary from region to regional though they are higher than those of Europe (CIA, 2015). The fertility rates in India for instance varies; in the Northern region it is about 3.21 births per woman while in the Central region it is about 4.6 births per woman (Spoorenberg, 2015). India has also shown fertility decline although with variations in decline within the country (Chaundhry & Satija, 2009). These scholarly works (CIA, 2015; Chaundhry and Sitaji, 2009; ESHER Capri Workshop Group, 2010; Spoorenberg, 2015 and Lutz, 2006) have illustrated the fertility levels of Europe and Asia using total fertility rates and also confirmed that the fertility rates of those regions are falling. The children ever born (CEB) comprises information on the number of all children born alive up to the research or survey date. However, the researchers did not document the CEB to women. Mean number of CEB to women represents the age cohort and reflects current and past fertility behaviours. Finally it does allow for generalizations of data and understanding that can provide the basis for further analysis.

Nag and Singhal (2013) noted that fertility behavior have been influenced by various socio-economic factors. Josipovic (2007) concluded that in Asia education as a socio-economic factor is treated as one of the decisive and influential factors in the reproductive behaviour. Further, education affects reproductive behaviour of women by reducing their fertility as demonstrated by Singh, Singh, Singh and Pathak, (2002). Kumar (2010) noted that early marriage, in Bangladesh, Nepal, India and Pakistan, influences fertility behaviour because it lengthens the time a woman is likely to get pregnant. The preference of sons among the Nepalese has an influence on fertility behaviour; a woman will continue giving birth to get

more sons (Adhikari, 2010). The above studies (Nag and Singhal, 2013; Singh et al., 2002; and Kumar, 2010) generally agree that socio-economic factors like education and preference to sons influence fertility behaviour. However, these studies did not explicitly reveal the extent to which socio-economic factors such as education level, age at marriage, sex preference, religion, family pressures and family land size as socio-economic factors influence the mean number of CEB. In addition, other socio-economic factors influencing the mean number of CEB were not highlighted in these studies.

While fertility levels in Africa are generally high, those of Sub-Saharan Africa are exceptionally high (Harper, 2015; United Nations, 2015). Africa's fertility level illustrated by total fertility rate is 4.7, far much higher than the global one of 2.5 births per woman (UN, 2015). Many couples may choose to either rely on modern or traditional methods of contraception to regulate their fertility. According to Mboane and Bhatta (2015), the use of modern contraceptives to regulate fertility is influenced by various socio-economic factors in Africa. Creange, Gillespie, Karklins and Tsui (2011) noted that in Madagascar, Zambia, Namibia, Mozambique and Ethiopia, wealthy people use modern contraceptives to regulate their fertility as opposed to the poor people. Poor women in the rural areas are also constrained by long distances from their villages to the centers where the services are offered hence discouraging them from using contraceptives as observed by Oliver (1995). In some areas in Africa, women will not use modern contraceptives if their husbands object with even educated ones succumbing to this kind of patriarchal pressure (Mboane & Bhatta, 2015). These scholarly views gave details of general socio-economic factors influencing the use of modern contraceptives but failed to address the threshold at which socio-economic factors

namely; educational level, age at marriage, sex preference, religion, income level and family pressures influence the decision to regulate fertility by use of modern contraceptives.

In Kenya, fertility has remained at fairly high levels for a long time (An-Magritt, 2015). According to Kenya Human Demographic Health Survey of 2015, fertility levels in Kenya are on a decline from 4.6 births per woman in 2009 to 3.9 births per women currently (KNBS, 2015). It is also important to note that the total fertility rate of rural areas (4.5) is higher than that for urban areas (3.1) (KNBS, 2016). According to Ng'ang'a (2003), Kenya is one of the countries in Africa where preference for the male children has been reported. In the same study, Ng'ang'a (2003) observed that a woman with no males is considered inadequate and a Kenyan husband may marry other women in the hope of getting a son. Kiriti and Tisdell (2003) concluded that women in Nyeri District had greater preference for male children because of their fear of being disinherited if they did not produce an heir for their husbands. Strong preferences for large families also exist in Kenya and children are greatly valued not only for preserving family lineage but as a positive asset that provides labor and financial security in old age (Ang'awa, 1997). In rural parts of Kenya where people depend on subsistence agriculture, a community is likely to bear more children to provide the much-needed labor (Republic of Kenya, 2006). These studies generally agreed that socio-economic factors influence fertility. However, the studies did not determine the level at which various socio-economic factors such as education level, age at marriage, sex preference, religion, income level, family pressures and family land size influence the number of CEB.

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The Government of Kenya recognized the importance of modern fertility regulation soon after independence and formally accepted population planning as part of National Planning Strategies (Okech, Wawire and Mburu, 2011). However, fertility regulation by the use of modern contraceptives has come under socio-economic influences. Educated women use modern contraceptives to regulate their fertility more than the less educated women (Bakibinga, Mutombo, Mukira, Kamande, Ezeh and Muga 2015; Abdala, 2014). Awareness and knowledge alone does not necessarily translate into the use of modern contraceptives; many women do not use them for fertility regulation because of myths and misconceptions (Ochako, Mbondo, Aloo, Kaimenyi, Temmerman and Megan, 2015). The acceptance of modern contraceptives in Kenya among Catholics, Protestants and Muslims to regulate fertility vary greatly (Bakibinga et al., 2015; Abdala, 2014; Nangendo, 2012; Mburungu & Zulu, 1988). Regulation of fertility by use of modern contraceptives is influenced by income inequalities; many poor married women do not use modern contraceptives as opposed to the wealthy ones (Creange, Gillespie, Karklins, and Tsui, 2011; Okech et al., 2011). In view of the foregoing, the threshold at which socio-economic factors such as education level, age at marriage, sex preference, religion, income level and family pressures influence the decision to regulate fertility by use of modern contraceptives has not been clearly investigated.

Maseno Division has social practices that do not support the advancement of women such as access to land property, exclusion of women on decision making organs and restrictions on family inheritance (Republic of Kenya, 2008). The high fertility level in Maseno Division, illustrated by total fertility rate (5.2), could be one of the factors that have led to the high population increase whose consequences in the division are undesirable. The population

growth rate of the division was at a rate of 3.0% and higher than the national one of 2.6% (Republic of Kenya, 2010, 2009; KNBS, 2008, 2016). The total fertility rate of Maseno Division has been on a decline from 8.6 births per woman in 1990 to 5.2 births per woman in 2015, though fertility level has remained high (Republic of Kenya, 2010). The total fertility of the division is higher than those of Kisumu Sub-county and Kenya which was 4.5 and 3.9 births per woman in 2015 (KNBS, 2016). The contraceptive prevalence rate has been 26.1 percent (Republic of Kenya, 2010) lower than the national one of 58 percent (Republic of Kenya, 2010; KNBS, 2016). There was limited information on the mean number of CEB born to women in the division. In addition, there was need to determine the level at which education level, age at marriage, sex preference, religion, income level , family pressures and family land size influence mean number of CEB as well as the threshold at which the same socio-economic factors influence the decision to regulate fertility by the use of modern contraceptives in the division. It is against this background that the study aims at examining socio-economic factors influencing fertility behaviour in Maseno Division.

1.2 Statement of the Problem

High fertility is causing undesirable effects in Maseno Division. Documentation of CEB is important in understanding fertility behaviour of a region. The CEB comprises information on the number of all children born alive up to the research or survey date. The mean number of CEB to women represents the age cohort and reflects current and past fertility behaviour. It also allow for generalizations and understanding that can provide the basis for further analysis. When fertility is high, it becomes necessary to reveal explicitly the level at which various socio-economic factors such as education level, age at marriage, sex preference,

religion, income level, family pressures and family land size influence mean number of CEB. Furthermore, modern contraceptives are currently available for birth control so when fertility is high it becomes important to find out the threshold at which socio-economic factors influence the decision to regulate fertility by use of modern contraceptives. There is no documented information on mean CEB, the level at which socio-economic factors influence mean number of CEB and the threshold at which socio-economic namely; education level, age at marriage, sex preference, religion, income level and family pressures influence the decision to use modern contraceptives to regulate fertility in Maseno Division. The issues above were important in examining fertility behaviour in Maseno Division. Therefore, the purpose of this study was to examine socio-economic factors influencing fertility behavior in Maseno Division.

1.3 Objectives of the Study

The main objective of this study was to examine the socio-economic factors that influence fertility behaviour in Maseno Division, Kisumu West Sub-County, Kenya.

The research was guided by the following specific objectives:

1. To determine the mean number of children ever born to married women in Maseno Division.

2. To determine the level at which education level, age at marriage, sex preference, religion, income level, family pressures and family land size influence the number of children ever born in Maseno Division.

3. To assess the threshold at which education level, age at marriage, sex preference, religion, level of income and family pressures influence the decision to regulate fertility by use of modern contraceptives.

1.4 Research Questions

The study was guided by the following research questions:

1. What is the mean number of children ever born to married women in Maseno Division?

2. At what levels do education level, age at marriage, sex preference, religion, level of income, family pressures and family land size influence the number of children ever born in Maseno Division?

3. What is the threshold at which education level, age at marriage, sex preference, religion, level of income and family pressures influence decision to regulate fertility by use of modern contraceptives?

1.5 Justification for the Study

There are different basic determinants of fertility that have been identified and documented. Such basic determinants of fertility are socio-economic factors. However, the influences of socio-economic factors on fertility behaviour have not been critically examined (Alif, Janjua, Riasat A, Aktar, & Riasat G, 2012). In order to attain a stable fertility of a total fertility rate of 2.1, more information is needed on how socio-economic factors influence fertility behaviour. It is important to acknowledge that all categories of women, single, divorced, widows and separated women contributed to fertility level of Maseno Division. However, this study focused on married women in order to get in-depth information on their fertility behaviour. It has been observed that there are certain characteristics which are unique in a

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particular group of people which can be unearthed when the group is isolated from others during a study (Mugenda and Mugenda, 2003).

The study focused on Maseno Division where fertility behaviour issues have not been addressed yet the fertility level of the inhabitants is high. Fertility level of the division illustrated by TFR is 5.8. It is higher than that for Kisumu Sub-county and Kenya which are 4.5 and 3.9, respectively (Republic of Kenya, 2010; KNBS, 2016). The population growth rate of Maseno Division is also high; it is at 3.0% while the one for the county is 2.8% (KNBS, 2008; 2016). The results of this study provide adequate information on the influence of socio-economic factors on fertility behaviour. This is useful to the married women in particular and to the community, national government, county government and other stakeholders in general. The study also identified information gaps of fertility behaviour that need to be addressed in order to enhance the attainment of a stable fertility.

1.6. Significance of the Study

The study used available secondary data as well as primary data from the field to analyze the influence of socio-economic factors on fertility behaviour in Maseno Division. The influence of socio-economic factors on fertility behaviour has not been examined in Maseno Division. The study will highlight the methodological procedures that are used to carry out such a research. The results of the study will help the policy makers plan for strategies for managing fertility among married women.

The study will benefit families since it will create a basis for married women to appreciate the benefits that come with using modern contraceptives in managing fertility. This will ultimately enable married women to have small family sizes.

1.7 Scope and Limitations of the Study

The study was confined to Maseno Division of Kisumu West Sub-County. The study examined socio-economic factors influencing fertility behaviour in Maseno Division. The other factors, such as environmental and biological, which also influence fertility, were held constant in this study. During data collection the respondents earnestly inquired whether they would get monetary gains on completion of the study lest they would not respond to my questions. I managed to convince them that the research is mainly for academic advancement. The study could have suffered from recall biases such as when the respondents got married and started using modern contraceptives. The social desirability may have introduced bias, because participants could have wished to look modern by reporting use of modern contraceptives. The secondary data was mainly collected on-line because it was a challenge to get relevant reference material from the library shelves.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of relevant literature on socio-economic factors and fertility behaviour. It starts with a review of literature on the mean number of CEB and then the extent of socio-economic factors influence on fertility behaviour. The section also reviews the influence of socio-economic factors on the decision to regulate fertility by use of modern contraceptives. This chapter provides a framework for establishing the importance as well as a benchmark for comparing the results of the study with other findings.

2.2 Mean Number of Children Ever Born

According to UNICEF (2015) and An-Magritt (2015) there has been a general global decline in the fertility rate which currently stands at 2.5 children per woman. Total fertility rate is the most common measure of fertility (CIA, 2015). A total fertility rate of 2.1 births per woman, which is necessary to replace both parents, is a level of fertility widely accepted as indicating a stable fertility (Billari et al, 2009). A rate greater than 2.1 indicates a rising fertility and a rate lower than 2.1 a declining fertility (ESHRE Capri Workshop Group, 2010). It is however important to note that the general decline in global fertility, as observed by UNICEF (2015) and An-Magritt (2015), should not be assumed to mean that all countries in the world are experiencing low fertility. Belsie (2015) noted that many countries in Europe in the recent past have exhibited low fertility but the decline is not uniform across the continent. Asia (Spoorenberg, 2012) and Africa (Harper, 2015) are regions whose fertility is still high or the rate of decline is still low and varies widely.

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Total fertility rates in Europe are below the replacement level, an indication that it has reached the final stage of demographic transition normally characterized by low fertility (Lutz, 2006). ESHRE Capri Workshop Group (2010) observes that Western and Northern Europe have higher fertility rates (about 2.0) than the Southern and Eastern Europe whose fertility rates are lowest, less than 1.54. The fertility rates in Asia also vary from one region to another though they are higher than those of Europe (CIA, 2015). In India for instance (Spoorenberg, 2015), the fertility rate in the Northern region is about 3.21 births per woman while in the Central region it is about 4.06 children per woman. India has also shown decline in fertility rates even though it varies within the country: the Southern states are reporting a rapid decline in fertility rates whereas this is not the case in the Northern states (Chaundhry & Satija, 2009).

These studies (Spoorenberg 2015), Chaundhry and Satija (2009), ESHRE Capri Workshop Group (2010) and Lutz (2006) have illustrated the fertility levels in Europe and Asia through enlisting their total fertility rates which provide general fertility behaviour of a region. However, the illustrations have ignored the number of CEB to women. The mean number of the CEB to women represents the real age cohort and reflects current and past fertility behaviour.

Fertility levels in Africa are still high (Mekonnen, 2011). UNICEF (2003), states that Africa's average total fertility rate currently stands at 4.5 children per woman of reproductive age, far above the global average of 2.5 children per woman. Even though Africa's average fertility rate is on the decline, and has been for decades, its rate of decline is slow and the continent's fertility rates particularly in Sub-Saharan Africa remains far higher than

anywhere else in the world UN (2007). According to Harper (2015), women living in the states in Sub-Saharan Africa are still bearing over five children on average and this rises to over six or even seven in countries such as Chad, Mali and Niger. However, the country level current fertility rates vary widely from 1.5 children per woman in Mauritius to 7.5 children per woman in Niger (UNICEF, 2015). The total fertility rate of Uganda and Tanzania are 5.97 and 4.95 children per woman respectively (CIA, 2015) hence showing that fertility levels are still high. Although Tanzania has reached the onset of demographic transition, Uganda is still within the pre-transition stage where the total fertility rate is above 5 children per woman and shows very weak or no signs of decline.

The scholarly work by Harper (2015), UNICEF (2015, 2003) and CIA (2015) have all provided data on fertility levels in Africa by the use of total fertility rates further indicating that the fertility rate in Sub-Saharan Africa is still high though there is a slight indication of decline. However, they have ignored the number of CEB to women as it would have provided information on the number of all children born alive up to the research date.

In Kenya, fertility has remained at a fairly high level for a long time (An-Magritt, 2015). However, according to Kenya Human Demographic Survey (KNBS, 2015) the fertility levels in Kenya are on a decline, currently at 3.9 births per woman, lower than 4.6 births per woman as was the case in 2009. A comparison of the total fertility rate in the rural and urban areas reveals that the one for rural (4.5) areas is higher than the urban (3.1) areas. This clearly shows that women living in the rural areas bear more children than those living in the urban areas.

The total fertility rate of Kisumu County according to KDHS carried out in 2015 is 3.6 births per woman (KNBS, 2016) while that for Kisumu Sub-County was 4.5 births per woman (Republic of Kenya, 2010). The total fertility rate of Maseno is 5.2 births per woman (KNBS, 2015) though there has been a general decline the last 24 years as illustrated (Table 1).

Table 1: Fertility levels and trends in Maseno Division: 1977 - 2009

Years	1990	1995	2000	2005	2010	2015
TFR	8.5	7.5	7.0	6.5	6.8	5.2

Source: KNBS (2016): The Kenya demographic Health Survey 2016

However, it is important to observe from Table 1 that there was a steady decline in the total fertility rate if the division between 1990 and 2005 followed by a rise between 2005 and 2010. The subsequent years, 2010-2015 marked the highest decline (-1.6) in the total fertility rate of Maseno Division.

It is worth noting that even though the total fertility rate of Maseno Division is on the decline, it is still high above the accepted replacement level of 2.1 births per woman. The high fertility levels are also evidenced by the high rate of population growth of 3.0 % while that for the nation is 2.8% (KNBS, 2008; 2016; UN, 2013). Republic of Kenya (2010) has illustrated fertility levels and trends in Maseno Division by providing its total fertility rate. However, it has ignored CEB to women which could have provided conclusive data on the fertility behaviour of women in Maseno Division. This is because the mean number of CEB to women represents the child bearing experience of a real age cohort and past fertility behaviour. It also allows for generalizations and understanding that provide room for further analysis. Therefore there was need to establish the mean number of CEB to married women

in Maseno Division so as to have a better understanding of the fertility behaviour of the local inhabitants.

2.3 Level of Socio-economic Factors' Influence on Fertility Behaviour

Fertility is the only way for biological replacement of human beings in order to continue their existence on earth (Meyer, 2011). If the human society is to prevail, it is only through fertility as one cannot control death (Gubhaju, 2007). However, in the last few decades, because of the exponential growth in human population with limited natural resources available, there arises a common concern not to take full advantage of human fertility (Asghar, Murray & Saraswathy, 2014). Nag and Singhal (2013) observed that fertility in developing countries is influenced by a number of socio-economic factors whose influence varies from region to region.

In Latin America (Martin and Juorez, 1995) the influence of education can be partly traced to the impact of attitudes towards fertility (Martin and Juorez, 1995). Martin and Juorez (1995) further observed that, schooling has come to be regarded as a decisive stimulus in the shift from a traditional value scheme (where major decisions, such as the number of children are routinely left to the fate of God) to a value system where the belief in a controlled destiny applies to child bearing. Nag and Singhal (2013) pointed out that education is a direct and powerful inhibitor of a population growth and has a contributing effect which causes variations in fertility levels. According to Josipovic (2007), in Asia, education is regarded as one of the decisive and most influential factors in the reproductive behaviour. Singh et al (2002) observed that education affects reproductive behavior of women, influencing fertility by reducing it.

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In most societies marriage is considered as an institution within which procreation is socially sanctioned (Ang'awa, 1997). In this context, age at marriage can be considered as the legitimate and socially acceptable starting point for reproductive period (Schoumaker, 2004). Age at marriage has also been noted to have a relationship with fertility (Raj, Saggurti, Balaiah & Silverman, 2009). Kumar (2010) pointed out that the age at which a woman enters her nuptial life is directly related to the number of children she will bear because it affects the length of time she will be at risk of becoming pregnant. Of course, unmarried women also have children but the vast majority of child bearing takes place in marriage, making marriage a valuable indicator of a woman's lifetime fertility (Wablembo & Doctor, 2013). It is worth noting that marriage of female minors has been reported in Asia. Raj et al. (2009) observes that marriage of female minors remains strikingly common across South Asia, where over half of all child marriages occur. Prevalence data (Raj et al., 2009) from the prior decade indicate that approximately 30-70% of married young women in South Asian nations (Bangladesh, Nepal, India and Pakistan) are married prior to 18 years. Raj et al. (2009) further observed that, child marriage, defined by UNICEF as marriage prior to 18 years is a reality for over 60 million women worldwide. Singh (2006) has also observed that in Yemen women begin child bearing at a relatively early age and a large proportion of ever-married women reach high parity at a relatively fast pace.

Preference for sons has been reported in Asia. The Nepalese (Adhikari, 2010) have a great preference for sons, for both religious (to perform religions rituals) and economic (immediate economic gains and old age security) reasons. This yearning for more sons for economic gains is also evident in Bangladesh, Malaysia, Sri Lanka and Thailand as earlier observed by

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McGrow (1990) and Schurmann (1989). In India Asghar, Murry and Saraswathy (2014) have stated that among Manipur Muslims, in an effort to have sons, many couples continue to have children even after achieving their desired family size. This behaviour will ultimately have an influence on fertility. Asghar et al. (2014) further pointed out that since Manipur Muslims are patrilineal; sons were ascribed with various values hence preferred.

These scholars; Asghar et al. (2014) Nag and Singhal (2013), Kumar (2010), Adhikari (2010), Raj et al. (2009), Josipovic (2007), Singh (2006), Singh et al. (2006), Martin and Jourez (1995), McGrow (1990) and Schurmann (1989) have all stated from their research works that socio-economic factors have some relationship with fertility behaviours in Asia and Latin America. Socio-economic factors they have written about include age at marriage, education and preference for sons. The scholars have contributed to a better understanding on how socio-economic factors (like education) influence fertility by either depressing or accelerating it. However, the level at which education level, age at marriage, sex preference, religion, income level, family pressures and family land size influence fertility mean number of CEB has been ignored. This is because no comparison has been made to determine the degrees at which various socio-economic factors influence fertility behaviour hence the need for the current study.

In Africa socio-economic factors have been reported to influence fertility. Alene and Worku (2009) stated that in Ethiopia, marriage is universal for the rural dwellers of Amhara region and commences early in life. The Amhara region in Ethiopia is a good example of Sub-Saharan Africa where mean age at first marriage for girls is low; mean age at first marriage is 13 years (Amhara National Regional State, 2003). This is contrary to the family code of the

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Amhara region which has set the minimum age as 18 years for both males and females. Alene and Worku (2009) further observed that, the tradition of early marriage in the rural Amhara region would continue its fertility enhancing effect on the overwhelming majority of rural populations if not checked. There are other socio-economic factors that have influenced fertility as earlier pointed out by Nigatu (2007); that in Awassa region of Ethiopia, son preference and land size have relationship with fertility.

Africa (Asefach and Nigatu, 2007) is primarily rural and its gender stratified social practices and cultures are very supportive of high fertility. Indeed, pronatalist institutions notably patrilineal descent, patrilocal residence, inheritance and succession practices and hierarchical relations have remained unchanged for generations (Adebusoye, 2001). This clearly illustrates that the social practices in Africa has some relationship with fertility. Adebusoye (2001) further observed that durability and perpetuity are among other factors bearing on demand for children. It is generally accepted that a lineage does not die, members die and are replaced through births (Ikamari, 2005). Consequently, there is need to ensure that fertility levels remain higher than mortality levels if the lineage is not to ultimately disappear.

In sub-Saharan Africa, income has been observed to have some relationship with fertility (Schoumaker, 2004). The poorest women have much higher fertility than better off women (Chen & Ravallion, 2000). On average their fertility is twice that of the better off women and up to three or four times higher in countries such as Madagascar, Togo and Tanzania (Merrick, 2002). Schoumaker (2004) further noted that in many countries in Sub-Saharan Africa, the poorest women's fertility is above 5 children and even above 6 children in some instances. Birdsail & Griffin (1993) had earlier observed that characteristics of poor

households such as little family income contribute to high fertility, though some births are unwanted. For instance, in Egypt about one-eighth of married fecund women reported that they wanted to limit their fertility yet did not do so (Fahimi & Moghadam, 2011.)

Alene and Worku (2009), Nigatu (2007), Schoumaker, (2004), and lastly Birdsail & Griffin (1993) have all stated that in Africa that socio-economic factor have considerable influences on fertility behaviour. They have identified early marriage, son preference, and the need to perpetuate family lineage as the socio-economic factors influencing fertility behavior in Africa. These scholars fall short of comparing the levels at which education level, age at marriage, sex preference, religion, income level, family pressures and family land size influence mean number of CEB so as to identify those that need to be addressed urgently in order to reduce high fertility in Africa.

In Kenya, Ng'ang'a (2003) observed that sex composition is important in many Kenyan societies. Males are needed culturally to continue the family lineage in patriarchal societies (Adebusoye, 2001). Furthermore a woman with no male children is considered inadequate and a Kenyan husband may opt to marry other women in the hope of getting a son (Gichangi, 2012). A strong sex preference for males may be a major contributing factor in elevating fertility (Adebusoye, 2001). This is because parents need to plan a larger number of births in order to ensure one or more of their surviving children is male (Ng'ang'a, 2003). Kiriti and Tisdell (2003) reported that in Nyeri District, preference for male children has an important positive influence on family size. Women have greater preference for male children possibly because of their fear of being disinherited if they do not produce an heir for their husbands.

A preference for large families has been reported in Kenya by Ang'awa (1997). Further, (Ang'awa, 1997) stated that a strong preference for large families exists and children are greatly valued not only as a means of preserving family lineage, but as a positive economic asset that provide labor and wealth and guarantee family financial security in old age and at the same time enhance family power through enlarged social network. Republic of Kenya (2006) pointed out that in the rural parts of Kenya where people depend on subsistence agriculture; a community is likely to bear more children to provide the much-needed labor.

Maseno Division, like any other developing region of the world, has socio-economic factors that influence the lives of the local inhabitants and could have contributed to their current fertility behavior. According to Republic of Kenya (2010) the total fertility rate of the division in 2009 was 5.2 while crude birth rate was 39/1000. The dependency ratio was 1:1.8. The main inhabitants of rural parts of Maseno Division are the Luo and Abaluhya ethnic groups who value their social practices (Bakibinga et al, 2015). However, no known research has been carried out in Maseno Division to determine the level at which education level, age at marriage, sex preference, religion, income level, family pressures and family land size influence mean CEB of married women in the division.

2.4 The Influence of Socio-economic factors on Fertility Regulation

Many economies in developing countries in Asia and Africa are characterized by rapid population growth (UN, 2000). This, according to Oyedukon (2007) is partially attributed to the high fertility rates, high birth rates accompanied by steady declines in the death rates, low contraceptive prevalence rates and high declining mortality rates. A report from the UN (2002) states that the world population conference held in Rabat, 1971 and Bucharest, 1974

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stressed on the need to and the methods for controlling population growth in developing countries. However, the same report observes that principle 8 of the International Conference on Population and Development Program of Action stresses that all couples and individuals have the basic right to decide freely and responsibly the number and spacing of their children. It is therefore imperative for developing countries to formulate population policies that motivate their citizens to regulate their fertility rather than those that coerce (Okech et al., 2011). Ransmans and Graham (2006) observes that the principal effort in population control is fertility regulation, which aims at communicating to the society the desirability of limiting family size for economic, social and maternal health reasons.

Mairiga, Kulima, Bako, and Kolo (2010) aver that an attempt to regulate fertility is as old as human kind himself. Evidence from medical history indicates that the forefathers did space their children through traditional means and it has been observed that traditional methods of fertility regulation were handed down either verbally or in writing from generation to generation as far back as the Stone Age (Mairiga et al., 2010). Delano (1990) had earlier illustrated this point when he stated that before the introduction of modern methods, Africans had their own method of fertility regulation as was found in Nigeria. Nigerian culture includes many myths, rituals and the use of herbs in attempts to regulate fertility (Aninyei, Onyesomi, Ukuhor, Uzugbu, Ofili & Anyanwu, 2008). Although many of these traditional methods of family planning have no harmful effect on a woman's health, some, however, do have dangerous or counter-productive effects (Delano, 1990). The complete effectiveness of many traditional methods of fertility regulation has remained doubtful (Aninyei et al., 2008).

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Many couples throughout the world may choose to either rely on modern or traditional methods to regulate fertility; for the postponement of the first pregnancy, for spacing intervals between their children, to avoid further pregnancies, or for all these purposes (Creange et al., 2011). The existing modern contraceptive methods that have been developed include hormonal, intrauterine devices, sterilization and barrier (Okech et al., 2010). The natural or traditional methods include breast-feeding and birth spacing, symptom-thermal basal body temperature, ovulation, calendar or rhythm (Wilson 2015, Creange et al. 2011, Mairiga et al., 2010 & Okech et al., 2010). According to Bongaarts (2010), the use of modern fertility regulation method is still low in developing countries though there are indications of a rising general trend. Ochako et al. (2015), Casterline (2010) and Campbell, Sahin-Hodoglugil and Potts (2006) have observed that the level of the use of modern fertility regulation methods varies from country to country as well as within a country. This variation in use is a result of the presence or absence of barriers to fertility regulation. These barriers could be a reflection of existing influences of socio-economic factors in a region.

Akmann (2002) had earlier stated that low contraceptive use was observed in Bangladesh amongst women with low levels of education. In a comparison on contraceptive prevalence rate between married women with no education and those with education beyond primary school, A study by Akmann (2002) showed that contraceptive prevalence rate for married women with no education was at 6.2% while for those with beyond primary education was at 49%. In Pakistan; Sarmad, Akhtar and Manzoor (2007) stated that low levels or lack of education among married women is associated with lower use of contraception and vice-versa. Sarmad et al. (2007) further noted that in the urban slums of Punjab in Pakistan 61%

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of married literate women used contraception as compared to 38.5% in the illiterate group. Adhikari (2010) opined that the low usage of contraceptives noted in Asia among the illiterate group was as a result of lack of proper information on modern contraceptives which leave majority of women believing that the use of modern contraception leads to sterility. Adhikari (2010) concluded that low literacy and low educational attainments are among the major factors that have contributed to Pakistan's contraceptive prevalence rate of 27%.

Aalok (2014) reported that the rich-poor gap in contraceptive use is large in India. The use of contraceptives is more than four times higher in women belonging to households with high standards of living as compared to those with low standards of living. The very substantial rich-poor gap in the prevalence of modern methods of contraception reflects the fact that access of women to modern spacing methods of contraception increases with the increase in the household standards of living. Gattmacher Institute observed (as cited by Fatemah, Yahya, Rahman, Muhamad and Manaf, 2013) two things: (a) that the use of contraceptive methods was low among poorer women in Philippines, (b) that since 2004, the access of women to contraceptives services was on a reducing trend. This happened after government handed over contraceptive services to private sector which demanded pay from clients (Fatemah et al, 2013). It is therefore evident that contraceptives can be available in the outlets but the intended users might not access them because of financial implications.

Agha (2010) observed that in Pakistan, the social settings have given mothers-in-law an upper hand in influencing the use of contraception. A majority of mothers-in-law do not support the use of contraceptives intended to regulate fertility. Married women also rely on their husbands' advice on contraception (Agha, 2010). In cases where the use of

contraceptives conflicts with the husband's attitudes towards fertility regulation or with his fertility preferences; the wife will not use contraceptives (Adhikari, 2010). Communication between spouses on the use of contraceptives in some cases is not socially accepted (Fahimi and Moghadam, 2011), so women will miss the opportunity to engage their spouses on issues related to fertility regulation. A society where females are not allowed to discuss family planning issues because of respect to traditional family making decisions leaves a woman at the mercy of the choices made by the husband.

Aalok (2014), Fatemah et al., (2013), Fahimi and Moghadam (2011), Adhikari (2010), Sarmad et al. (2007) and Akmann (2002) have done a lot of work in identifying socio-economic factors influencing the use of modern contraceptives to regulate fertility in Asia. They have identified and explained how education levels, income as well as family and social pressures influence the use or non-use of modern contraceptives to regulate fertility. However, the findings of these research works are not conclusive. They ignored the threshold at which education level, age at marriage, sex preference, religion, income level, family pressures and family land size influence the decision to regulate fertility by use of modern contraceptives.

Mboane and Bhatta (2015) have reported that women in Africa face multifaceted and challenging barriers to use of modern fertility regulation methods. There are several socio-economic factors that contribute to a woman's use or non-use of modern fertility regulation methods (Bankole and Singh, 1999). One of them is the influence of the male partner on a woman's reproductive health choices. Even well-educated women who desire to use contraceptives fail to do so because of their husband's objection (Mairiga, Kulima, Boko, and

Kolo, 2010). Mboane and Bhatta (2015) further pointed out Ghana as a country where a husband's attitude towards family planning strongly influences the wife's attitude towards contraception. Ushie, Agba, Olimodoji and Attah (2013), Mairiga et al. (2010) and Adebusoye (2001) are all in agreement that in Africa most women's contraceptive knowledge and practices are influenced by socio-economic practices such as husband's dominance and opposition to contraception.

Creanga et al., (2011), states that in Sub-Saharan Africa, parallel disparities in contraceptive use are found between poor and wealthy people. A survey carried out in Namibia, Mozambique, Madagascar, Zambia and Ethiopia showed that the wealthy people use contraceptives to regulate fertility more than poor people (Creange et al., 2011). Oliver (1995) had earlier opined that in Ghana the poor women in rural areas are constrained by long distances from villages to the facilities where modern contraceptive services are offered hence discouraging them from using modern contraceptives. This is an indication that long distance denies the poor would-be-users of contraceptives the opportunity to enjoy the services. Shoumaker (2004) also supports the view that poor women in Sub-Saharan Africa use fertility regulation methods only to a small extent. Shoumaker (2004) further reported from a study he carried out in Guinea and Zimbabwe that the degrees of fertility control among the poor women are extremely low, confirming that these women are "resistant" to fertility control.

These scholars - Mboane & Bhatta (2015), Ushie et al. (2013), Creange et al. (2011), Mairiga et al (2011), Shoumaker (2004), Adebusoye (2001), and Oliver (1995) - have only identified socio-economic factors influencing the use of modern contraceptives in Africa. However,

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they ignored the threshold at which education level, age at marriage, sex preference, religion, income level and family pressures influence the decision to regulate fertility by use of modern contraceptives.

Republic of Kenya stated as cited by Okech *et al.*, (2011) that the Government of Kenya recognized the importance of modern fertility regulation soon after independence and formally accepted population planning and family planning as part of National Planning Strategies. To enhance its commitment, the government established the National Council for Population and Development (NCPD) whose mandate was to formulate population policies and strategies aimed at reducing the country's population growth rate. In 1994, the government formulated Kenya Health Policy Framework (KHPF) in which population development was identified as a strategy for achieving balanced socio-economic development. Specifically, the Government prioritized reduction in fertility rate and increase in the proportion of health facilities providing integrated reproductive health services including family planning services as key priority. To reinforce its commitment further, the government launched Sessional Paper No. 1 of 1996 on National Population Policy for Sustainable Development (Okech *et al.*, 2011), in which it recognized population challenges as the unmet need for family planning and high level of adolescent fertility. In the Paper, the government reiterated its commitment to increasing availability and affordability of quality services. The government of Kenya took all these measures in order to anchor fertility regulation in its development strategies.

Bakibinga et al., (2015) have observed that in the rural Western Kenya, specifically in Bondo, Siaya and Teso Sub-Counties; educated women use modern contraceptives to

regulate their fertility more than their less educated counterparts. Bakibinga et al., (2015) further opine that educated women are better informed about many aspects of life including fertility regulation hence their approval. Since Adhikari (2010) observes that education shapes attitudes, women who are more knowledgeable about the benefits of contraception tend to have a tolerant attitude towards contraception as is the case in Western Kenya. Gichangi (2011) is also in agreement when she states that the highest level of education attained is a significant factor influencing the use of contraceptives to regulate fertility by women in the rural parts of Kenya. It is also documented by other scholars that Kenya's educated women make use of contraception to regulate their fertility compared to their less educated counterparts (Ochako et al., 2015; Abdala, 2014; Tumlinson, Speizer, Archar & Bliets, 2014). However, Mathenge (2012) is not in agreement with the other scholars who have stated that education has an influence on contraceptive use. Mathenge (2012) carried out a research in the Central Province of Kenya where she found out that education has no influence on contraceptive use.

Ochako et al., (2015) have reported that awareness and knowledge of contraception do not necessarily translate into use. According to Okech et al., (2011), many women do not use contraceptives for fertility regulation because of myths and misconceptions. These include hearing from people within their social networks about health related problems from the use of contraceptives, such as total or temporary infertility, birth defects and abnormalities, disruption of normal body process or inability to menstruate regularly. Burke and Shishanya (2011) and Wambui, Eka and Alehagen (2009) had observed that partners' views, especially the husband and mother-in-law, influence the use of contraceptives to regulate fertility in

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some Kenyan communities. This is a consequence of the traditional family decision making systems as well as cultural beliefs around sex and fertility (Ochako et al., 2015). It clearly shows that in some communities, it is an uphill task for a woman to use modern fertility regulation methods unless she gets an approval from immediate family members even if she has awareness and knowledge on contraception.

The views of different scholars on the influence of religion on the use of contraception in Kenya are not in concurrence according to available literature (Bakibinga et al., 2015; Abdala, 2014; Nangendo, 2012; Okech et al., 2011 & Mburungu and Zulu, 1988). Mburungu and Zulu (1988) had pointed out that Muslim and Catholic women tended to use contraception less than protestant women. According to Schenker (2000), the Catholic Church's stance against the use of contraceptives has been quite clear; there is no need for contraception since the principal purpose of sexual relations within marriage is procreation. On the other hand, Bakibinga et al. (2015) states that religion, especially Christianity, has no influence on the use of contraceptives in Western Kenya. Abdala (2014) has also stated that contraceptive use has become more acceptable among Catholics than was the case in the past. However, Abdala (2014) adds that Muslims use contraception less as compared to Christians. Nangendo (2012) and Okech et al. (2011) are also in agreement that religion has influence on contraception.

According to KDHS (KNBS, 2015) that was carried out in 2014, married women within the low income bracket adopt the use of contraceptives to a lesser extent to regulate their fertility as compared to their counterparts in the higher income bracket. Okech et al. (2011) have also pointed out from their observations that married women who live in Kenyan urban slums

rarely use modern contraceptives because of poverty. However, when the incomes were improved by Kshs 1,000; the likelihood of using family planning services increased by 2 percent. Creanga et al. (2011) add that Kenya is among the countries in Africa where income inequalities in the use of contraceptives are evident. Okech et al. (2011) concluded that, many poor married women do not use contraceptives as opposed to the wealthy ones. It is therefore in order to state that levels of income have some considerable influence in the adoption of modern contraceptives by married women who may want to regulate their fertility.

The scholarly works of Bakibinga et al., 2015; Ochako et al., 2015; Abdala, 2014; Burke and Shishanya, 2011; Gichangi, 2011; and Okech et al., 2011 have identified and explained how various socio-economic factors influence use of modern contraceptives to regulate fertility either through encouragement or discouragement. However, they have not addressed the threshold at which level of education, age at marriage, sex preferences, religion, income level and family pressures as socio-economic factors influence the decision to use to modern contraceptives to regulate fertility which is an area of concern to this study.

Maseno Division like any other developing region of the world has socio-economic factors that influence lives of the residents (Bakibinga et al., 2015). The contraceptive prevalence rate of Maseno Division has been 26.1% (Republic of Kenya, 2010) which is lower that of the national one at 58% (KNBS, 2015). Some of the social practices in Maseno Division inhibit the advancement of women; these include lack of access to land property, exclusion of women from decision making organs and restriction of family inheritance (Republic of Kenya, 2008). Some of these social practices and those yet to be identified could have

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contributed to the low contraceptive prevalence rate within the division (Republic of Kenya, 2010). The study is therefore necessary to assess the influence of socio-economic factors on the decision to regulate fertility by the use of modern contraceptives. There is no known similar research that has been carried out in Maseno Division to examine the influence of socio-economic factors on fertility behaviour in the division.

In summary three gaps have identified after reviewing the relevant literature. Various studies carried out in Europe, Asia, Africa and Kenya have not documented the CEB to women. The mean number of CEB to women represents the age cohort and reflects current and past fertility behaviour. It also allows for generalizations of data and understanding that can provide the basis for more analysis. Secondly, the reviewed literature illustrates that no known studies have revealed the level which education level, age at marriage, sex preference, religion, income level, family pressure and family land size as socio-economic factors influence fertility behaviour. In addition, other socio-economic factors that influence fertility behaviour have not been highlighted. Lastly, the threshold at which the mentioned socio-economic factors influence the decision to regulate fertility by use of modern contraceptives, has not been investigated.

2.5 Theoretical Framework

Different theories and concepts have been presented on human fertility behaviour and its relations to socio-economic activities. They include Demographic transition theory, Malthusian theory of population and Easterlin's theory. The Demographic transition theory argues that population growth is inextricably tied to a society's level of technology. In other words, as the society advances in its usage of technology in every industry from health care

to crop production, its birth rates shift, directly impacting the population numbers and growth rates (Weeks, 2007). This model has four main stages, ordered as follows: pre-transition, early transition, late transition and post-transition (Jorad, 2017). It assumes that slowing population growth theoretically results from better standards of living, improvement in health care, education(especially for women), sanitation, and public services (Weeks, 2007).

The Malthusian model on the other hand proposes the principle that human population grow exponentially (doubling with cycle) while food production grows at arithmetic rate (by repeated addition). This scenario of arithmetic food growth with simultaneous geometric human population growth predicted a future when humans would have no resources to survive on. To avoid such a catastrophe, Malthus urged controls in population growth (Weeks, 2007). Demographic transition and Malthusian models are not suitable for the current study because they do not directly single out socio-economic factors that would contribute to fertility variations over time. The two models also seem to point out that the best contraception is development as opposed to use of modern contraceptives.

The theoretical framework for this study will be based on Easterlin's model being that the core variables in this model are supply and demand for children, and the cost of fertility regulation. The three factors play a crucial role in any comprehensive analysis of fertility behavior because they mediate between the more basic determinants of fertility on one hand and fertility on the other hand (Lucia, 2014). The theory states that social and economic modernizations and other basic determinants are seen as affecting reproductive out comes by operating through three variables (Bongaarts, 2010). The basic determinants of fertility behaviour include underlying socio-economic conditions such as education, urbanization,

and modern sector employment as well as cultural factors as ethnicity and religion (Shapiro, 2015). The following are the three variables. The first is demand. This is the number of surviving children parents would have (at the end of their reproductive lives) if fertility regulation were costless. The second is supply. This the number of surviving children couples would have if they make no deliberate attempt to limit fertility. The last one is cost of fertility regulation which is broadly defined to include the economic, psychic, health and social costs of acquiring and using contraceptives or abortion (Easterlin and Crimmins, 1985). The basic determinants influence fertility through their impact on demand, the supply of children and/or the costs of fertility regulation.

According to Easterlin's model, the variables are expected to change over the course of the process of development, and thus determine the actual number of children couples have. The transition from the lowest to the highest level of development can be divided into three distinct phases (Lucia, 2014). The first one is excess demand: in many traditional societies average desired family size is high and couples may find that they cannot achieve their reproductive objectives (demand for excess supply). In this case there is no motivation to control fertility and actual fertility is constrained to supply level. The second phase is excess supply, no regulation. As a society modernizes, demand typically declines due to changing costs and benefits of children. In addition, supply rises largely as a result of declining mortality. These trends produce excess-supply condition in which couples become motivated to use birth control. At first however, this motivation is not sufficient to overcome the cost of fertility regulation, and so long as this is the case couples will not deliberately limit fertility. In this phase, therefore, actual reproduction remains at the supply level, and bear unwanted

children to the extent that supply exceeds demand. The third phase is excess supply with birth control: with continued declines in demand and/or increase in supply, motivation reaches the point at which it exceeds the cost of regulation, and couples begin to adopt the birth control. For the remainder of the transition trend in the actual rate of child bearing is determined by costs, demand and supply (Amie, 2008; Bongaarts, 2014; Shapiro, 2015).

Easterlin's framework for the analysis has attracted many adherents, because of the models' conceptual clarity and the fact that it incorporates, at a fairly general level, key features of theory of fertility behaviour proposed by economists, sociologists and demographers (Amie, 2008). Shapiro (2015) reaffirms that, the Easterlin's framework remains quite useful in analyzing fertility behavior. However, the critical question on how much fertility behavior of a particular society can be attributed to each of these broad factors remains unanswered.

Therefore, a clear understanding of these issues can provide information that can lead to acknowledgement of factors that influence fertility behavior change. This may result in arriving at better decisions that will ultimately improve management of fertility that lowers fertility rate to 2.1 and/or below. A critical missing link about fertility of people living in some regions is scant knowledge on how socio-economic factors impacts on fertility behavior. It should be realized that many married women may naturally bear children without realizing what influences them to do so and subsequently appreciate that births can be controlled when planned.

2.6 Conceptual Framework

Socio-economic factors influence human fertility behaviour, and it becomes increasingly important to know what effects they cause on fertility levels. The conceptual framework (Figure 1) shows the main socio-economic factors that influence fertility behaviour and the consequences.

Marriage is a common experience in all societies and some women may marry at an early age. This practice lengthens the period married women are exposed to bearing children. Early marriage is also an indication that the women never attended school or dropped out of school at the early stages acquiring of formal education. Since they not educated, married women lack modern skills that can enable them gain formal employment. They turn to subsistence crop farming in order to earn a living. The size of family land is small and farming is not diversified so the production is hardly enough to feed the household. The communities where the women are married often prefer male children. They may also subscribe to religious doctrine that children are a gift from God. The immediate family members are likely to create pressure on the women to continuously give birth, more so to males, in order to perpetuate family lineages.

The fertility behavior of married women will be impacted by the afore mentioned factors. The women will continue to bear children; a child is the society's expected product in marriage. This will result in the variation on the number of CEB to married women. Married women are in the course of time introduced to use of modern contraceptives by NGOs and government health workers. This done is to assist them plan for subsequent births and hence regulate their fertility. The low level of education of married women impedes them from

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recognizing the benefits of modern contraceptives. Their religions' doctrines probably state that fertility should never be regulated by the use of modern contraceptives. The married women's low income level bars them from making adequate visits to the service providers. Their spouses and mothers-in-law oppose the use of modern contraceptives because of myths and misconceptions. Some of the married women postpone using modern contraceptives until they give birth to the preferred gender; a son. All these influences discourage married women from using modern contraceptives to regulate fertility thus contributing to a low contraceptive prevalence rate.

However, the influences of socio-economic factors on fertility behavior may also be affected by other factors. These include the effects of government policies, legal factors, technological developments, rainfall variability and conflicts within the family and/or at community level that can act as intervening variables. These factors can also contribute to and facilitate variations in fertility behavior. Therefore, the study examines the influence of socio-economic factors on fertility behavior hence providing a reliable data to justify variation in fertility levels.

Independent variables

- Level of education
- Level of income
- Age at marriage
- Size of family land
- Sex preference
- Religion
- Family pressure

Independent variables

Intervening variables
- Government policies
- Technological development
- Legal factors
- Rainfall variability
- Conflicts

Dependant variables
- Number of CEB
- Modern contraceptive use

Dependant variables

Fertility Behaviour Outcomes
Variations in fertility behaviour

Figure 1: Conceptual Framework

Source: Research's work (2015)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the overall design used in carrying out this research. It captures the study area; its location and size, topography, hydrology, climate, soils, economic activities and population. The chapter also outlines various methodological procedures and techniques used in the study.

3.2 Study Area

Location

Maseno Division is in Kisumu West Sub-County of Kisumu County. It is bordered by Lake Victoria to the South, Gem Sub-County and Emuhaya Sub-County to the North, Vihiga Sub-County to the North-East, Kisumu East Sub-County to the East and Kombewa Division to the West. Maseno Division lies approximately within longitude 34° 32° E and 34° 39° E and latitude 0°00'02'' S and 0°13'00'' S as shown(Figure 2). It has a total area of 168.7 square kilometres. It is the smallest division in Kisumu West Sub-County (Republic of Kenya, 2009).

Maseno Division is divided into four locations namely North West Kisumu, West Kisumu, East Seme and Otwenya. The locations are further divided into sixteen sub-locations. The headquarters of the division is Maseno Township where Maseno University main campus is located. The county government in-charge of this region is the Government of Kisumu County (Republic of Kenya, 2009).
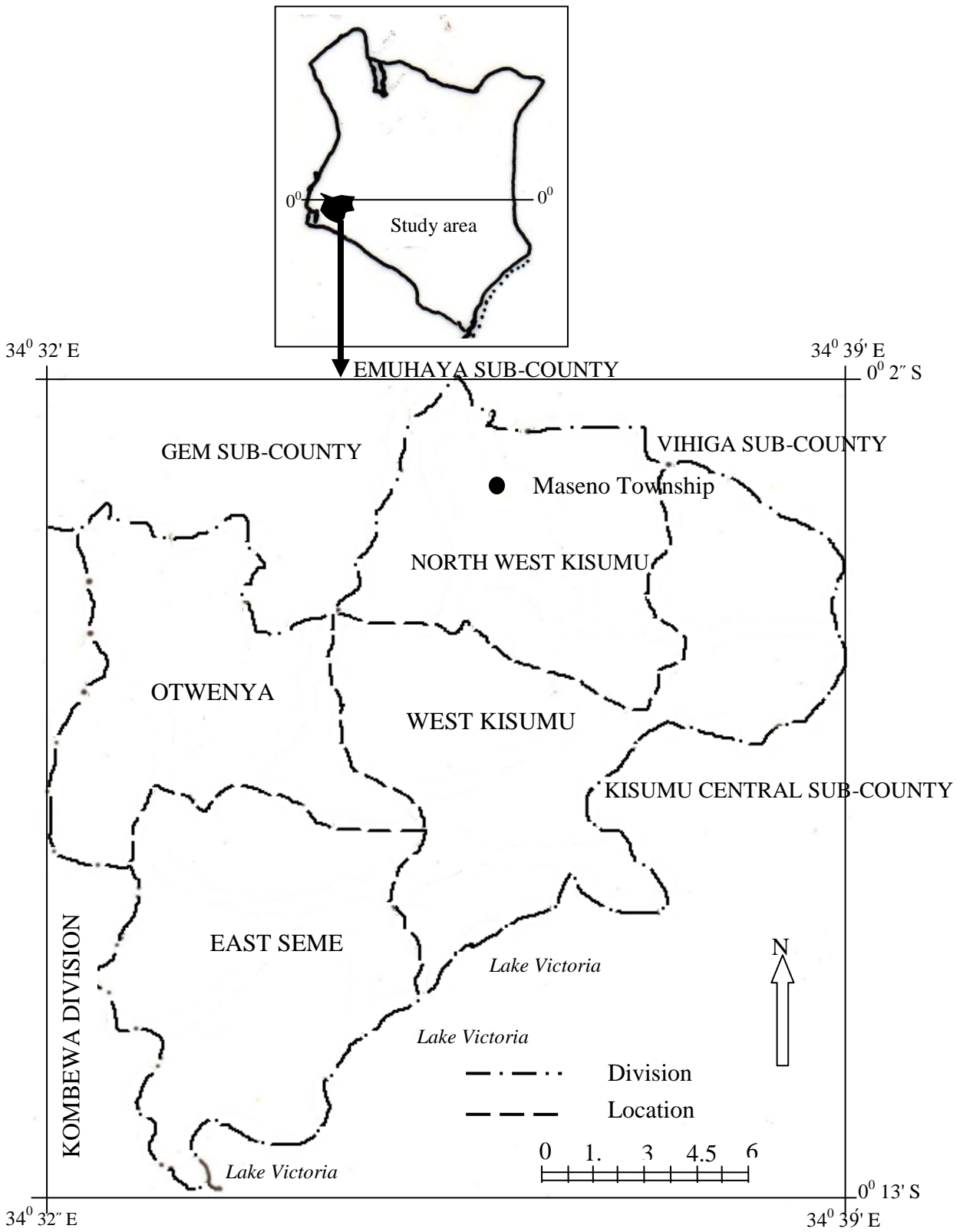
Figure 2: Administrative boundaries of Maseno Division by locations
Source: Kisumu West District Development Plan 2008-2012

Physiographic Conditions

Topography and hydrology

The whole of Maseno Division falls within Lake Victoria Basin referred to as midlands. The altitude ranges between about 1,144 metres along the shores of Lake Victoria to an average of 1525 metres above the sea level around Maseno Township (UNESCO & Republic of Kenya, 1990). The division shows a more gradual increase in altitude from the lake level, culminating in the hills around Maseno Township. The northern side of Maseno Division, the region within North West Kisumu Location is dotted with hills. The Maragoli Hills lie along its borders with Vihiga District (Republic of Kenya, 2009). This topography is suitable for human settlement since it is free from flooding during the rainy season. Maseno Division is transversed by two main rivers, namely Awach and Magada which flow from Maragoli Hills to Lake Victoria. The division has a shoreline along Lake Victoria with several fish landing bays such as Osiri , Usare and Kaloka. Water is an important resource and its availability can impact on the fertility behaviour of people in that region.

Climate

The division receives mean annual rainfalls that vary between 660mm and 1800mm depending on altitude and proximity to Maragoli Hills. North West Kisumu, where Maseno Township is situated, has a mean annual rainfall of above 1800mm (UNESCO & Republic of Kenya, 1990). The division has two rainfall seasons, the long rains (March-May) and the short rains (September-November). The mean annual temperature ranges between 20-30 degrees Celsius with the higher parts of the division experiencing lower temperatures. This type of climate favours agriculture and if well exploited it can make the division self

sufficient in food production (Republic of Kenya, 2002). A favorable climate can create a considerable effect on fertility behaviour of a community.

Soil

Maseno division has a wide range of soil types mainly dominated by vertisols. The lower parts (near Lake Victoria) of the division are mainly composed of its complexes which are of moderate fertility. The uplands around Maseno Township have cambisols and luvisols of volcanic origin. The other types are river deposit which is mainly sand (Republic of Kenya, 2002). The fertile soils especially around Maseno Township are under subsistence crop production. The main crops grown are maize, millet, sorghum, sweet potatoes and groundnuts. The sandy soil found along the river valleys is excavated for use in the construction industry (Republic of, 2000). In many parts of the world where soils are favorable for farming the fertility level of married women is usually high.

Economic Activities

The geography of this division offers a base for development if well exploited. Subsistence farming of maize, millet, sorghum and groundnuts dominate the division. The produce, however, is not sufficient for the households (Republic of Kenya, 2001). Brick making is a thriving business in Maseno Division especially around Marera and Magwar. Soil is mined for building sand and also molded then baked into high quality building bricks. The infrastructure, especially the feeder roads, is dilapidated leaving *boda boda* transport as the major means of transport into the villages. Some of the feeder roads in a poor state include Lela – Holo, Sinyolo – Sandak, Chulaimbo – Mbaka Oromo and Maseno – Kombewa roads. The most important water resource is Lake Victoria which is mainly exploited by the locals

to fish Tilapia, Nile perch and *Omena* which are the most popular fish species. The catch is sold to the local inhabitants at neighborhood markets and also transported to major towns in Kenya especially Kisumu, Nairobi and Mombasa. The division has no major forests or extensive woodlands save for bush and scrub which occupy about 20% of the area. These are exploited for brick making, firewood and charcoal which serve as sources of energy for the locals. Charcoal dealing is a thriving business, especially in Maseno and Holo townships because of the high demand (Republic of Kenya, 2002).

Population.

The population of Maseno Division has been on a rising trend since 1989, growing at a rate of 3.0% as compared to the national growth rate of 2.8% (Republic of Kenya, 2009). In 1989, the total population was 54,936 (CBS, 1994), in 1999 the population grew to 65,304 (CBS, 2001), in 2001 it rose to 67,698 people (Republic of Kenya, 2002) and in 2009 it grew to 79,554 (KNBS, 2011). This rise in population also has affected the population density of the division, as has been summarized in Table 2.

Table 2: Population of Maseno Division 1989, 1999, 2009

Year	1989	% Increase	1999	% Increase	2009
Population	54,936	20.01	65,936	20.65	79,554
Density	325	20.00	390	20.77	471

Density – Person / sq Km

Source: CBS, 1994; CBS, 2001; KNBS, 2011

The population of Maseno Division rose to 81,734 people by the end of 2010, giving a population density of 484 person/square kilometers. The Infant Mortality Rate was 123/1000 in 2008. The Crude Birth Rate was 39/1000 while the Crude Death Rate was 29/1000. The average life expectancy of both males and females was 49 years. The TFR was 5.8 while the average household size was 4. The population of married women aged between 15-49 years, which is the active child bearing age group constitutes about 26.1% of the population in the division. The above information indicates that the population of Maseno Division has been on a rising trend. The population distribution and settlement patterns are influenced by various factors such as physical features, agricultural potential, and opportunities for fishing and business development. The high population density areas include Maseno and Holo townships where there are business and formal employment opportunities. Other high population density areas are North West Kisumu Location which is favorable for agriculture and regions that are closer to fish landing beaches of Lake Victoria. Low population density areas include the hilly parts of the division such as Nametsa and Wandega which are rocky hence not suitable for agriculture (Republic of Kenya, 2009).

3.3 Research Design

The study was based on descriptive cross-sectional survey research design because data was to be collected at once. Data collected from the study area was described to depict the influence of socio-economic factors on fertility behaviour based on the respondents' perspective . Descriptive research is a process of collecting data in order to answer questions concerning the situation at the time of data collection (Mugenda and Mugenda, 2003). This survey was appropriate due to constraints of time and finance, so it enabled the researcher to

reduce operational costs and hence collected data within the shortest time possible. The unit of analysis was married women in the study area.

3.4 Study Population and Sampling Procedure

The study used stratified sampling technique in order to ensure that the respondents were proportionally selected from each stratum. The area had four administrative locations and data had to be collected from all locations. Therefore, administrative boundaries were used to arrive at four different strata. Married women which was the target were subsequently selected proportionally form each strata. The total study population was 40306 women in Maseno Division (KNBS, 2011). The following formula as suggested by Mugenda and Mugenda (2003) was used to arrive at sample size since the population is greater than 10,000. At the confidence level of 95%, z statistic is 1.96 and level of significance 0.05.

$$n \ = \ \frac{z^2 \, p \, q}{d^2}$$

Where;

n = the desired minimum sample size (where target population is more than 10,000).

z = the standard normal deviate at the required confidence level.

p = the proportion in target population estimated to have characteristics being measured.

q = 1 − p

d = the level of statistical significance set.

Therefore: At 0.05 confidence level, z = 1.96, p = (50% = 0.05)

Hence; $n = \dfrac{(1.96)^2 \,(0.50)\,(0.50)}{(0.05)^2}$

$n = 384$

Therefore, the sample study size was 384. This means that a total of 384 respondents were interviewed from the four locations as shown (Table 3). Purposive sampling technique was used to select the respondents (married women) from each stratum. Purposive sampling technique was further used to select Key Informants and members of FGDs.

Table 3: Sampling frame

Location	Population	Sample size	Percentage %
North West Kisumu	12450	118	30.89
West Kisumu	11512	110	28.56
East Seme	8822	84	22.89
Otwenya	7523	72	18.66
Total	**40,306**	**384**	**100**

Source: KNB S, 2009; Researcher's work, 2015

3.5   Pretesting Questionnaires.

The questionnaire which included both closed and open-ended question was pretested on about ten percent (38) of the sample size of 384 married women within the study area. Pretesting of the questionnaires was important because it helped ascertain the strengths and weaknesses of the instruments, and whether they were in line with the problem under investigation (Mugenda and Mugenda, 2003). The pretesting equally aimed at ascertaining the approximate time each questionnaire was going to take as well as understanding the

respondents' capability and willingness to answer the questions appropriately. This process helped in identifying areas in the questionnaire that needed alteration, which was finally effected. The married women that were in the pre-test group were exempted from the final sample of the study.

3.6   Data Collection Procedures

Primary and secondary data sources were used to achieve the set objectives of the study. Primary data was mainly obtained by the application of the following methods:

Structured Questionnaire

Structured questionnaire (appendix 1) with both closed and open ended question was the major instruments utilized to seek information about the number of CEB. It was also used to collect data on the influence of education level, age at marriage, sex preference, religion, income level, family pressures and family land size on the mean number of CEB. Structured questionnaire was as well used to collect data on the influence of education level, age at marriage, sex preference, religion, income level, family pressures and family land size on decision to use modern contraceptives to regulate fertility. The target population was married women in the division. Questionnaire was administered to 384 married women with the help of four trained research assistants in order to effectively collect data from the respondents.

Key Informant Interviews

This involved 12 Key Informants namely; Assistant Sub-County Commissioner for Maseno Division, ward administrator of the area, health officer in-charge of the division, Kisumu West Sub-County KNBS Officer, 4 chiefs and 4 assistant chiefs. They were interviewed

(Appendix 2) because they are the source of expert information hence their skills and experience provided the relevant information for the study.

Focus Group Discussions

50 members of the community from the study area were engaged in 5 different sessions of Focus Group Discussions. They included 20 (40%) married male adults and 30 (60%) married female adults. These included selected teachers, fishermen society officials, traders, farmers and village administrators. FGD's were made up of 10 members in each group. The five sessions of FGDs were divided along gender lines: three groups composed of female and two groups for male. This was done to ensure that ethical considerations were observed in order to create a suitable environment for free discussions. Each group was engaged separately. This approach helped the researcher to access important information that was inadequately captured during the interviews. A FGD guide (Appendix 3) was comprised of developed open-ended questions related to the objectives of the study.

Secondary sources of data

Relevant literature on socio-economic factors influencing population growth and contraceptive use to control population growth was collected from both published and unpublished sources. The sources included documented journals, articles, texts, magazines, development plans and websites. The information from these documents was obtained from Maseno University Library, Kenya National Bureau of Statistics Offices in Kisumu and Holo towns, Government Information Documentation Centre in Kisumu as well as the internet. Secondary data was required to make comparisons between varieties of researches on socio-

economic factors influencing fertility behaviour. This helped the researcher in the identification of existing gaps and suitable measures that can be recommended for adoption.

3.7 Data Analysis Procedures

Data was analyzed using different procedures in order to achieve the objectives of the study. To achieve the first objective on establishing the mean number of children ever born to married women in Maseno Division, data was analyzed using descriptive statistics. The frequency distribution and percentage proportions of women within the age cohorts and mean number of children given birth to were summarized in a table. The frequencies were then converted to percentages. The mean number of CEB to women in Maseno Division was established using a formula (UN, 2009c).

$$CEB = \Sigma \, jPj$$

Where: j is the number of children.

Pj is the proportion of women in the age cohort who have given birth to a total

number of children.

To achieve the second objective on determining the extent to which socio-economic factors influence fertility behaviour in Maseno Division, data was analyzed quantitatively and qualitatively. Quantitative analysis procedures involved two levels. At the first level, data collected from respondents was analyzed using descriptive statistics to identify socio-economic factors influencing fertility behaviour in Maseno Division. At the second level, data collected from respondents was analyzed using the Multiple Classification Analysis (MCA) to determine the extent to which socio-economic factors influence fertility behaviour in Maseno Division.

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To achieve the third objective on assessing the threshold at which socio-economic factors influence the decision to regulate fertility by use of modern contraceptives, data was analyzed by applying both quantitative and qualitative procedures. Descriptive analysis was carried out for socio-economic variables, for example level of education, to determine the threshold at which they influence the decision to regulate fertility by use of modern contraceptives. It comprised of frequency and percentage proportions of the respondents' responses. Qualitative data collected from questionnaires, Key Informant interviews and FGDs was coded based on using a set of pre-set codes based on data collection tools as well as emergent themes. The thematic coding framework was then applied to assess all interview transcripts. The analysis looked for patterns and associations on emerging themes, focusing on the threshold at which socio-economic factors influence the decision to regulate fertility by use of modern contraceptives.

3.8 Data Presentation Techniques

The analyzed data was presented in the form of tables, frequencies, percentages and pie charts. Data were also described and discussed to show the interrelationships between various variables as illustrated in Chapter Four.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the background characteristics of the study population. It gives results and discussion on the influence of socio-economic factors on fertility behaviour derived from the study population in Maseno Division basing on each objective.

4.2 Background Characteristics of Respondents.

A total of 384 respondents were interviewed during the study. Information on the respondents' socio-economic characteristics, such as age, education level, religious affiliation, family income, and family land size was collected. The distributions of these background characteristics are illustrated in Table 4.

Table 4: Distribution of respondents by background characteristics

Characteristics	Frequency (n=384)	Percent (100)
Age of the respondents		
15-19 Years	11	2.8
20-24 Years	39	10.2
25-29 Years	104	27.1
30-34 Years	100	26.1
35-39 Years	85	22.2
40-44 Years	37	9.5
45-49 Years	8	2.1
Education level of respondents		
None	12	3.2
Did not complete primary	36	9.4
Completed primary	210	54.7
Did not complete secondary	22	5.8
Completed secondary	87	22.4
College/university	17	4.5
Religious affiliation of respondents		
Catholic	121	31.5
Protestant	221	52.6
Muslim	40	10.4
Others	2	0.5
Family income of respondents (Kshs)		
<4000	187	48.7
4001-8000	54	13.8
8001-12000	37	9.3
12001-16000	33	8.6
16001-20000	28	7.9
20001-24000	20	5.3
24001-28000	14	3.6
>28000	11	3.0
Average size of family land of the respondents		
<2 acres	223	58.2
2-4 acres	111	28.8
5-6 acres	36	9.4
>6 acres	10	2.7
Don't know	4	2.9

Source: Field data, 2015

The age distribution of respondents (Table 4) shows that majority of respondents are in age group 25-29(27.1%) followed by age group 30-34(26.1%). Small proportions, 2.8% and 2.1% represent respondents from very young and older age groups, 15-19 and 45-49, respectively. The results can be interpreted to mean that a larger number of respondents are mature enough to make decisions on matters pertaining to fertility regulation. This result is in concurrence with Palamuleni (2013) who stated that mature women are more likely to make decisions on contraception.

Another background variable shown (Table 4) is level of education. It is observed that majority of the respondents completed primary education (54.7%) while 22.4 % had attained secondary level of education. The illiterate respondents are fewer at 3.2% and 9.4% never completed primary education. Of the respondents, 22.4% had education up to secondary level while 4.5% had up to college/ university education. These results can be interpreted to mean that a majority of the respondents attained a level of education that cannot enable them to easily embrace ideas, for instance use of modern contraceptives to regulate fertility. Martin and Juarez (1995) had earlier affirmed that education has come to be regarded as a stimulus in the shift from traditional values to a value system where the belief is in a controlled destiny.

The results on the religious affiliation of the respondents revealed that the majority (57.6%) are Protestants followed by Catholics (31.5%). Moslems (0.4%) and others (0.5%) account for a very small proportion of the respondents. The results can be interpreted to mean that many respondents are Protestants because Christianity was mainly introduced by missionaries who belonged to the Protestant denominations. Nigatu (2007) argues that

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Christian religious beliefs are believed to have diffused from western countries either through Protestant or Catholic Christian missionaries who converted Africans to Christianity.

Data on the average monthly family income showed that majority (48.7%) of the respondents had low income not exceeding Kshs. 4000 per month on average. This indicates that most residents of the rural parts of Maseno Division earn less than one United States of America dollar a day. This result can be interpreted to mean that a majority of the respondents are poor. According to UN (2011) a person with an income of less than $1.25 per day lives below the poverty line.

Further, Table 4 presents information on the average size of family land. It is observed that majority (58.2%) of the respondents owned not more than two acres of land. This could mean that land as a property is important to the residents of rural areas, as it has been noted that most of them are usually involved in crop farming. When the fertility level of a population is high, the demand for land will be high. Consequently, the family land will be sub-divided to be shared out by family members, hence small farm sizes. The small farms may not be productive unless farming is diversified. Republic of Kenya (2001) states that, a region with a base for development can only develop if it is well exploited.

4.3 Mean Number of Children ever born to Married Women in Maseno Division.

This section presents the findings of the current study on the mean number of CEB to respondents. It begins with a comparison of sexes of the CEB to respondents (Figure 3).
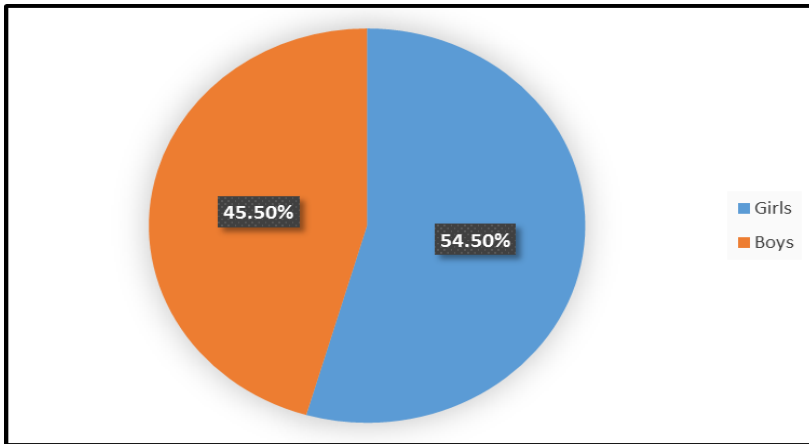
Figure 3: Sex of children ever born

Source: Field data, 2015

The results of the study showed that 54.5% of the ever born children were girls while 45.5% of them were boys. This reveals that girls are the majority in Maseno Division. This result can be interpreted to mean that fertility levels in the division are likely to remain high if the residents have a preference to males as opposed to female children. Asghar *et al.* (2014) opines that in an effort to have sons, many couples continue to have children even after achieving their desired family size. Sidney and Minja (2007) conclude that son preference plays a role in maintaining high fertility rate.

The study also enquired from the respondents whether they intended to continue giving birth (Table 5).

Table 5: Respondents' intention to continue giving birth

Age of Respondents	Frequency		Percentage	
	Yes	No	Yes	No
15-19 years	11	Nil	100	Nil
20-24 years	37	2	94.9	5.1
25-29 years	93	11	89.6	10.4
30-34 years	66	34	66.2	33.8
35-39 years	44	41	51.9	48.1
40-44 years	6	31	16.2	83.8
45-49 years	1	7	12.5	87.5

Source: Field data, 2015

The results showed that the majority of the respondents who intended to continue giving birth were within the age cohorts 15-19 years (100%), 20-24 years (89.6%), and 30-34 years (66.2%). On the other hand the majority of the respondents that did not intend to continue giving birth were within the age cohorts 45-49 years (87.5%) and 40-44 years (83.8%). The results reveal that the respondents within the younger age cohorts intend to continue giving birth to children as opposed to the older age cohorts. This result means that married women in younger age cohorts are likely to attain their desired family size when they reach age cohort 45- 49 years. Apanga and Adam (2015) observe that many married women regulate their fertility after giving birth to the desired number of children.

The study further inquired from the respondents whether they engage their spouses on matters related to number of children their families. The results are shown below (Figure 4).
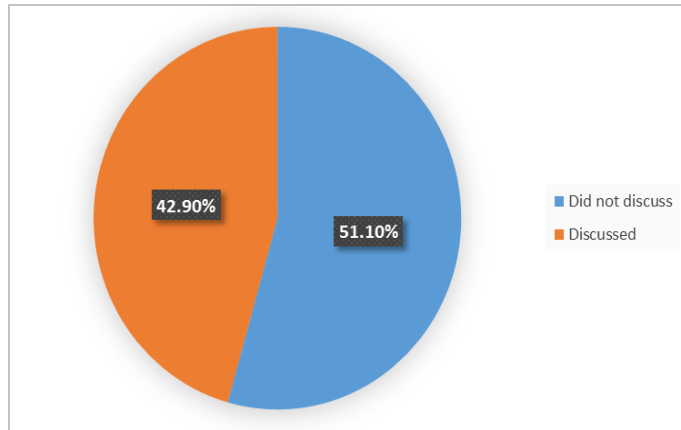
Figure 4: Respondents that discussed with their spouses about desired family size

 Source: Field data, 2015

It will be observed that 42.9% of the respondents discussed with their spouses on matters concerning their desired family size, while 57.1% did not. These results revealed that majority did not discuss with their spouses about the desired family size. Through FGDs and Key Informant interviews, the study further found that some married women are discouraged from discussing the desired family size with their spouses because child bearing is socially perceived to be the domain of women. This result can be interpreted to mean that residents of Maseno Division do not plan their family sizes hence a likelihood of ending up with unpredictable family size. Fahimi and Moghadam (2011) observe that in cases where communication between spouses on fertility issues is not socially accepted, a woman might not have an opportunity to engage her spouse on planning the family size. Baido (2013) from a study in Ghana concluded that women who discuss family planning issues with their husbands often give birth to a small number of children.

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The number of CEB to a particular woman is a measure of her life time fertility experience up to the moment at which data was collected. The mean number of CEB represents the child bearing of real age cohort and reflects current and past fertility behaviour. The results on the mean CEB to respondents have been illustrated (Table 6).

Table 6: The mean number of CEB to respondents

Age of the respondents (years)	Frequency (n=384)	Percent (100)	Mean CEB
15-19	11	2.8	2.9
20-24	39	10.2	3.3
25-29	104	27.1	4.1
30-34	100	26.1	4.8
35-39	85	22.2	5.3
40-44	37	9.5	6.4
45-49	8	2.1	6.5

Source: Field data, 2015

The results of this study showed that the mean number of CEB to the respondents in the youngest age cohort (15-19 years) was 2.9. The mean number of CEB to respondents within age cohorts 30-34 years was 4.8 while for the oldest age cohort (44-49 years) the mean number of CEB was 6.5. The results of this study have revealed that the respondents in the youthful age cohorts are likely to attain a high mean number of CEB as those in the elderly age cohorts by the time they become old (44-49 years). The results can be interpreted to mean that the fertility of married women in Maseno Division is a potential for high fertility. Weeks (2007) states that a "high fertility society" is a population in which most women give

birth to several children, whereas a "low fertility" society is one which most women have few children.

The result has further shown that the first age cohort of married women in Maseno Division where the number of CEB to women has been determined is the age cohort 15-19 years. These results can further be interpreted to mean that the age cohort 15-19 years marks the onset of marriage fertility in Maseno Division.

The mean CEB to women is important because it allows for generalizations of data and understanding for further analysis. In light of this, any scholarly work that ignores the documentation of mean CEB to women closes all avenues for more analysis.

In Europe, CIA (2015), Chaundhry and Satija (2009), ESHRE Capri Workshop Group (2010), Spoorenberg (2015) and Lutz (2006) gave fertility levels by use of TFR but did not document CEB to women. In Asia and Africa, Harper (2015), UNICEF (2015, 2003) and CIA (2015) did not document the CEB. In Kenya, KDHS carried out in 2004 (KNBS, 2015) gave fertility levels by enlisting TFR but did not document the CEB to women. This is a gap in knowledge file in this study.

UN (2013) states that the mean number of CEB to women currently aged 15-19 years and women aged 20-24 years are useful summary measures of timing the onset of fertility. This study has established that the onset of fertility among married women in Maseno Division is age cohort 15-19 years. The median age of the age cohort 15-19 years is 17 years. This therefore suggests that the onset of fertility in Maseno Division is 17 years. According to the UN (2013) the internationally recognized age at marriage is 18 years. It is evident that early

marriages of girls still occur in the division. This is more so because the law of Kenya according to Marriage Act 2014 (Ochiel, 2014) states that the age for marriage for both women and men is 18 years. It is evident that early marriage occurs in the division.

4.4 Level of Socio-economic Factors' Influence on Fertility Behaviour.

The study first identified socio-economic factors influencing mean number of CEB to married women in Maseno Division before determining the level of their influences on mean number of CEB to married women (Table 7).

Table 7: Socio-economic factors influencing mean number of CEB to married women in Maseno Division

Socio- economic factors	Respondents	
	Frequency (n=384)	**Percent(100)**
Education level	112	29.1
Age at marriage	91	23.7
Family income	82	21.3
Sex preference	38	9.9
Family pressures	24	6.2
Religious affiliation	23	6.0
Size of family land	14	3.8

Source: Field data, 2015

It will be observed from data in Table 7 that the socio-economic factors influencing mean number of CEB to married women in the division according to the respondents' opinion were the level of education (29.1%), age at marriage (23.7%), family income (21.3%), sex

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preference (9.9%), family pressures (6.2%), religious affiliation (6.0%), and size of family land (3.8%). The result is interpreted to mean that socio-economic factors influence the mean number of CEB in Maseno Division.

These results are consistent with the findings of research carried out in Asia, Africa, and Kenya. Education (Nag and Singhal, 2013), age at marriage (Kumar, 2010), and sex preference (Adhikari, 2010) were identified as socio-economic factors that influence fertility behaviour in Asia. Age at marriage (Alene and Worku, 2009), family income (Schoumaker, 2004), family pressure (Ikamari, 2005 & Adebusoye, 2001), sex preference, religious affiliation (Nigatu, 2007 & Betemarian, 1994) and family land size (Nigatu, 2007) were identified as socio-economic factors that influence fertility behaviour in Africa. Sex preference and family pressure (Ng'ang'a, 2003; Kiriti and Tisdell, 2003) were identified as socio-economic factors that influence fertility behaviour in Kenya.

Further analysis was done using Multiple Classification Analysis (MCA). This is a technique used for examining the interrelationships between several predictor variables and a single dependent variable, thus enabling the determination of level of the effect of each predictor before and after adjustment for its inter-correlation with each other predictor in the analysis (Rencher, 2002). Table 8 shows both adjusted and unadjusted mean number of CEB for each predictor variable, the eta (η^2) beta (β^2) and other relevant statistics.

Table 8:MCA Table of Socio-economic Factors to Mean CEB, Maseno Division

Variable		N	Unadjusted Mean	Children Ever Born Eta(η^2)	Adjusted Mean	Beta(β^2)
	<15	5	7.40	.376	7.47	.165**
	15-19	201	5.39		5.27	
	20-24	92	4.17		4.55	
Age at marriage	25-29	62	4.01		4.07	
	30-34	14	2.07		2.16	
	35-39	8	1.25		1.56	
	40-44	2	1.50		1.72	
	No formal education	12	5.39	.556	4.90	.523**
	Did not complete primary	36	5.02		4.87	
Level of education	Completed primary	210	4.77		4.80	
	Did not complete secondary	22	4.33		4.75	
	Completed secondary	87	4.06		4.17	
	College/University	17	2.29		3.03	
	Catholics	121	4.76	.094	5.94	.078*
Religious affiliations	Protestants	221	4.49		4.54	
	Muslims	40	4.51		4.69	
	Others	2	2.50		3.94	
	Male	177	4.95	.136	4.73	.019*
Sex preference	Female	105	4.90		4.70	
	No preference	102	4.40		4.64	
	Kshs.<4000	187	5.28	.354	4.93	.140**
	Kshs.4001-8000	54	5.09		4.85	
	Kshs.8001-12000	37	4.43		4.57	
Family income	Kshs.12001-16000	33	4.30		4.50	
	Kshs.16001-20000	28	4.15		4.35	
	Kshs.20001-24000	20	4.05		4.25	
	Kshs.24001-28000	14	3.00		4.01	
	>Kshs.28000	11	2.00		3.76	
	Children needed to perpetuate family lineage	285	4.70	.017	4.71	.021*
Family pressures	Women must give birth to many children	35	4.61		4.69	
	Naming children after dead relatives	64	4.32		4.56	
	<2 acres	223	5.50	.198	5.77	.123**
	2-4 acres	111	4.81		4.75	
Size of family land	5-6 acres	36	4.62		4.52	
	>7 acres	10	4.17		4.47	
	Don't know	4	1.75		3.00	

R=.605   R^2=.366   Number of cases =384   * Significant at á .05
**** Significant at á .01**

Source: Field data, 2015

Data analysis revealed that some predictors have relatively stronger influence on mean number of CEB while some have weaker effect. We observe that, the eta (η^2) coefficient in the third column (Table 8) tells us about the magnitude of the contribution of the individual predictor. That is to that the say, the larger the eta (η^2), the greater its influence on mean number of CEB. Based on this premise, the predictors explaining the variability in the dependant variable in order of prominence are: level of education, age at marriage, family income and size of family land, sex preference, religious affiliation, and family pressures. It is clearly indicated (Table 8) that the percentage variations in CEB explained by the predictors as well as covariates was 36 percent $(R^2 = 0.366)$.

From the analysis it is observed that the respondent's level of education has the strongest influence in explaining the variation on mean number of CEB among the selected variables. The results depicted that the level of education has a strong effect $(\eta^2 = .556, p < .01)$ on the mean number of CEB. The results showed that the mean CEB among the sampled women varied significantly according to the level of education of the respondents. The deviation of the adjusted mean of CEB decreases with the rise in the level of education. A woman, who had never completed primary education, has on average 0.3 children less compared to a woman who had no formal education. Also, a woman who completed primary education had on average 0.7 less children compared to a woman who never completed primary education. Similarly, a woman of college/university education level had on average 1.87 children less than a woman with no formal education.

The results revealed that married women with no formal schooling and those with few years of schooling have a higher level of fertility than those with many years of schooling. This could because those no formal schooling get married and start giving birth while those of higher education are still in school. The results can be interpreted to mean that education suppresses fertility. This finding is consistent with that of Josipovic (2007) who found out that in Asia, education is treated as one of the highly influential factors in the fertility behaviour. The finding is also in concurrence with that of Nag and Singhal (2013) who concluded that education is a direct and powerful inhibitor of fertility and causes variations in fertility levels. The finding agrees with Chege and Susuman (2016) who found out that in Kenya, women in rural areas who have very low levels of education give birth to more children than those with higher levels of education.

It is observed (Table 8) that the effect of age at marriage is the second influential factor on mean number of CEB and the proportion of variable explained by age at marriage was $\eta^2 = .376(p<.01)$. The results also show that the adjusted mean decreases with a rise in a woman's age at marriage. A woman who married while in age cohort 15-19 years had on average, 2.2 children less than one who married before she attained age 15 years. It is also evident that a woman who married in the age cohort 40-44 years had on average 1.14 children less than one who married at the age cohort 35-39 years.

The results revealed that women who married at earlier ages gave birth to more children than those who married at an advanced age. These results can be interpreted to mean that women who marry at an early , on average, are more likely to have their first child at a young age and giving birth to more children overall, contributing to higher fertility. Age at marriage is

defined as the age at when a woman begins living with her spouse (KNBS, 2016). This result is in agreement with those by Raj, Saggurti, Balaiah and Silverman (2009) who found out that in Asia, age at marriage has a relationship with fertility. Kumar (2010) argues that the age at which a woman enters her nuptial life is directly related to the number of children a woman bears because it affects the length of period she will be exposed to the risk of pregnancy. The KDHS 2015 held in Kenya from its findings also observed that early initiation to child bearing lengthens a woman's reproductive period (KNBS, 2016).

It is further observed (Table 8) that the respondent's family income was found to be the third influential factor on the mean number of CEB among the variables. The proportion of variance explained by family income was $\eta^2 = .354(p<.01)$. The results further showed that the deviation of the adjusted mean of CEB decreases with the increase in family income levels. A woman who's a family income is Kshs 4001-8000 had on average 0.08 less children than one within a family whose family income range is Kshs 1-4000. Similarly, a woman whose family income is above Kshs 28000 had on average 0.25 less children than one whose family income is between Kshs 24001-28000.

The result revealed that families with low income have a higher fertility level than those of higher income. FGDs and Key Informant interviews, further revealed that majority of low income earners argue that children are a gift from God and therefore the more they are the better. These results can be interpreted to mean that women of low income prefer large families probably because many children would relieve them from some household chores. These results are in concurrence with the findings of Shoumaker (2004) who affirmed that income has some relationship with fertility in Africa. Chege and Susuman (2016) are also in

agreement with the findings from a study they carried out in Kenya where they found out that the poor have a higher number of children than the rich. Table 4 shows that majority (48.7%) of women in the division are in families that earn an average income of Kshs 4000 and below a month. This level of income is an indicator of poverty (UN, 2011). Birdsail and Griffin (1993) concur that many characteristics of poor households, such as low income, contribute to high fertility.

It emerged from FGDs that married women claim ownership of family land due to the fact that their spouses have delegated to them responsibility of tilling family land. From Table 8 we can also observe that the size of family land has some influence on the mean number of CEB. The proportion explained by the variance was $\eta^2 = .198 (p<.01)$. The results showed that the mean CEB varied with the size of the family land. A married woman that owns a family land of less than two acres had on average 1.02 children more than the one whose family land is between 2-4 acres. Similarly, a married woman whose family land size is between 2-4 acres had on average 0.05 children more than one who owns more than 7 acres of land.

The results revealed that married women who own small family land have a higher fertility level than those with large family land; fertility is negatively related to land size. These results can be interpreted to mean that married women who own small pieces of land are poor and probably get comfort in giving birth to many children. Through FGDs and Key Informant Interviews, the study found out that over the years, size of family land has been continuously becoming smaller due to land fragmentation caused by high demand. Traditionally, sons inherit land from their parents. This finding is in concurrence with Nigatu

(2007) who found out that in Awassa region of Ethiopia, land size had a significant relationship with fertility. It can be argued that majority (58.2%) of women within the study area have small family land sizes (Table 4) and because of that, they do not rely on family labour provided by their children to cultivate their farms as was the case in the past. However, the findings of this study are in discord with those of Chege and Susuman (2016) who in their study in Kenya and concluded that large land owners tend to have larger families than small land owners.

The results (Table 8) also show that respondent's sex preference was a socio-economic factor with a recognizable influence on the mean number of CEB of the respondents. The proportion of variance explained by sex preference was $\eta^2=.136(p<.05)$. It is evident from the results that a woman with preference to either male or female children had on average 0.09 and 0.06 more children, respectively compared to one who had no preference for either sex. According to Luo community traditions and practices men prefer male children as heirs of their property more so land (Angawa, 1997). In my own opinion the preference for sons in Maseno Division is attributed to fathers preferring sons as heirs of land as a property

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The results reveal that women who had preference for male children had the highest number of mean CEB (4.95). The results can be interpreted to mean that a woman will continue giving birth until she gives birth to the preferred sex. This result conforms to the findings of other scholarly works. Adhikari (2010) concluded that the Nepalese have a greater preference to sons for both religious and economic reasons. Nepalese desire sons for the purpose of performing religious rituals. In addition to that, Nepalese look up to male children as a source of immediate economic gains and old age security. Asghar et al. (2014) found out that

Manipur Muslims in India continue to have more children even after achieving their desired family size mainly because they are yearning for more sons. Manipur Muslims prefer male children mainly because of old age security. Ng'ang'a (2003) as well as Kiriti and Tisdell (2003) carried out researches in Central Kenya and concluded that preference for male children has a positive influence on family size.

According to results on Table 8, religious affiliation has a weaker influence on the mean number of CEB of respondents. The proportion of variance explained by religious affiliation was $\eta^2=.094(p<.05)$. The result also show that a married Catholic woman have on average 1.4 and 1.25 more children compared to married women of Protestant and Muslim faiths, respectively.

The results further show that married Catholic women had the highest mean CEB on average. The results can be interpreted to mean that married Catholic women experience higher fertility compared to other religious groups. This could be because of Catholic doctrines which teach that God designed marriage procreation and companionship. This finding is consistence with a previous study which documented that Catholics, compared to other denominations had a higher number of CEB (Schenker, 2000). However, this finding is inconsistent with a study carried out in Ethiopia which stated that Muslims experience higher fertility compared to Catholics (Nigatu, 2007).

Family pressures have the least effect on explaining the variation on CEB compared to other variables. Its level of influence was weak, $\eta^2= .017(p<.05)$. The results on Table 8 have shown that married women who stated that children are needed to perpetuate family lineage

had on average 0.02 and 0.15 more children than those who stated that children are born to be named after dead relatives and those who confirmed that women must give birth to many children, respectively.

The results can be interpreted to mean that inhabitants of Maseno Division prefer large families because they do not want their family lineages to die. This finding is in agreement with Ikamari (2005) who carried out a research in some parts of Africa and found out that the demand for children is high simply because the lineage does not die but is replaced through births.

The current study has established that the level at which various socio-economic factors influence mean number of CEB is in the order: level of education, age at marriage, family income, and size of family land, sex preference, religious affiliation and family pressures. Earlier scholarly works by Nag and Singhal (2013), Kumar (2010), Adhikari (2010), Alene and Worku (2009), Nigatu (2007), Shoumaker (2004), Ikamari (2005), Adebusoye (2001) and Betemariam (1994) among others mainly focused on identifying socio-economic factors influencing fertility behaviour. This is a knowledge gap filled in this study.

4.5 Threshold at which Socio-economic Factors Influence Fertility Regulation

This section presents the findings of the study on the threshold at which socio-economic factors influence the decision to regulate fertility by the use of modern contraceptives. It commences by illustrations of the contraceptive prevalence rate of the respondents as presented in Figure 5.
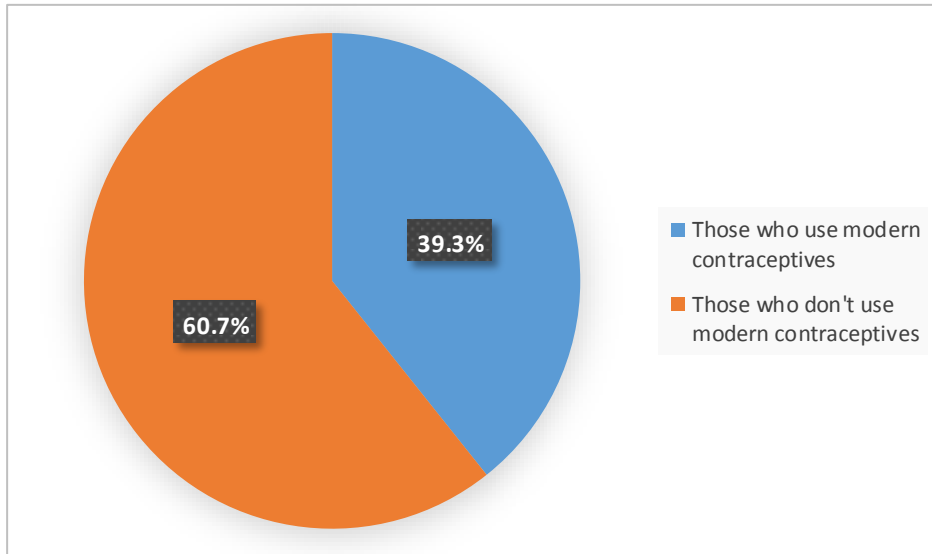
Figure 5: Contraceptive prevalence rate of the respondents

Source: Field data, 2015

As depicted in Figure 5, 39.3% of the respondents used modern contraceptives while 60.7% of them did not. This result reveals that the contraceptive prevalence rate of Maseno Division is still low though improving as compared to 2009 when it was 26.1% (GOK, 2009). However, the CPR of the division is still lower than the national average of 58% (KNBS, 2015). The contraceptive prevalence rate of Tanzania and Mauritius were 38.4% and 75.5% in 2015 while that for Bangladesh, Denmark and France were 52.64%, 76.5% and 81.3% , respectively in 2015 (CIA, 2015). It is evident that the contraceptive prevalence rate of Maseno Division is still low when compared to the national one and other regions of the world. The results can mean that fertility levels of the division are likely to remain at the current level for a long period if there are no interventions to remedies the situation.

The respondents were further asked about their awareness of several modern contraceptives in the market from a given list that included tubal ligation, injection, female condoms, skin patch, diaphragm and male condoms. The result is presented in Table 9.

Table 9: Awareness on a Variety of Modern Contraceptives

Education level	Percentage of respondents aware of methods of contraceptives					
	Tubal ligation	Injection	Female condoms	Skin patch	diaphragm	Male condoms
No formal Education	90	92	50	51	52	100
Did not complete primary education	92	88	54	53	56	100
Completed primary education	94	89	56	62	60	100
Did not complete secondary education	95	90	63	65	85	100
Completed secondary education	97	94	78	68	90	100
University/ College	100	100	100	100	100	100

Source: Field data, 2015

As depicted in Table 9, all of respondents with college/university education knew all six methods of modern contraceptives in the market. Those respondents without formal education were aware of the six methods as follows: 100% (male condoms), 92% (injection), 90% (tubal ligation), 52% (diaphragm), 51% (skin patch), and 50% (female condoms). Similarly 100% the sampled respondents were aware of male condoms. The result could mean that awareness on a variety of modern contraceptives methods in the market depends on one's level of education. The higher the level of education the more methods of modern contraceptives is one aware of (Gichangi, 2011).

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It is worth noting that the level of awareness on a variety of modern contraceptives by the respondents is high because the least known variety (female condoms) is known by 50% of the respondents without formal education. In any case, knowledge on different varieties of modern contraceptives gives one an opportunity of picking a choice of her likeness (Bbaale & Mpunga, 2011).

There was need to establish the threshold at which socio-economic factors influence the decision to regulate fertility by use of modern contraceptives. The concept of threshold as observed by Akamann (2002) is the level at which something starts to happen. Ahmad (1991) as well as Cleveland and Jajeebhoy (1996) used CEB to determine the threshold at which female education impact on fertility. In another study by Daniel and Angus (2010), the researchers used level of income as the threshold to assess the level at which an individuals' emotional well being improves. It can also be observed that in his study, Asok (2004) used the concept of threshold in order to define the point when metabolic acidosis and also the associated changes in gas exchange in lungs occur during exercise. In the studies above researchers have come up with different ways of determining thresholds. Consequently, it therefore means that, a researcher has a leeway of determining a threshold to the extent that the analytical approach applied assists in achieving research objectives. In the case of the current study, threshold is the first point that there is a significant rise of percentage of the respondents that use modern contraceptives as summarized in Table 10.

Table 10: Threshold at which socio-economic factors influence respondents decision to regulate fertility by use of modern contraceptives

Socio-economic factors	Frequency (N=384)		Percent	(100)
	Use	Don't use	Use	Don't use
Education level of respondents				
None	1	12	6.3	93.7
Did not complete Primary	5	31	14.7	85.3
Completed Primary	56	154	26.7	73.3
Did not complete Secondary	7	15	30.8	69.2
Completed Secondary	46	41	53.1	46.9
College/University	14	2	90.7	9.3
Religious afflictions of respondents				
Catholic	68	55	54.6	5.4
Protestant	137	84	61.8	38.2
Muslim	15	25	38.6	61.4
Others	NIL	NIL	NIL	NIL
Family income of respondents				
<4000	11	17	6.1	93.9
4001-8000	5	49	9.8	90.2
8000-12000	16	21	43.9	56.1
12000-16000	16	18	44.2	55.8
16001-20000	13	15	45.7	54.3
20001-24000	9	11	48.	51.9
24001-28000	8	6	54.3	45.7
>28000	7	4	60.7	39.3
Age of marriage of respondent				
<15 years	1	4	8.1	91.9
15-19 years	29	172	14.6	85.4
20-24 years	17	75	18.9	81.1
25-29 years	15	47	24.7	75.3
30-34 years	6	8	47.6	52.4
35-39 years	5	3	68.2	31.8
40-44 years	2	NIL	100	100
45-49	NIL	NIL	NIL	NIL
Sex preference of respondents				
Male	47	130	26.3	73.7
Female	32	73	30.7	69.3
No preference	41	61	39.8	60.2
Family pressures of respondents				
Before marriage	1	4	15.7	84.3
Second birth	1	9	7.2	92.8
Third birth	3	15	12.7	87.3
Fourth birth	28	136	17.5	82.5
Fifth birth	51	136	27.7	72.3
Sixth birth	2	34	7.8	92.2

Source: Field data, 2015

The findings (Table 10) showed that 6.3% of respondents without formal education used modern contraceptives while 14.7% of them that never completed primary level of education used modern contraceptives. The respondents who completed primary education and using modern contraceptives were 26.7%. Those who used modern contraceptives to regulate fertility but never completed secondary level, completed secondary level and attained college or university education were 30.8%, 65.4% and 90.7%, respectively. This result can mean that level of education attained by a married woman has a positive influence on the use of modern contraceptives to regulate fertility. The higher the level of education attained, the greater the percentage of modern contraceptive users who regulate their births.

The results further reveal that the first point that there is a significant rise of percentage of the respondents that use modern contraceptives is between those who did not complete secondary education (30.8%) and those who attained secondary level of education (65.4%). This means that the attainment of secondary education is the threshold at which education influence the decision to use modern contraceptives to regulate fertility. This result also indicate that the threshold at which education level influence the decision to use modern contraceptives to regulate fertility by use of modern contraceptives in the division is higher than the level of education attained by majority of respondents (Table 4). It therefore means that many married women in the study area are unlikely to make the decision to use modern contraceptives to regulate fertility unless they find ways of improving their education to secondary level.

The results of this study can further be interpreted to mean that the use of modern contraceptives to regulate fertility is positively related to education. This could be that educated women are more likely to be open minded about new ideas and technologies. This result is consistent with the findings of other studies carried out in Asia and Africa. Akmann (2002) and Sarmad et al., (2007) separately carried out research in India (Asia) where they found out that contraceptive use among women of higher education is higher than those of lower education. This finding is in agreement with those of Apanga and Adam (2015) whose study in Ghana revealed that women with higher education tend to be better informed about modern contraceptive services and more likely to use the service than their peers with lower education. Bakibinga et al. (2015) carried out a research in Kenya and came up with similar findings. Similarly Kenya Demographic and Health Survey demonstrated that contraceptive practices increase dramatically as education of the users increases (KNBS, 2015). Gichangi (2011) also confirmed that the highest education attained is a significant factor influencing the use of modern contraceptives to regulate fertility by married women in rural parts of Kenya. However, Mathenge's study (2012) found out that education has no influence on modern contraceptive use.

The current study has established that the threshold at which women make the decision to start using modern contraceptives when levels of education are compared is the attainment of secondary education. These studies (Bakibinga et al., 2015; Gichangi, 2011; Sarmad et al., 2007 and Akmann, 2002) did not find out the threshold at which education as a socio-economic factor influences the decision to regulate fertility by the use of modern contraceptives. This is a knowledge gap filled in this study.

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Concerning the influence of income level on modern contraceptive use results show that 6.1% of respondents whose monthly family income is Kshs 4,000 and less used modern contraceptives while those whose family income is within the range Kshs 4,001-8,000 that used contraceptives were 9.8% (Table 10). The respondents whose family income is within the range Kshs 8,001-12,000, Kshs 12,001-16,000 and Kshs 16,001-20,000 that were using modern contraceptives were 43.9%, 44.2% and 45.7%, respectively. Lastly, the respondents whose family income bracket is Kshs 20,001-24,000 were 54.3% while 60.7% of those whose family income is above Kshs 28000 were using modern contraceptives to regulate fertility. This revealed that a high percentage (60.7%) of the highest income earners used modern contraceptives to regulate fertility as opposed to the lowest income earners (6.1%). It emerged from this study that increasing income of the respondents increases the percentage of modern contraceptive users. According to the Republic of Kenya (2009), the Ministry of Health provides free modern contraceptive services in public health facilities and the people in Maseno Division too are beneficiaries. This result is interpreted to mean that high income levels make it possible to choose and use a suitable modern contraceptive method for those within the higher income brackets and vice-versa for low income earners.

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Further, we observe from Table 10 that the first point that there is a significant rise of percentage of users of modern contraceptives is between the income brackets of Kshs 4, 001-8,000 represented by 9.8% and Kshs 8,001-12,000 represented by (43.9%). This means that a family income between Kshs 8,001-12,000 is the threshold at which income influence the decision to use modern contraceptives to regulate fertility when income is a variable. Majority of respondents within the study area get a monthly income below Kshs 8,000-

12,000 (Table 4). This is an indication that married women in Maseno division are unlikely to make the decision to regulate fertility unless their family income improves to the income threshold. The income threshold is above the average monthly income of most of the respondents,

Through FGDs and Key Informant Interviews, the study noted that, another reason why few women within low income families use contraceptives is lack of support from their spouses who have a negative attitude and harbor certain misconceptions towards modern birth control measures. This has prompted a few married women to prefer using contraceptives given through injections in order to escape their husbands' scrutiny. Fahimi and Moghadam (2011) argue that a society where women are not permitted to discuss family planning issues because of respect to dictates of the society leaves a woman a slave to the choices of the husband. Therefore, women should be given the freedom to make decisions on issues of reproductive health.

Findings from this study are in concurrence with other studies elsewhere. For example, Aalok (2014) carried out a research in India (Asia) where he found out that the rich-poor gap in modern contraceptive use is large. Gattmacher Institute (as cited by Fatemah et al., 2013) carried out a study in Philippines where the conclusion was that modern contraceptive use was low among the poor women. In a study carried out by Creange et al. (2011) it was observed that in sub-Saharan Africa wealthy people used modern contraceptives to regulate fertility more than poor people. Other studies for instance, KNBS (2015) and Okech et al., (2011) showed that many poor women do not use modern contraceptives as opposed to the wealthy ones.

On the age at marriage, findings from this study show that from the total respondents who married at below 15 years of age, 8.1% used modern contraceptives while 14.6% of those who married within age cohort 15-19 years were using modern contraceptives. Those who married within age cohorts 20-24 years, 25-29 years and 30-34 years and use contraceptives were 18.9%, 24.7% and 47.7%, respectively. About 68.4% of respondents who married within the age cohort 35-39 years were using modern contraceptives. All (100%) those who married within age cohort 40- 39 years and none of those in age cohort 45-49 were used modern contraceptives. This reveals that the percentage of contraceptives users increases with the age of respondents reaching a maximum in the age cohort 40-44 years. Respondents in age cohort 45-49 years reported that they used traditional methods of contraception although this aspect was not within the scope of this study. The low contraceptive use among married women in age cohort 15-19 years may be due to the fact that these were newly married and are under pressure to have children in line with the societal expectations of a new couple in the study area.

The data also show that the first point that there is a significant rise of percentage of modern contraceptive users is between age cohort 25-29 (24.7%) and age cohort 30-34 years (47.7%). This result suggests that to age at marriage within age cohort 30-34 years is the threshold at which age at marriage influences the decision to use modern contraceptives to regulate fertility when age at marriage is a variable. The result can mean that since age at marriage threshold is above the age at which majority of women get married in the division, many married women are unlikely to miss using modern contraceptives to regulate fertility if other variables are held constant.

Findings from this study therefore corroborates results of a study carried out in Malawi (Palamuleni, 2013) where it was reported that older age cohorts used contraceptives more than younger age cohorts (15-19 years). Weblembo and Doctor (2013) in a study carried out in Uganda come to similar findings. A recent KDHS carried out in Kenya equally found out that contraceptive use picks up among married women of age group 30-34 years but is lower in women in age cohort 15-19 years.

On sex preference, 26.3% of respondents who showed preference to male children used modern contraceptives while 30.7% of respondents who showed preference to female children used modern contraceptives to regulate fertility. About 39.8% of respondents who showed no preference to either sex used modern contraceptives to regulate fertility. Key Informant Interviews and FGDs revealed that most women with a preference for a particular sex start using modern contraceptives after the birth of children of preference, that is, in terms of sex. These results can therefore mean that the threshold at which sex preference influences the decision to regulate fertility is after giving birth to the preferred sex. This threshold may suggest that a married woman within the study who has not given birth to the preformed sex is unlikely to make the decision to adopt modern contraceptives to control her births.

A similar study (Agbo, Ogbonna and Okeahialam, 2013) carried out in Nigeria concluded that sex distribution of the children that a married woman already has exercises influence on her perception and uptake of modern contraceptives. Sidney and Minja (2007) also concur from their study that women with preference for sons will commence contraception after the

birth of a son(s). However, the current study has gone beyond that finding and established that the threshold at which preference for a particular sex influences the decision to regulate fertility is after giving birth to the preferred sex.

On family pressures exemplified by the demand for many children required to perpetuate family lineage was assessed by looking at the number of births to a woman. A question was asked to determine when the respondents started using modern contraceptives to regulate fertility. The result on family pressures showed that 15.7% of respondents started using modern contraceptives before marriage, while 7.2% of them started using contraceptives after the second birth. The respondents who started using modern contraceptive after the third birth were 12.7%. The respondents who started using modern contraceptives after the fourth, fifth and sixth births were 17.5%, 27.7% and 7.8%, respectively. The result further revealed that the first point that there is a significant rise of percentage of the respondents who started using modern contraceptives was after the fifth birth. This means that the threshold at which family pressures influence the decision to regulate fertility by use of modern contraceptives in this case is after the fifth birth. The most likely behavior of married women in the division is that they are unlikely to come at a decision to use modern contraceptives to regulate fertility before giving birth to five children if other variables are held constant. During Key Informant interviews and FGDs, it emerged that unmarried young women pursuing their careers use modern contraceptives in order to avoid being getting pregnant and compromising their careers.

Apanga and Adam (2015) are in concurrence with the findings of the current study that usage of contraceptives to regulate fertility is positively related to parity. KNBS (2015) from the

2014 KDHS agrees with these findings where it reported that contraceptive use increases with parity. KNBS (2015) further stated that the findings may be partly related to the fact that older women desire to limit their births because they have reached the desired family size.

On religious affiliation, 54.6% of respondents confirmed that they belonged to Catholic faith and used modern contraceptives while 55.3% of the respondents who were Protestants was using modern contraceptives. Muslim respondents who used modern contraceptives were 50.8%. This result revealed that there were no marked differences in the percentages of modern contraceptives users belonging to various religious affiliations. This result suggests that religious affiliation has no influence on use of modern contraceptives to regulate fertility in Maseno Division. Therefore the threshold at which religion influences the decision to use modern contraceptives to regulate fertility in Maseno Division cannot be determined. The strength of one's religious faith or degree of one's adherence may exert an influence on ones' mode of life including reproductive behaviour. However, during FGDs it emerged that most Catholics no longer adhere to the doctrine that requires them to use none of the modern contraceptive methods for regulating fertility. This could be the reason why the users of modern contraceptives among Catholics are more than half.

The findings of this study are in concurrence with the scholarly works of Mburungu and Zulu (1988) who concluded that religion has no influence on contraceptive use. Bakibinga et al. (2105) concur that religion, especially Christianity, has no relationship with contraceptive use. Further, these findings partly agree with Abdala (2014) especially on the acceptance of Catholics on modern contraceptive use. However, the findings of this study are in contrast to

those of Nangendo (2012) and Okech et al. (2011) who concluded that religion influences the use of modern contraceptives to regulate fertility.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter presents the summary and conclusions of the study. The chapter also provides recommendations on the necessary measures to be put in place in order to control fertility in Maseno Division.

5.2 Summary

In the first objective, the study aimed at determining the mean number of CEB to married women in Maseno Division. The mean number of CEB to married women in the age cohort 15-19 years was 2.9. The mean number of CEB to those in the other age cohorts was as follows, 20-24 years, 3.3; 25-29 years, 4.1; 30-34 years, 4.8; 35-39 years, 5.4; 40-44 years 6.4 and lastly 44-49 years 6.5. In the current study, the youngest age cohort that CEB to married women was realized is age cohort 15-19 years while age cohort 44-49 years had the highest mean number of CEB to married women in the study area.

The aim of the second objective was to determine the level which education level, age at marriage, sex preference; religion, income level, family pressures and family land size influence mean number of CEB in Maseno Division. The study found out that the level at which the identified socio-economic factors influence mean CEB in Maseno Division was at varying degrees, in other wards there level of influence was not the same. The order of the level of influence from the one with the greatest to that with the least influence was as follows: education level (η^2 =.556, p<.01), age at marriage (η^2=.376, p<.01), family income

(η^2=.354, p<.01), family land size (η^2 =.198, p<.01), sex preference (η^2=.136, p<.05), religious affiliation (η^2=.094, p<.05) and lastly family pressures (η^2=.017, p<.05). Even though the level at which these socio-economic factors influence fertility behaviour within the study area are at various degrees, they exhibit interrelationships on their effects on fertility behaviour.

The aim of the third objective was to assess the threshold at which education level, age at marriage, sex preference, religion, income level and family pressures influence the decision to regulate fertility by use of modern contraceptives in Maseno Division. The study found out that the threshold at which education influences the decision to regulate fertility is secondary level of education, which enables a woman to easily make the decision to use modern contraceptives for fertility regulation. In relation to income, the study found out that the threshold was a monthly family income of between Kshs 8001 and 12000. The threshold for age at marriage was marriage within age cohort 30-34 years. On gender preference, the threshold was the birth of the preferred sex. The demand for more children which was taken as family pressure; its threshold was the fifth birth. However, the study found out that religious affiliation had no threshold for contraceptive use. The study also found out that married women are unlikely to make the decision to regulate fertility unless they meet the thresholds of the variables. It was additionally revealed in the study that the CPR of the study area is improving and is at 39.3%, although it is still lower compared to other regions.

5.3 Conclusion

Married women in the division commence giving birth at age cohort 15-19 years and the median age, of the age cohort is 17 years. On the other hand mean CEB to married women

within the age cohort 45-49 years which is also the last age cohort a woman is expected to reproduce is 6.5. Being that mean CEB to women in a particular age cohort is a measure of their life time fertility experience; the life time fertility experience of married women in Maseno Division who marry within age cohort 15-19 years is expected to be an average of seven children. This is most likely to occur when marriage is not disrupted and no measure is taken to control birth before a woman attains 49 years of age. This indicates that married women in the division give birth to a large number of children which confirms that the level of fertility is still high in the division. The collection and documentation of data on mean CEB of married should be carried in place because it reflects the current and past fertility experience of a woman. Its documentation also creates room for generalizations of data and an understanding that can provide basis for further analysis.

Education level, age at marriage, income, land size, sex preference, religious affiliation and family pressures influence the mean number of CEB to married women at varying levels. Education and age at marriage are the most significant socio-economic factors with the greatest impact on the mean number of CEB to married women. The attained low level of education has to some extent contributed to poverty since numerous married women live below the poverty line. Early marriage which is evident creates two issues. Women who marry early are more likely to have their first child at a young age and give birth to more children overall, contributing to higher fertility. Secondly, it disrupts ones education and hence contributes to attainment of low education level. Formal education, especially for women should be encouraged and supported because it is a direct and powerful inhibitor of population growth and has an effect that causes variation on fertility levels.

Socio-economic factors, namely; education level, income level, age at marriage, sex preference and family pressures have thresholds at which they influence the decision to regulate fertility by use of modern contraceptives in Maseno Division. The threshold at which a decision is arrived at to regulate fertility by the use of modern contraceptives is an indication that a small proportion of the division is in the early third phase of transition according to the Supply and Demand Theory developed by Easterlin. This is further revealed by a low CPR at 39.3%. At this phase, one or both couples commence adopting modern contraceptives because they have the motivation to regulate fertility. This is achieved when the society has reached a level where there is demand for low numbers of children. In order to encourage the demand for low numbers of children, it is desirable to create an environment in which parents have incentives to invest more in the "quality" of each of their children.

5.4 Recommendations

Married women should be made aware of the challenges associated with giving birth to a large number of children. This can be best done when an act of parliament is enacted that limits the number of CEB to a married woman who are provided with social amenities like free education and health services by both national and county governments. This will compel newly married to give birth to a limited number of children hence leading to a stable fertility where total fertility rate is 2.1 births per woman.

Both Formal and informal family education should be introduced at both divisional and national level. Family life education is preventive interventions that will empower girls with skills that can enable them avoid the pitfalls of early life. This improves girls' retention and completion rates within the Kenyan formal education system, thereby curbing early marriage.

It will also make them develop and acquire skills that further empower them to be job creators or be absorbed in the modern-sector employment market, thus improving their economic power and social status within and outside the family. This should be done by Ministry of Education (national government) in conjunction with the government of Kisumu County.

Increasing the level of motivation towards fertility control among the married women through a two- pronged, approach. The first approach involve training married women on how to carry out small scale income generating activities such as horticultural farming activities then be provided with grants and/or loans. This will enable unemployed married women to become self employed and it will require more time and energy thereby raising the cost of bearing children and hence reduces the number of children demanded. The second approach involve providing married women with detailed and accurate information in the language they best understand on the benefits and limitations of using modern contraceptives to regulate fertility as well as a small family size. The first part of the approach should be implemented by Constituency Development Fund, Women Enterprise Fund and county government of Kisumu County while the second part of the approach should be implemented by government health officers, NGOs and CBOs based at the divisional level This approach will create a higher level of motivation to regulate fertility in married women who will eventually decide and adopt modern contraceptives.

5.5 Areas for Further Research:

1. A study on the effects of environmental and biological factors on fertility behaviour in Maseno Division since the study focused only on socio-economic factors.

2. A study to evaluate the effects of socio-economic factors on the implementation of national population policy frameworks in Maseno Division. This is because the national policy on population frameworks is supposed to be implemented in the whole country.

3. A study in assessing the effects of determinants of fertility levels in Maseno Division by applying Bongaarts frameworks on fertility. This will give a different analytical approach and the study will focus on fertility levels.

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APPENDICES

Appendix 1: Questionnaire for married women.

My name is Omondi M. Joseph, a post graduate student of Maseno University. This questionnaire is prepared for the purpose of collecting relevant data for academic research on establishing socio-economic factors that influence population growth in Maseno Division. (Kindly, note that the information you provide will only be used for academic purposes and all the will be treated as confidential). Thank you for your willingness to share your knowledge and experiences on the subject.

Name of the respondent……………………………………………………………………

Division……………………………………………**Location**……………………………………

Sex of respondent……………………………………………………………………………

SECTION A

Please put a tick where appropriate.

What is your age cohort?

Age group	15-19yr	20-24yr	25-29 yr	30-34	35-39	40-44	45-49

(b) What is your level of education?

None ☐   Never completed Primary ☐

Completed Primary ☐   Never completed secondary ☐

Completed Secondary   College/University

Others (Specify)…………………………………………………………

(c) What is your family average monthly income?

Average monthly income in Kshs.	Tick
0-4000	
4001-8000	
8001-12000	
12001-16000	
160001-20,000	
20,0001-24,000	
24,001-26000	
Over 26000	

95

(d) What is the average size of your family land?

Less than 2 acres ☐   2-4 acres ☐
5-6 acres ☐   over 6 acres ☐
Don't know ☐

(e) What is your religious affiliation?

Catholic ☐   Islam ☐   protestant ☐

Others (specify)……………………………………………….

SECTION B

(a) Do you have any children?

Yes ☐   No ☐

(b) How many children have you ever given birth to?

Boys…………………………….

Girls……………………………

(c) Before you started your family, did you consider the number of children that you desired to have?

Yes ☐   No ☐

(d) State the reasons for your answer in (c)…………………………………………..

……………………………………………………………………………………….

……………………………………………………………………………………….

(d) Do you still desire to have more children?

Yes ☐   No ☐

(e) State the reasons for your answer in (d)

……

……

…………………………………………………………………………………………………

(f) Have you ever discussed with your husband about the number of children that you should have?

Yes ☐   No ☐

SECTION C

3. In your own opinion, which of the following factors have influenced the number of children ever born by married women in Maseno Division?

Educational level ☐   Religious affiliation ☐   Sex preference ☐

Family income ☐   Family Pressures ☐   Age at Marriage ☐

Size of family land ☐   others (specify)……………………………….

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4. Indicate the level of education you have attained and write the number of your children.

None	☐	Did not completed Primary	☐
Completed Primary	☐	Never completed secondary	☐
Completed Secondary	☐	College/University	☐

Others (Specify)…………………………………………………………

Number of children ever born…………………………………………..

(a) What is your average monthly income and write the number of your children?

Average monthly income in Kshs.	Tick
0-4000	
4001-8000	
8001-12000	
12001-16000	
160001-20,000	
20,0001-24,000	
24,001-26000	
Over 26000	

Number of your children you have given birth to………………………..

(b) Do you think that your income is enough to sustain your family?

Yes ☐   No ☐

(c) If No, why?

Income too little   ☐

Returns too little and children are many   ☐

Cost of living is high   ☐

Others (specify)……………………………………………….

(d) How would you classify your source of livelihood?

Subsistence ☐   Strictly cash ☐   Mixed ☐

(e) What are the problems/difficulties that you usually face in your economic undertakings?

………
………………………………………………………………………………

6. (a) What the size of your family land and write the number of your children?

Less than 2 acres ☐   2-4 acres ☐
5-6 acres ☐   over 6 acres ☐
Don't know ☐

   Number of children ever born……………………………
(b) In your opinion, in this area what type of economy do most people practice?

Subsistence economy ☐   cash economy ☐   mixed economy ☐
(c) On average how many times per year is that farm cultivated?

Once ☐   twice ☐   Thrice ☐   Nil ☐

(d) Do you think that your land is sufficient for food production?

Yes ☐   No ☐

(e) If Yes, why?

…………………………………………………………………………………
…………………………………………………………………………………
What type of labour do you use in your farm?
……
……
……

7 (a) In which age cohort did you get married?

Age group	< 15yrs	15-19	20-24	25-29	30-34	35-39	40-44	45-46

   Number of children………………………………………….

(b) At what age do most females in Maseno Division marry? (Use the following age ranges)

Age group	< 15yrs	15-19	20-24	25-29	30-34	35-39	40-44	45-46

(c) In your opinion what factors influence the age at marriage?

………
………………………………………………………………………………………………………

8(a) Tick your religious affiliation and write the number of children you have given birth to.

Catholic ☐   lslam ☐
Protestant ☐   Others (specify)…………………………………………….
(b) In your opinion, which of these religious groups support a large family?

Catholic ☐

Protestant ☐

Islam ☐

Others (specify)…………………………………………………………..

9(a) Tick the sex of the child you prefer and write the number of the children ever born.

Male ☐   Female ☐ preference   ☐

Number of children……………………………………………..

(b) Which sex of a child do most families in Maseno Division prefer……………....

(c) What is the reason for this preference?

………………………………………………………………………………………

………………………………………………………………………………

10. (a) Which of these family pressures is exerted on married women in Maseno Division   in relation to giving birth to children?

Children are needed to perpetuate family lineage   ☐

Women have no voice on family decisions   ☐

Women must give birth to many children   ☐

(b) Tick the family pressure exerted on you and the number of children ever born.

Children are needed to perpetuate family lineage   ☐

Women have no voice on family decisions   ☐

Women must give birth to many children   ☐

Number of children…………………………………………………

SECTION D

11. (a) Have you ever engaged in any method or practice to help you avoid pregnancy?

Yes ☐   No ☐

(b) If Yes, why?   ....

(c) If No, why?   ....

12.   Are you using any modern contraceptives to regulate birth?

Yes ☐   No ☐

If yes, why…………………………………………………………………………….

99

If no, why…………………………………………………………………………..

13. (a) Tick the modern contraceptives that you have heard about.

Pills ☐   Coils ☐   Male condoms ☐ Tubal ligation   ☐

Female condoms ☐ Skin patch ☐ Diaphragm ☐ Injection   ☐

State where you first got the information from…………….....................................

…………………………………………………………………………………..

14. Tick the correct column if you are using modern contraceptives to regulate births.

Your level of education	Tick
None	
Never completed primary	
Completed primary	
Never completed secondary	
Completed secondary	
College/university	

15. (a)What is the age at which you started using modern contraceptives? (Tick appropriately)

Age group	< 15yrs	15-19	20-24	25-29	30-34	35-39	40-44	45-46

(b) In relation to your marriage when did you start using modern contraceptives?

Before marriage   ☐   After marriage   ☐

16. What is your average family income? (Tick appropriately)

Average monthly income in Kshs.	Tick
0-4000	
4001-8000	
8001-12000	
12001-16000	
160001-20,000	
20,0001-24,000	
24,001-26000	
Over 26000	

17. Tick your religious affiliation.

Your religious affiliation.	Tick
Catholic	
Protestant	
Islam	
Others (specify)	

18. Tick you gender preference.

Male ☐   Female ☐ No preference ☐

19. In relation to your child births, when did you start using modern contraceptives?

Before marriage ☐   After the second birth ☐

After the third birth ☐   After the fourth birth ☐

After the fifth birth ☐ After the sixth birth ☐ After the seventh birth ☐

(j) In relation to your marriage when did you start modern contraceptives?

Before marriage ☐   After marriage ☐

20. in your opinion, what are some of the reasons that make married women not use modern contraceptives?

………
………
…………………………………………………………

Thank you very much.

Appendix 2: Interview Schedule for the Key Informant

Name of Key informant:

Date:

Division:

Location:

Sub-location:

Village:

Position / title:

1. Comment on the average number of children ever born by married women in Maseno Division.
2. Explain the advantages and disadvantages of large families in Maseno Division.
3. Identify socio-economic factors that are influencing fertility behaviour in Maseno Division.
4. How did most families in Maseno Division acquire land?
5. Discuss the socio-economic factors influencing fertility behaviour in Maseno Division.
6. Relate fertility levels (CEB) and use of modern contraceptives in Maseno Division.
7. Discuss the socio-economic factors influencing the decision to adopt modern contraceptives for fertility control.
8. What are some of the reasons that bar married women from using modern contraceptives to regulate their births?
9. What would you consider as the disadvantages of small families in Maseno Division?
10. What can the government (both national and county) do to regulate fertility behaviours in Maseno Division?

Thank you.

Appendix 3: Focus Group Discussion guide

Date:

Group:

Division:

Location:

Sub-location:

1. Comment on the average number of children ever born by married women in Maseno Division.

2. Explain the advantages and disadvantages of large families in Maseno Division.

3. Identify socio-economic factors that are influencing fertility behaviour in Maseno Division.

4. Discuss the socio-economic factors influencing fertility behaviour in Maseno Division.

5. Relate fertility levels (CEB) and use of modern contraceptives in Maseno Division.

6. Discuss the socio-economic factors influencing the decision to adopt modern contraceptives for fertility control.

7. What are some of the reasons that bar married women from using modern contraceptives to regulate their births?

8. What would you consider as the disadvantages of small families in Maseno Division?

9. What can the government (both national and county) do to regulate fertility behaviours in Maseno Division?

Thank you.